FINAL INTERNATIONAL UNIVERSITY

İKSAD INSTITUTE

9TH INTERNATIONAL CONGRESS ON MEDICAL & HEALTH SCIENCES

05-09 JULY 2026

KYRENIA, TRNC
INTERNATIONAL FINAL UNIVERSITY

SİİRT ÜNİVERSİTESİ Bilimin Işığında

VAN YÜZÜNCÜ YIL ÜNİVERSİTESİ

ABSTRACTS BOOK

EDITORS
Prof. Dr. H.Turan AKKOYUN
Prof. Dr. Hayriye Deniz ŞELİMEN

9th INTERNATIONAL CONGRESS ON MEDICAL & HEALTH SCIENCES

July 05-09, 2026 / Kyrenia, Northern Cyprus

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adapted by Mariam Rasulan

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Pakistan	7	France	1
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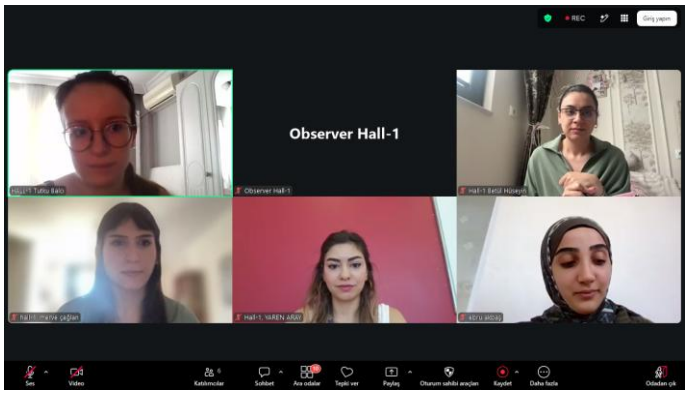
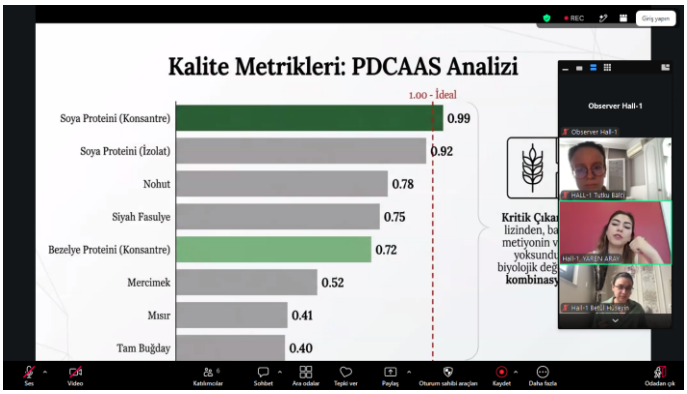
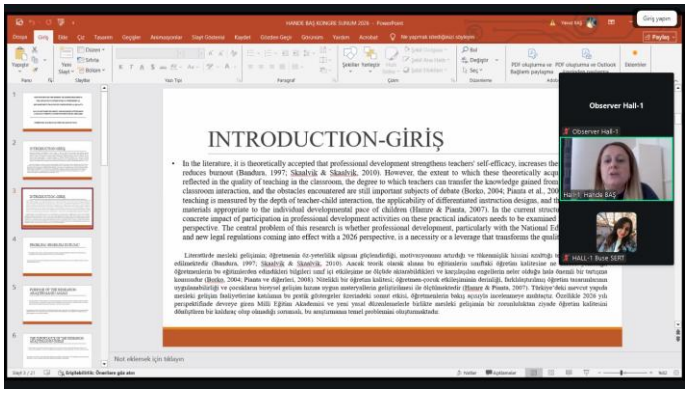
ÖNEMLİ TARİHLER


Observer Hall-1

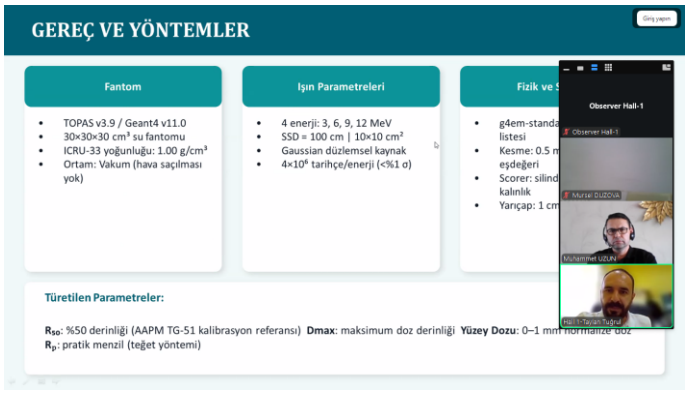

Kalite Metrikleri: PDCAAS Analizi
1.00 - İdeal
Soya Proteini (Konsantre) 0.99
Soya Proteini (İzolat) 0.92
Nohut 0.78
Siyah Fasulye 0.75
Bezelye Proteini (Konsantre) 0.72
Mercimek 0.52
Mısır 0.41
Tam Buğday 0.40
Observer Hall-1

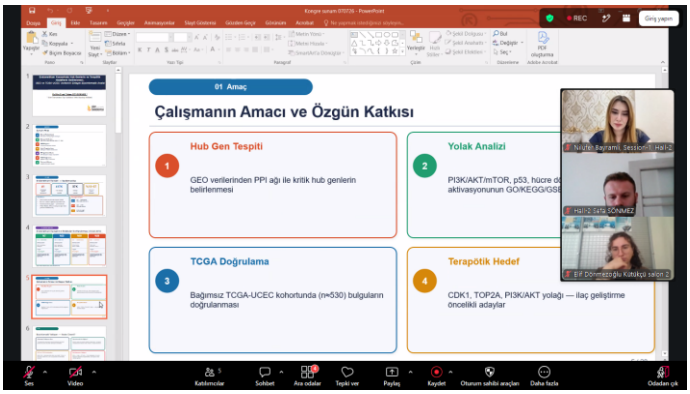
Bulgular: BKİ ve Yaşam Tarzı Yönetimi
Bütünsel Sağlık ve Kilo Yönetimi
Sürekli Glikoz İzlemi (CGM) ve entegre mobil sistemler sayesinde hastaların sağlıklı beslenme davranışlarında %78 artış saptanmıştır.
Haftalık planlı tele-hemşirelik seansları, fiziksel aktivite motivasyonunu artırarak beden kitle indeksinde (BKİ) ortalama 0.74 kg/m² klinik düşüş sağlamıştır.
Observer Hall-1

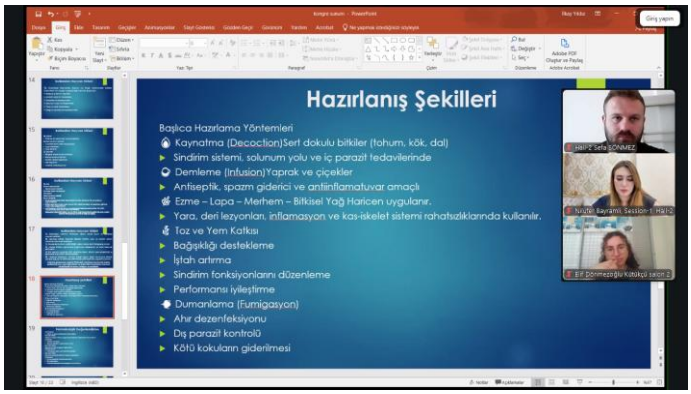
Problem: Dijital Çağda Çocukluk
Ekran süresi artışı ve olası sağlık sonuçları
Çocukluk döneminde akıllı telefon ve dijital cihaz kullanımı dünya genelinde hızla artmaktadır.
Aşırı ekran süresi; uyku yoksunluğu, sosyal izolasyon ve bilişsel aktivite azalması gibi sağlık sorunlarıyla ilişkilendirilmektedir.
Akıllı telefon kullanım süresinin pasif bir sağlık risk biyogöstergesi olarak kullanılabilirliğine dair ulusal ölçekli kanıt ihtiyacı büyümektedir.
mSağlık (mobil sağlık) izleme sistemleri için somut, ölçülebilir eşik değerlere ihtiyaç vardır.
BAŞLICA RİSK ALANLARI
Uyku Yoksunluğu
Sosyal İzolasyon
Azalan Bilişsel Aktivite
Aile İçi Bağın Zayıflaması
Observer Hall-1
Hall 1Buse Sert


INTRODUCTION-GİRİŞ
Observer Hall-1

Observer Hall-1

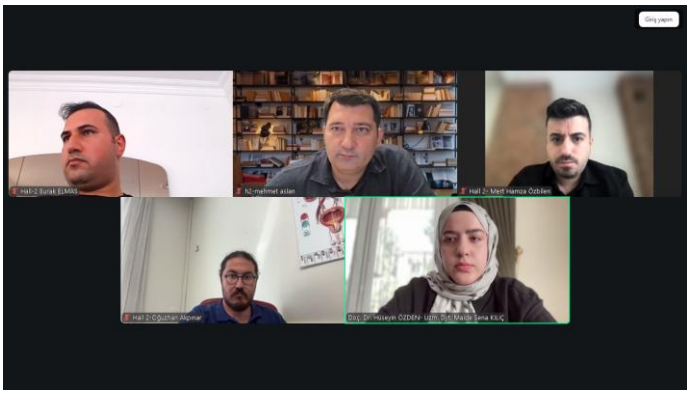

GEREÇ VE YÖNTEMLER
Fantom
TOPAS v3.9 / Geant4 v11.0
30×30×30 cm³ su fantomu
ICRU-33 yoğunluğu: 1.00 g/cm³
Ortam: Vakum (hava saçılması yok)
Işın Parametreleri
4 enerji: 3, 6, 9, 12 MeV
SSD = 100 cm | 10×10 cm²
Gaussian düzlemsel kaynak
4×10⁶ tarihçe/enerji (<%1 σ)
Türetilen Parametreler:
R50: %50 derinliği (AAPM TG-51 kalibrasyon referansı) Dmax: maksimum doz derinliği Yüzey Dozu: 0–1 mm
Rp: pratik menzil (teğet yöntemi)
Observer Hall-1

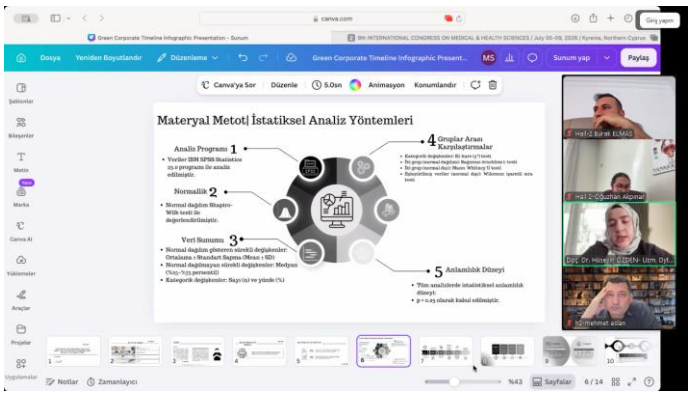

01 Amaç
Çalışmanın Amacı ve Özgün Katkısı
Hub Gen Tespiti
GEO verilerinden PPI ağı ile kritik hub genlerin belirlenmesi
Yolak Analizi
TCGA Doğrulama
Bağımsız TCGA-UCEC kohortunda (n=530) bulguların doğrulanması
Terapötik Hedef
CDK1, TOP2A, PI3K/AKT yolağı — ilaç geliştirme öncelikli adaylar

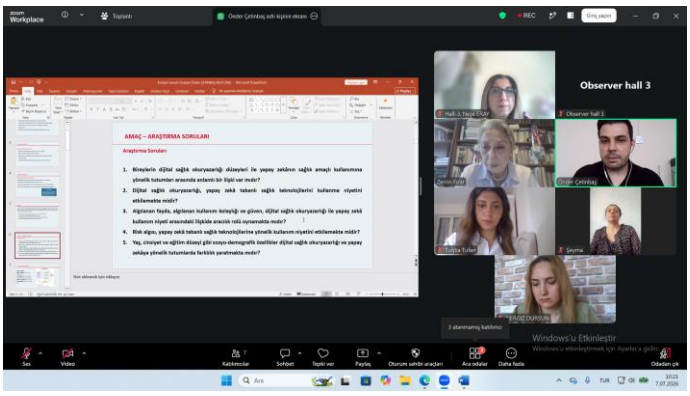

Hazırlanış Şekilleri
Başlıca Hazırlama Yöntemleri
Kaynatma (Decoction)Sert dokulu bitkiler (tohum, kök, dal)
Sindirim sistemi, solunum yolu ve iç parazit tedavilerinde
Demleme (Infusion)Yaprak ve çiçekler
Antiseptik, spazm giderici ve antiinflamatuvar amaçlı
Ezme – Lapa – Merhem – Bitkisel Yağ Haricen uygulanır.
Yara, deri lezyonları, inflamasyon ve kas-iskelet sistemi rahatsızlıklarında kullanılır.
Toz ve Yem Katkısı
Bağışıklığı destekleme
İştah artırma
Sindirim fonksiyonlarını düzenleme
Performansı iyileştirme
Dumanlama (Fumigasyon)
Ahır dezenfeksiyonu
Dış parazit kontrolü
Kötü kokuların giderilmesi

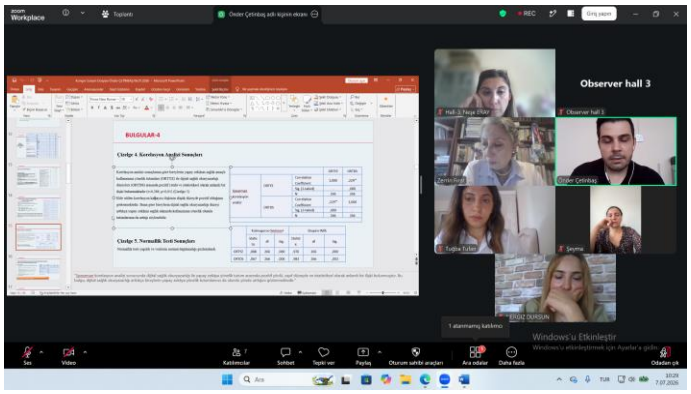
Fiziksel Egzersizin Paradoksu:
Adaptasyon mu, Hasar mı?
Faydalı Etkiler
Düşük/Orta Seviye ROS
Hücresel adaptasyon mekanizmalarının tetiklenmesi.
Endojen enzim aktivitesinde (SOD, CAT, GPx) doğal artış.
Yoğun Fiziksel Egzersiz
Sonuç: Oksidatif Stres (Hücresel Dengesizlik) — Eksojen antioksidan müdahalesi gereksinimi.
Zararlı Et
Aşırı ROS Ü
Oksidatif stres, doku inflamasyonu, kas hasarı ve kronik dejeneratif süreçler.

Risk Faktörleri
Değiştirilemeyen risk faktörleri
İleri yaş
Kadın cinsiyet
Beyaz ırk
Erken menopoz (40 yaş altı)
Aile öyküsü
Düşük enerjili kırık öyküsü
Birinci derece yakınlarında düşük enerjili kalça kırığı öyküsü
3 ay ve daha uzun süreli glukokortikoid kullanımı (≥5 mg/gün prednizon veya eşdeğeri)
Düşük kemik yoğunluğuna neden olan hastalıklar
Değiştirilebilen risk faktörleri
Alkol (günde 3 birim ya da daha fazla)
Halen sigara kullanımı
Düşük vücut kütle indeksi (<20 kg/m²)
Kötü beslenme
İmmobilizasyon
Yetersiz kalsiyum alımı
D vitamini eksikliği
Düşük kemik yoğunluğuna neden olan hastalıklar




Materyal Metotj İstatiksel Analiz Yöntemleri
Analiz Programı 1
Normalik 2
Veri Sunumu 3
4 Gruplar Arası Karşılaştırmalar
5 Anlamlılık Düzeyi


Observer hall 3
AMAÇ – ARAŞTIRMA SORULARI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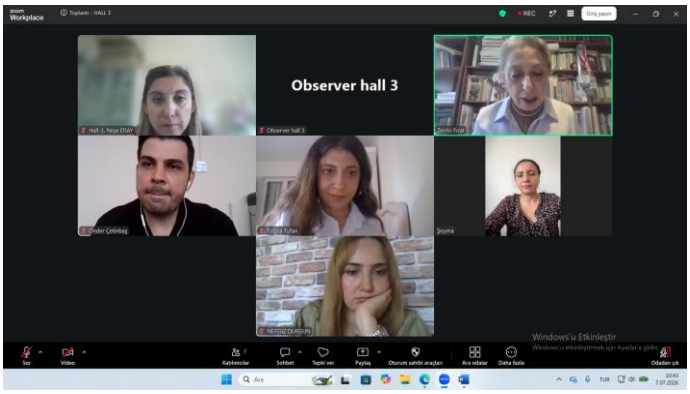
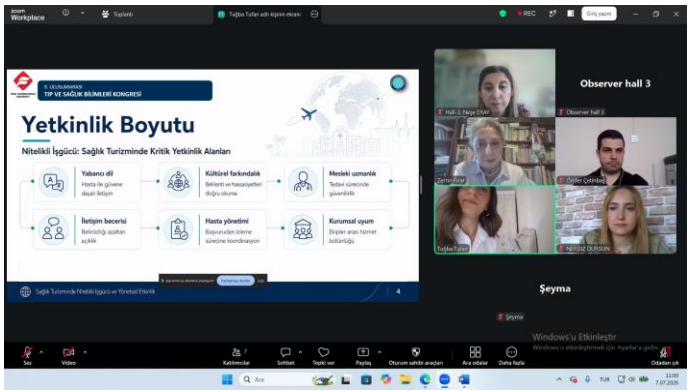
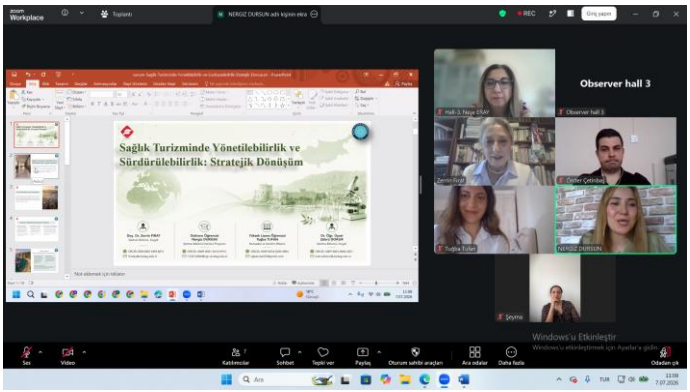
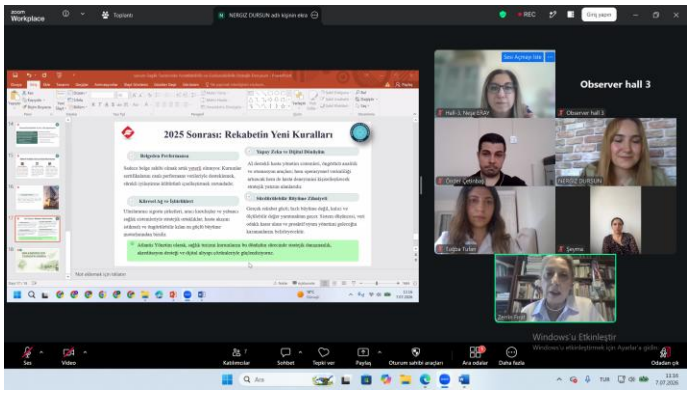
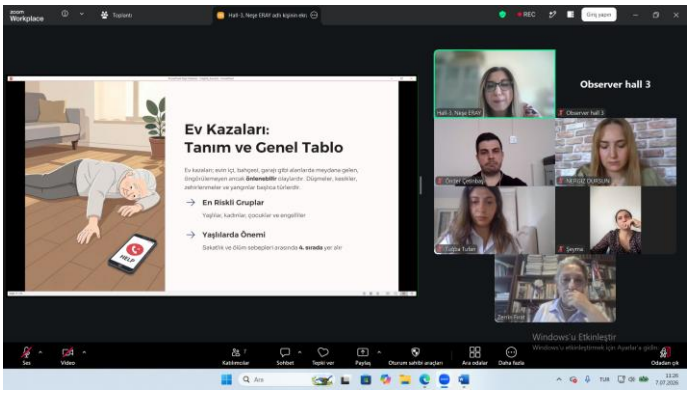
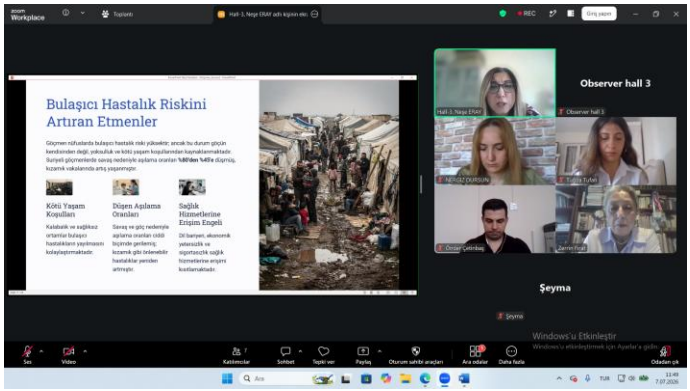

Observer hall 3

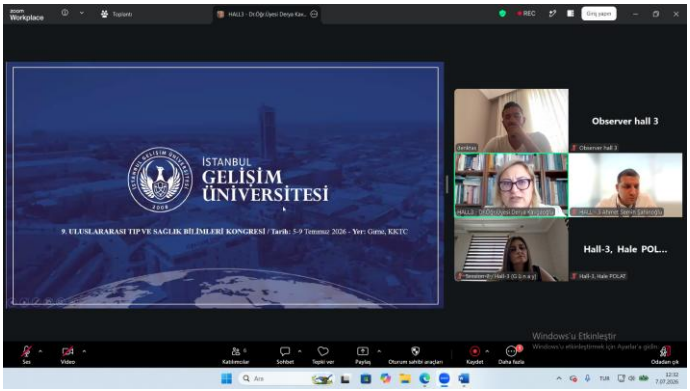

Yetkinlik Boyutu
Observer hall 3
Şeyma

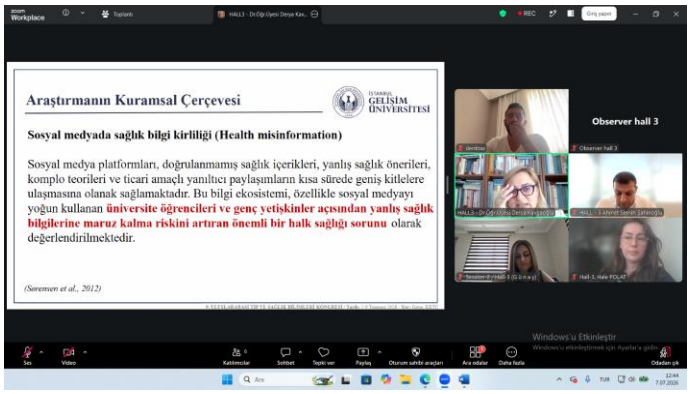

Sağlık Turizminde Yönetilebilirlik ve Sürdürülebilirlik: Stratejik Dönüşüm
Observer hall 3

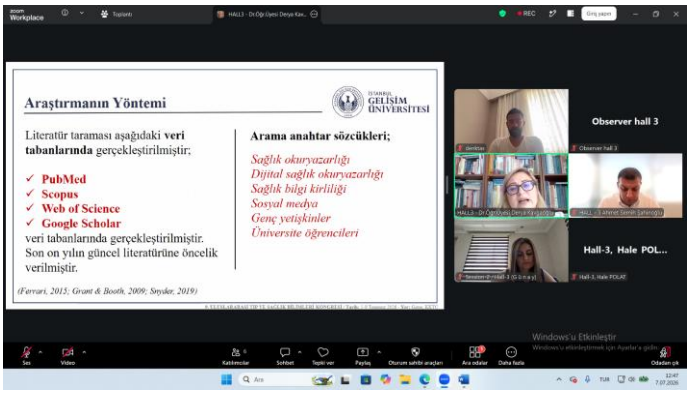

2025 Sonrası: Rekabetin Yeni Kuralları
Observer hall 3


Ev Kazaları:
Tanım ve Genel Tablo
Observer hall 3

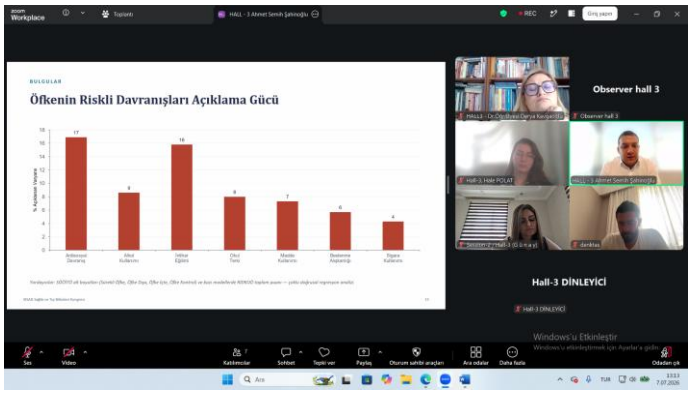

Bulaşıcı Hastalık Riskini Artıran Etmenler
Observer hall 3
Şeyma

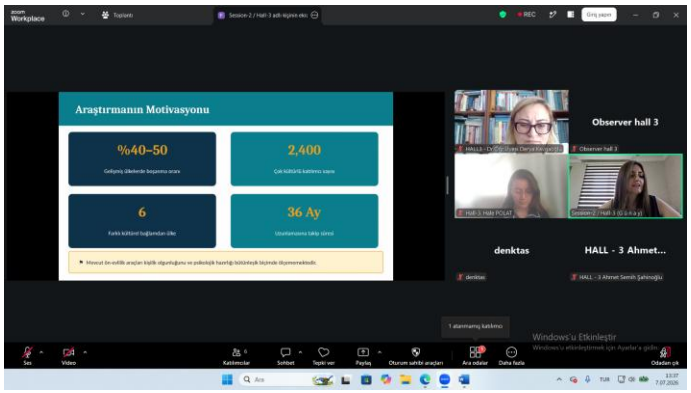

İSTANBUL GELİŞİM ÜNİVERSİTESİ
Observer hall 3
Hall-3, Hale POL...

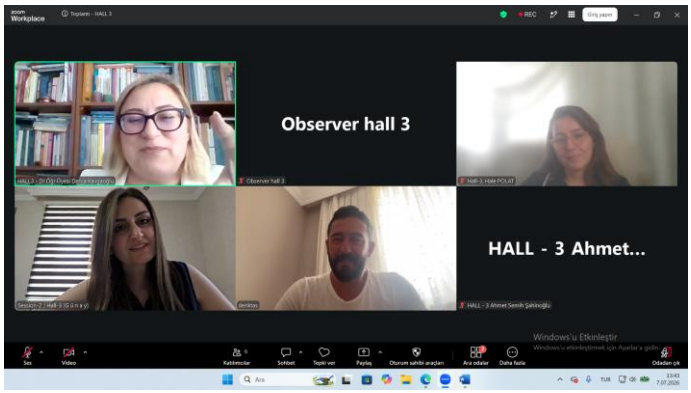

Araştırmanın Kuramsal Çerçevesi
Sosyal medyada sağlık bilgi kirliliği (Health misinformation)
Sosyal medya platformları, doğrulanmamış sağlık içerikleri, yanlış sağlık önerileri, komplo teorileri ve ticari amaçlı yanıltıcı paylaşımların kısa sürede geniş kitlelere ulaşmasına olanak sağlamaktadır. Bu bilgi ekosistemi, özellikle sosyal medyayı yoğun kullanan üniversite öğrencileri ve genç yetişkinler açısından yanlış sağlık bilgilerine maruz kalma riskini artıran önemli bir halk sağlığı sorunu olarak değerlendirilmektedir.
(Sarasmen et al., 2012)
Observer hall 3

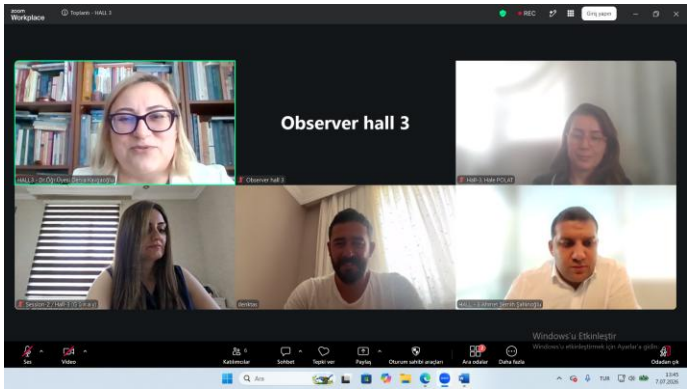

Araştırmanın Yöntemi
Literatür taraması aşağıdaki veri tabanlarında gerçekleştirilmiştir;
PubMed
Scopus
Web of Science
Google Scholar
veri tabanlarında gerçekleştirilmiştir. Son on yılın güncel literatürüne öncelik verilmiştir.
Arama anahtar sözcükleri;
Sağlık okuryazarlığı
Dijital sağlık okuryazarlığı
Sağlık bilgi kirliliği
Sosyal medya
Genç yetişkinler
Üniversite öğrencileri
(Ferrari, 2015; Grant & Booth, 2009; Snyder, 2019)
Observer hall 3
Hall-3, Hale POL...

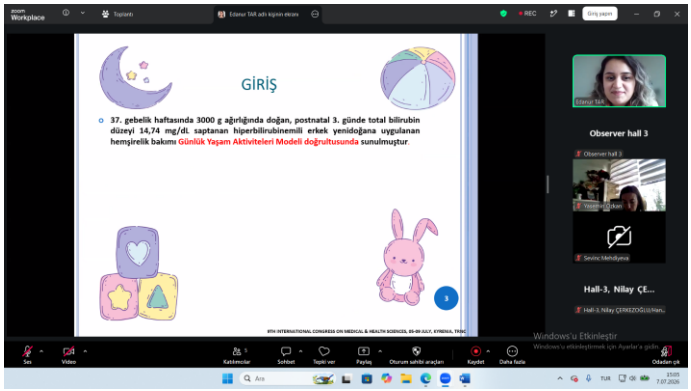
Kuramsal Çerçeve
Sağlık algısı (fiziksel benlik algısı); bireyin kendi bedenini, fiziksel sağlığını ve fiziksel yeterliliğini nasıl değerlendirdiğini ifade eder.
Olumlu bir fiziksel benlik algısı, bireyin özgüvenini, psikolojik iyi oluşunu ve yaşam kalitesini destekleyen önemli bir faktördür.
Observer hall 3
Hall-3 DİNLEYİCİ

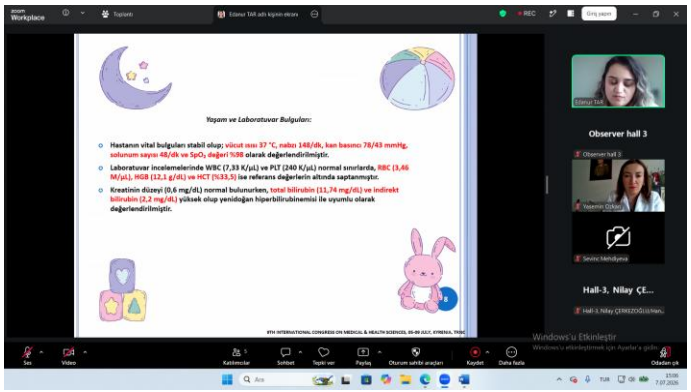

Öfkenin Riskli Davranışları Açıklama Gücü
Observer hall 3
Hall-3 DİNLEYİCİ

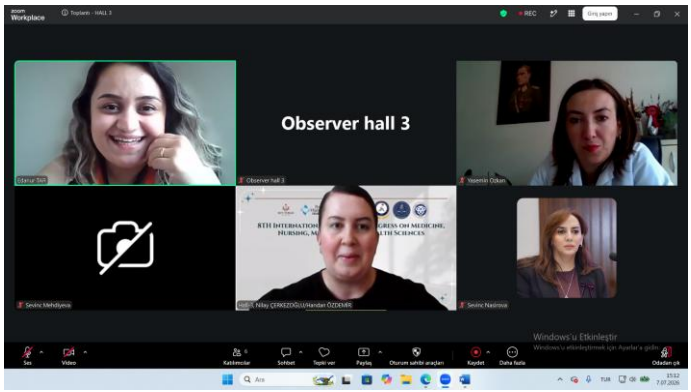

Araştırmanın Motivasyonu
%40-50
2,400
6
36 Ay
Observer hall 3
denktas
HALL - 3 Ahmet...

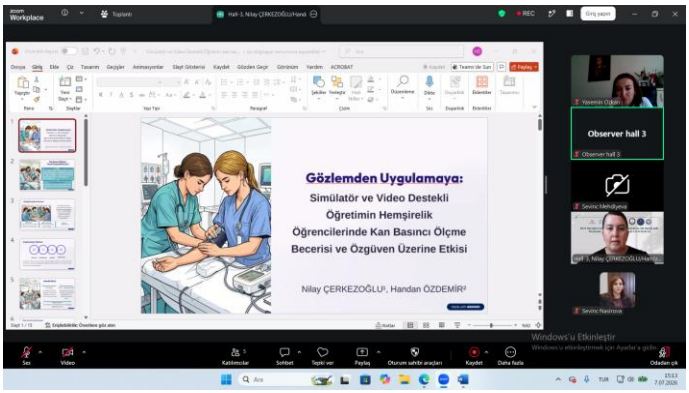

Observer hall 3
HALL - 3 Ahmet...

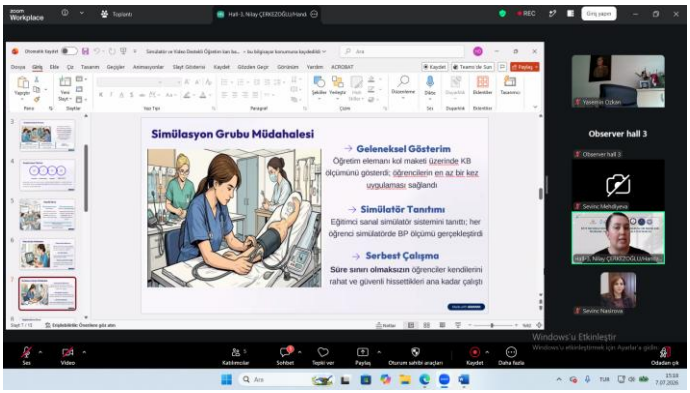

Observer hall 3

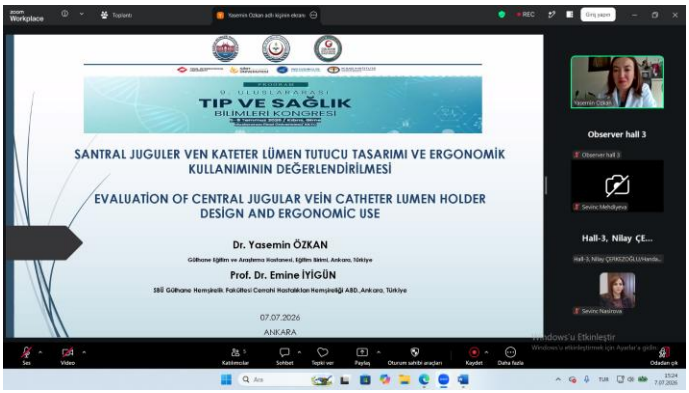

GİRİŞ
37. gebelik haftasında 3000 g ağırlığında doğan, postnatal 3. günde total bilirubin düzeyi 14,74 mg/dL saptanan hiperbilirubinemili erkek yenidoğana uygulanan hemşirelik bakımı Günlük Yaşam Aktiviteleri Modeli doğrultusunda sunulmuştur.
Observer hall 3
Hall-3, Nilay ÇE...

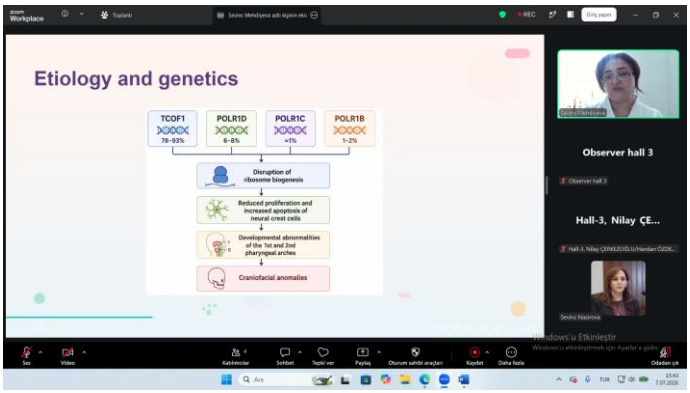

Yaşam ve Laboratuvar Bulguları:
Hastanın vital bulguları stabil olup; vücut ısısı 37 °C, nabzı 148/dk, kan basıncı 78/43 mmHg, solunum sayısı 48/dk ve SpO2 değeri %98 olarak değerlendirilmiştir.
Laboratuvar incelemelerinde WBC (7,33 K/µL) ve PLT (240 K/µL) normal sınırlarda, RBC (3,46 M/µL), HGB (12,1 g/dL) ve HCT (%33,5) ise referans değerlerin altında saptanmıştır.
Kreatinin düzeyi (0,6 mg/dL) normal bulunurken, total bilirubin (11,74 mg/dL) ve indirekt bilirubin (2,2 mg/dL) yüksek olup yenidoğan hiperbilirubinemisi ile uyumlu olarak değerlendirilmiştir.
Observer hall 3
Hall-3, Nilay ÇE...

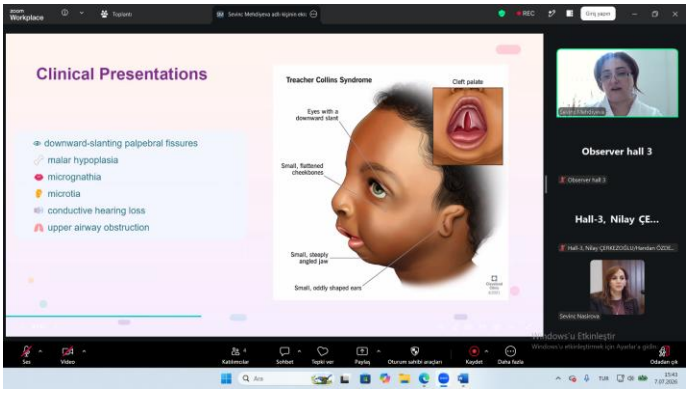

Observer hall 3

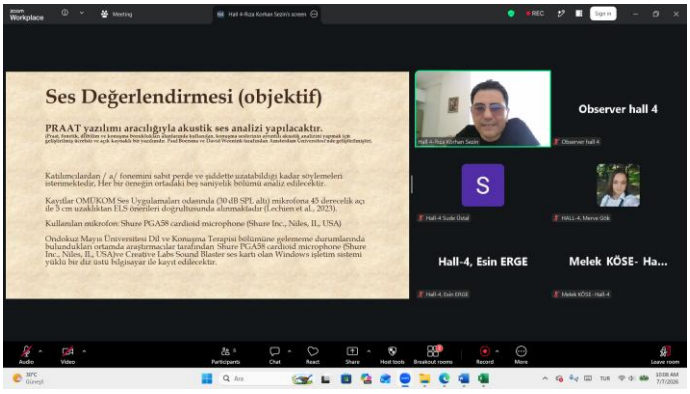

Gözlemden Uygulamaya:
Simülatör ve Video Destekli Öğretimin Hemşirelik Öğrencilerinde Kan Basıncı Ölçme Becerisi ve Özgüven Üzerine Etkisi
Nilay ÇERKEZOĞLU¹, Handan ÖZDEMİR²
Observer hall 3

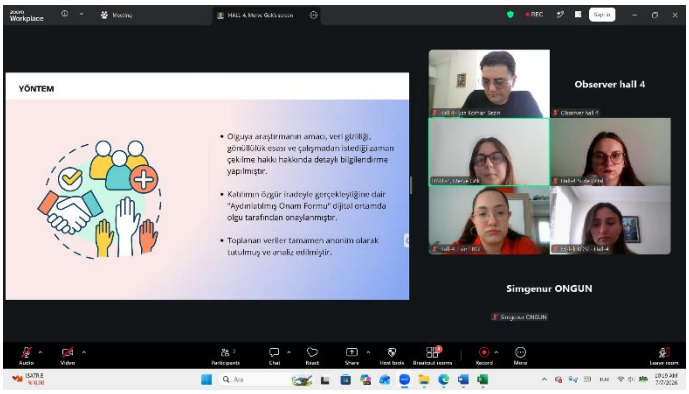

Simülasyon Grubu Müdahalesi
Geleneksel Gösterim
Simülatör Tanıtımı
Serbest Çalışma
Observer hall 3

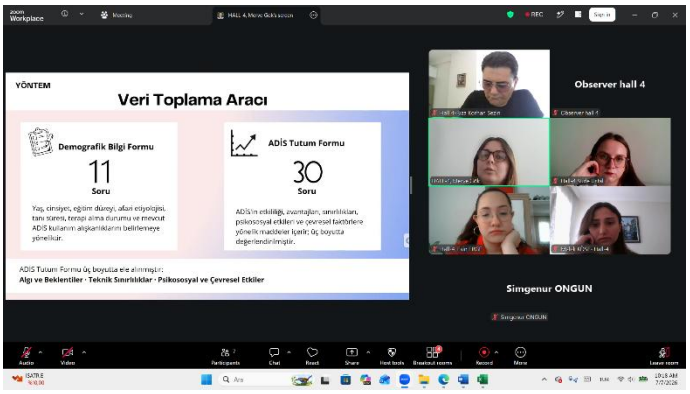

TIP VE SAĞLIK BİLİMLERİ KONGRESİ
SANTRAL JUGULER VEN KATETER LÜMEN TUTUCU TASARIMI VE ERGONOMİK KULLANIMININ DEĞERLENDİRİLMESİ
EVALUATION OF CENTRAL JUGULAR VEIN CATHETER LUMEN HOLDER DESIGN AND ERGONOMIC USE
Dr. Yasemin ÖZKAN
Prof. Dr. Emine İYİGÜN
07.07.2026
ANKARA
Observer hall 3
Hall-3, Nilay ÇE...


Etiology and genetics
TCOF1
POLR1D
POLR1C
POLR1B
Disruption of ribosome biogenesis
Reduced proliferation and increased apoptosis of neural crest cells
Developmental abnormalities of the 1st and 2nd pharyngeal arches
Craniofacial anomalies
Observer hall 3
Hall-3, Nilay ÇE...


Clinical Presentations
downward-slanting palpebral fissures
malar hypoplasia
micrognathia
microtia
conductive hearing loss
upper airway obstruction
Treacher Collins Syndrome
Cleft palate
Observer hall 3
Hall-3, Nilay ÇE...

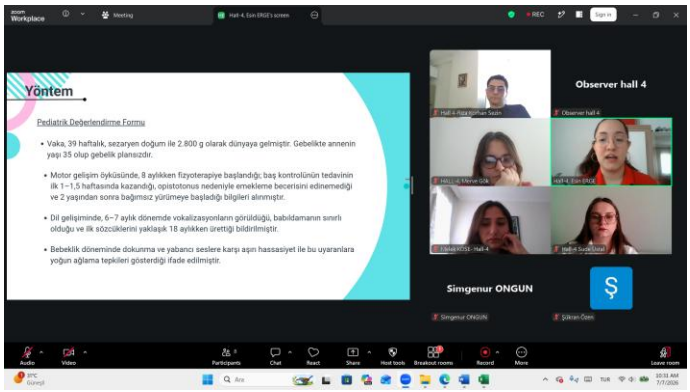

Ses Değerlendirmesi (objektif)
PRAAT yazılımı aracılığıyla akustik ses analizi yapılacaktır.
Observer hall 4
Hall-4, Esin ERGE
Melek KÖSE- Ha...


YÖNTEM
Observer hall 4
Simgenur ONGUN


YÖNTEM
Veri Toplama Aracı
Demografik Bilgi Formu
11
Soru
ADİS Tutum Formu
30
Soru
Observer hall 4
Simgenur ONGUN

Observer hall 4
Simgenur ONG...

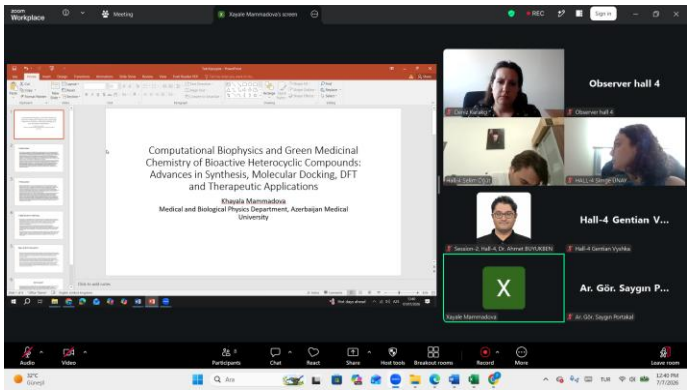
İŞİTME YETERSİZLİĞİ OLAN BİREYLERDE ALTERNATİF VE DESTEKLEYİCİ İLETİŞİM SİSTEMLERİ: GÜNCEL BİR DEĞERLENDİRME
ALTERNATIVE AND AUGMENTATIVE COMMUNICATION SYSTEMS IN INDIVIDUALS WITH HEARING IMPAIRMENT: A CURRENT REVIEW
Observer hall 4
Simgenur ONGUN

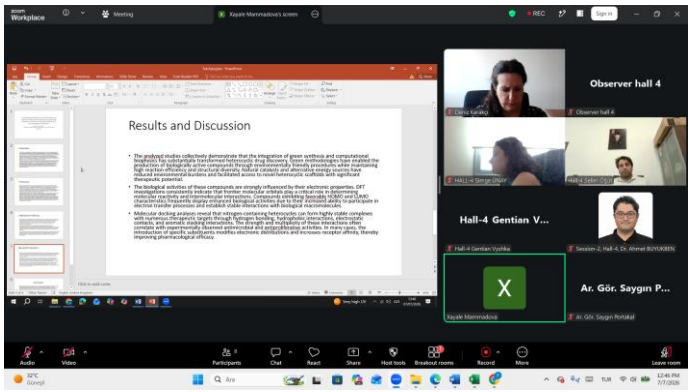

Yöntem
Pediatrik Değerlendirme Formu
Vaka, 39 haftalık, sezaryen doğum ile 2.800 g olarak dünyaya gelmiştir. Gebelikte annenin yaşı 35 olup gebelik plansızdır.
Motor gelişim öyküsünde, 8 aylıkken fizyoterapiye başlandığı; baş kontrolünün tedavinin ilk 1–1,5 haftasında kazandığı, opistotonus nedeniyle emekleme becerisini edinemediği ve 2 yaşından sonra bağımsız yürümeye başladığı bilgileri alınmıştır.
Dil gelişiminde, 6–7 aylık dönemde vokalizasyonların görüldüğü, babıldamanın sınırlı olduğu ve ilk sözcüklerini yaklaşık 18 aylıkken ürettiği bildirilmiştir.
Bebeklik döneminde dokunma ve yabancı seslere karşı aşırı hassasiyet ile bu uyaranlara yoğun ağlama tepkileri gösterdiği ifade edilmiştir.
Observer hall 4
Simgenur ONGUN

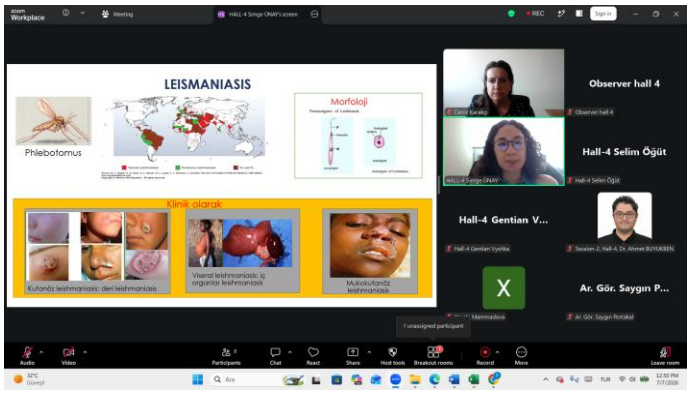
Observer hall 4
Simgenur ONG...

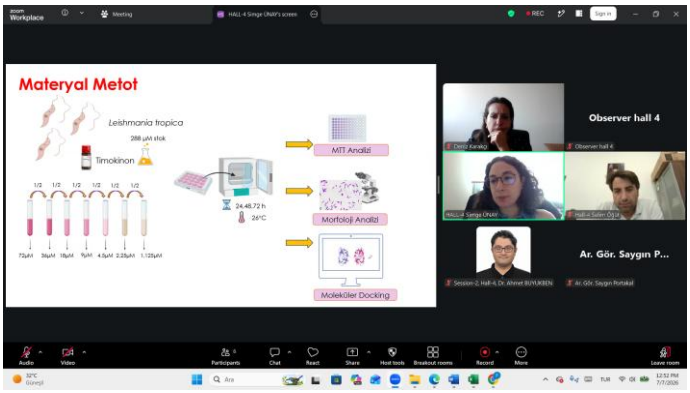
9TH INTERNATIONAL CONGRESS ON MEDICAL & HEALTH SCIENCES
05-09 JULY 2026
Girne, KIBRIS
ODYOLOGLARDA BİREYSEL DEĞERLERİN ÇATIŞMA YÖNETİMİ STRATİJİLERİNİN YORDAYICILARI OLARAK İNCELENMESİ
Observer hall 4
Simgenur ONGUN

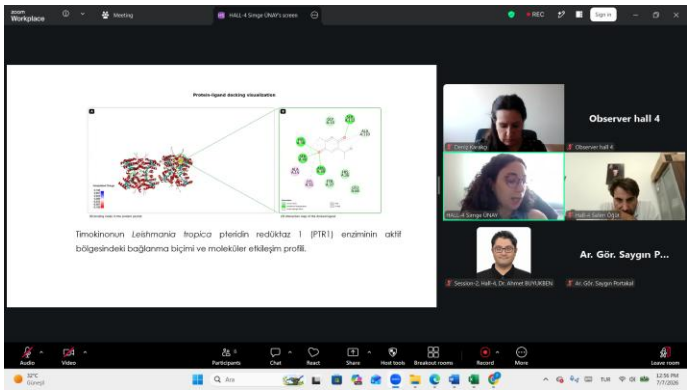
Observer hall 4
Simgenur ONG...

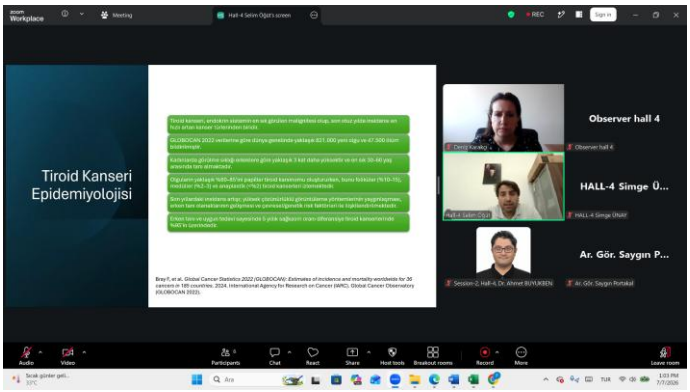

Computational Biophysics and Green Medicinal Chemistry of Bioactive Heterocyclic Compounds: Advances in Synthesis, Molecular Docking, DFT and Therapeutic Applications
Khayala Mammadova
Medical and Biological Physics Department, Azerbaijan Medical University
Observer hall 4
Hall-4 Gentian V...
Ar. Gör. Saygın P...


Results and Discussion
Observer hall 4
Hall-4 Gentian V...
Ar. Gör. Saygın P...

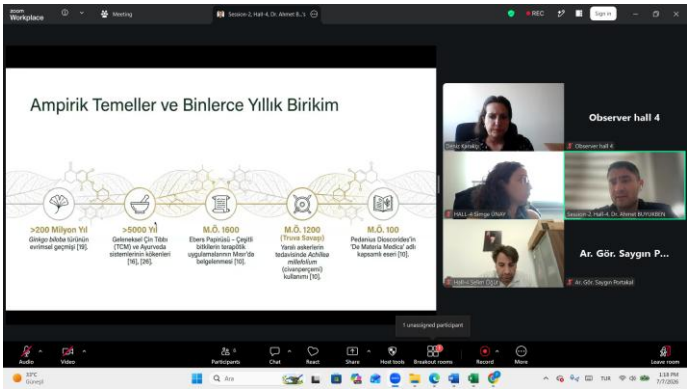

LEISMANIASIS
Morfoloji
Phlebotomus
Klinik olarak
Kutanöz leishmaniasis: deri leishmaniasis
Viseral leishmaniasis: iç organlar leishmaniasis
Mukokutanöz leishmaniasis
Observer hall 4
Hall-4 Selim Öğüt
Hall-4 Gentian V...
Ar. Gör. Saygın P...

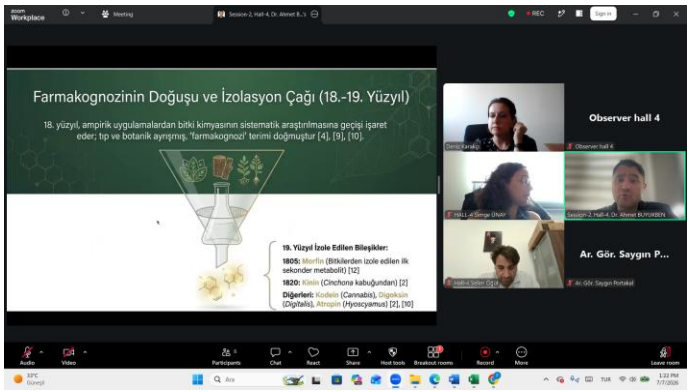

Materyal Metot
Leishmania tropica
Timokinon
MTT Analizi
Morfoloji Analizi
Moleküler Docking
Observer hall 4
Ar. Gör. Saygın P...

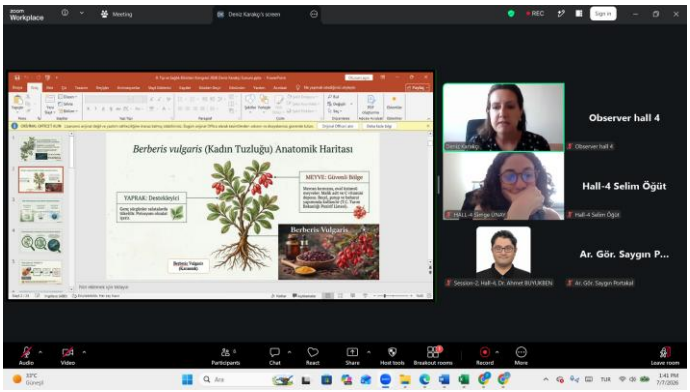

Timokinonun Leishmania tropica pteridin redüktaz 1 (PTR1) enziminin aktif bölgesindeki bağlanma biçimi ve moleküler etkileşim profili.
Observer hall 4
Ar. Gör. Saygın P...

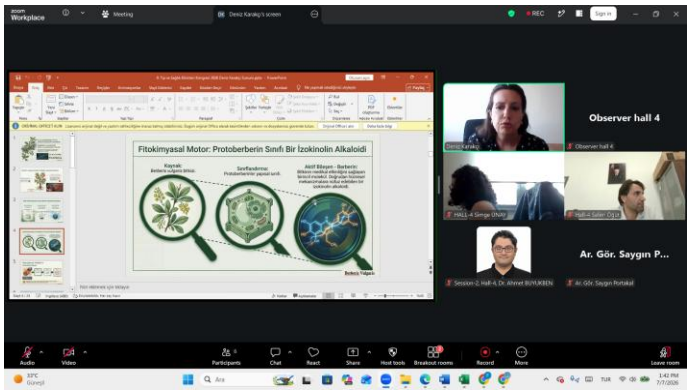

Tiroid Kanseri Epidemiyolojisi
Observer hall 4
HALL-4 Simge Ü...
Ar. Gör. Saygın P...

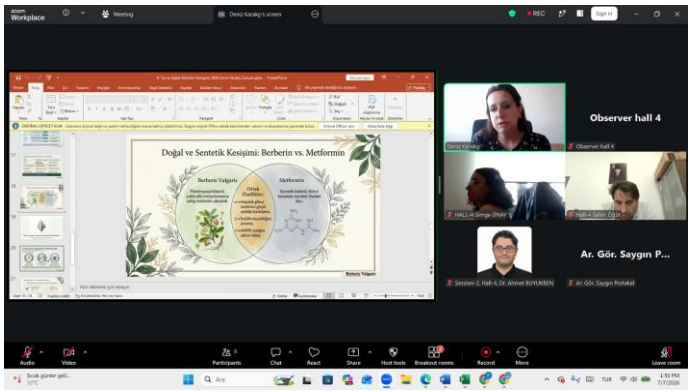
Fitokimyasallar ve Fitoterapi: Tarihsel Bağlam ve Güncel Trendler
Geleneksel Bilgeliğin Kanıta Dayalı Modern Tıpla Sentezi
Dr. Öğr. Üyesi Ahmet BÜYÜKBEN
Afyon Kocatepe Üniversitesi
Çay Meslek Yüksekokulu
Observer hall 4
Ar. Gör. Saygın P...

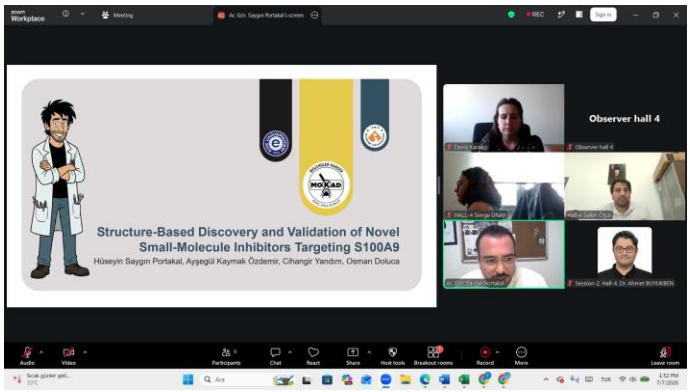

Ampirik Temeller ve Binlerce Yıllık Birikim
>200 Milyon Yıl
>5000 Yıl
M.Ö. 1600
M.Ö. 1200
M.Ö. 100
Observer hall 4
Ar. Gör. Saygın P...

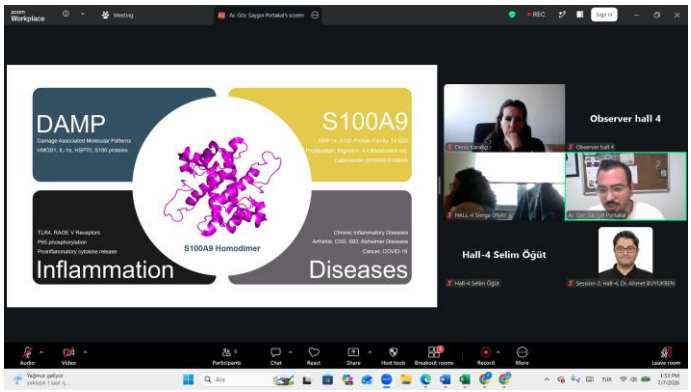

Farmakognozinin Doğuşu ve İzolasyon Çağı (18.-19. Yüzyıl)
18. yüzyıl, ampirik uygulamalardan bitki kimyasının sistematik araştırılmasına geçişi işaret eder; tıp ve botanik ayrışmış. 'Farmakognozi' terimi doğmuştur [4], [9], [10].
19. Yüzyıl İzole Edilen Bileşikler:
1805: Morfin (Bitkilerden izole edilen ilk sekonder metabolit) [12]
1820: Kinin (Cinchona kabuğundan) [2]
Diğerleri: Kodein (Cannabis), Digoksin (Digitalis), Atropin (Hyoscyamus) [2], [10]
Observer hall 4
Ar. Gör. Saygın P...


Berberis vulgaris (Kadın Tuzluğu) Anatomik Haritası
Observer hall 4
Hall-4 Selim Öğüt
Ar. Gör. Saygın P...

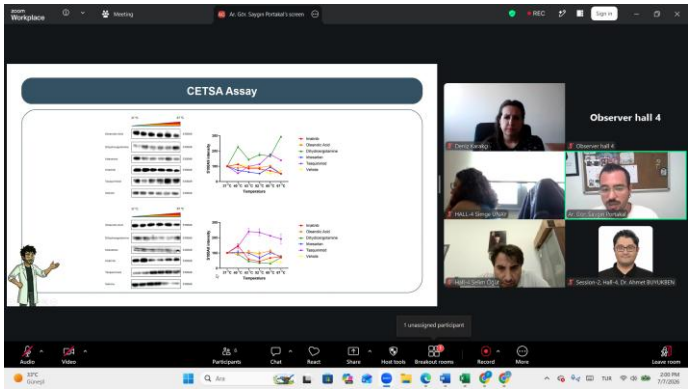

Fitokimyasal Motor: Protoberberin Sınıfı Bir İzokinolin Alkaloidi
Observer hall 4
Ar. Gör. Saygın P...

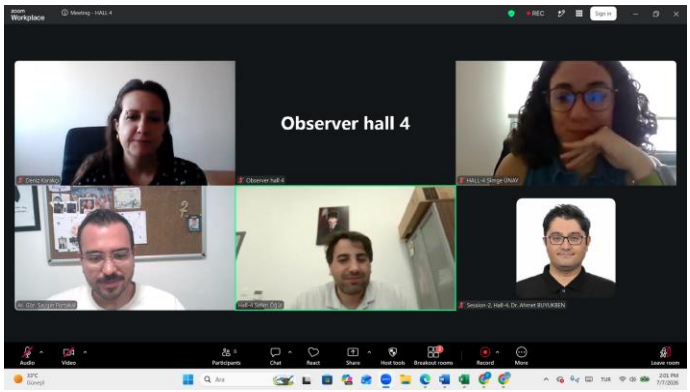

Doğal ve Sentetik Kesişimi: Berberin vs. Metformin
Observer hall 4
Ar. Gör. Saygın P...

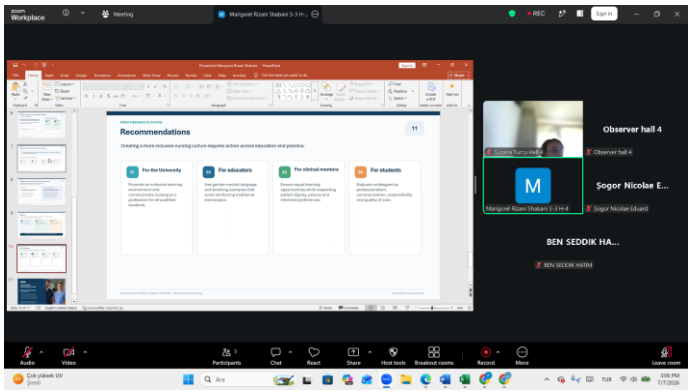

Structure-Based Discovery and Validation of Novel Small-Molecule Inhibitors Targeting S100A9
Hüseyin Saygın Portakal, Ayşegül Kaymak Özdemir, Cihangir Yandım, Osman Doluca
Observer hall 4

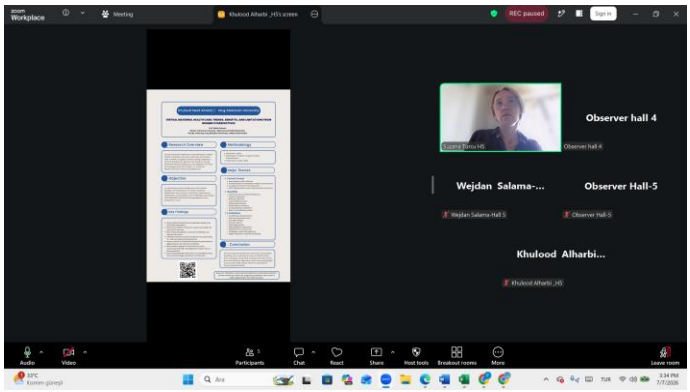

DAMP
S100A9
S100A9 Homodimer
Inflammation
Diseases
Observer hall 4
Hall-4 Selim Öğüt

No pronase
1:4000 Dil
1:2000 Dil
Imatinib
Observer hall 4

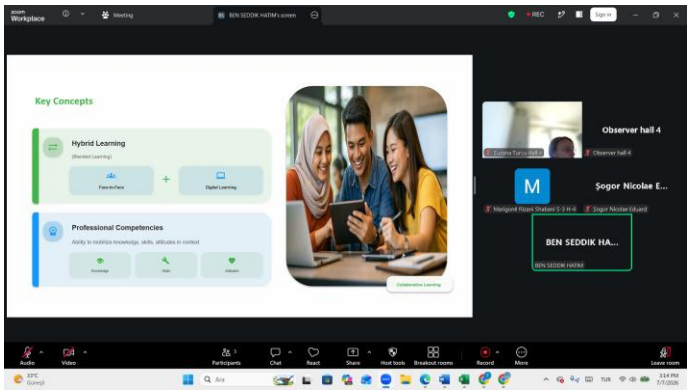

CETSA Assay
Observer hall 4

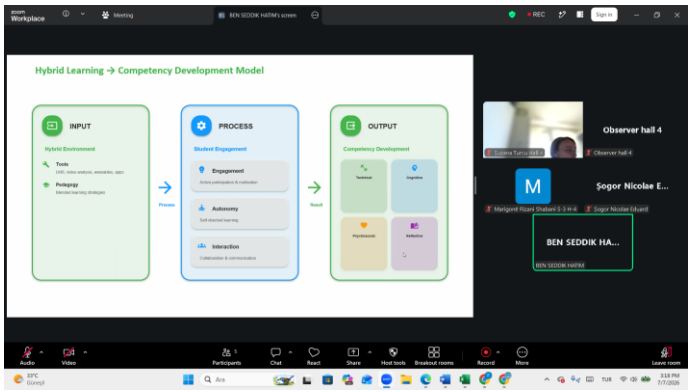

Observer hall 4

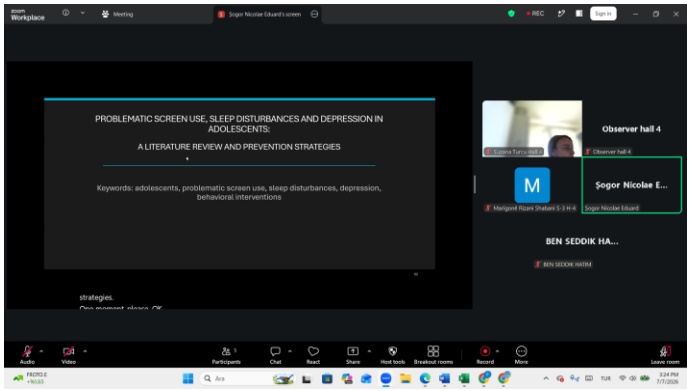

Recommendations
Observer hall 4
Şogor Nicolae E...
BEN SEDDIK HA...

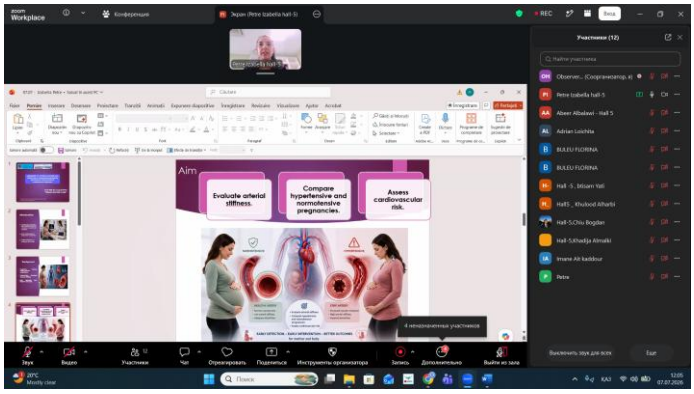

Observer hall 4
Wejdan Salama-...
Observer Hall-5
Khulood Alharbi...

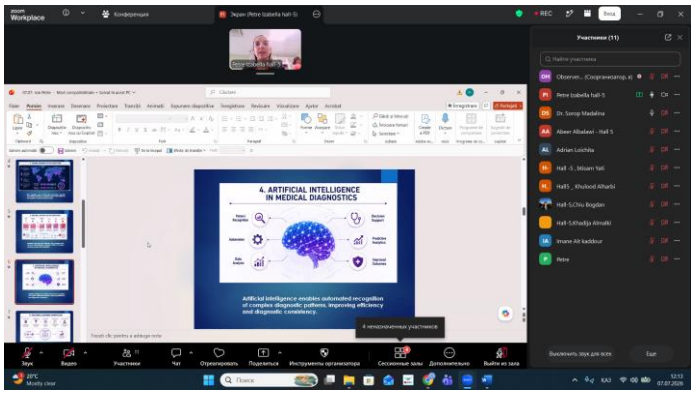
IMPLICATIONS FOR LEARNING AND PERFORMANCE IN SPORT SCIENCES IN THE DIGITAL ERA
Observer hall 4
Şogor Nicolae E...
BEN SEDDIK HA...

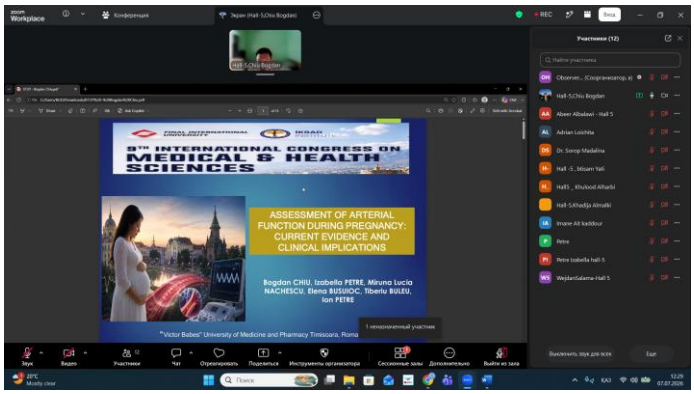

Key Concepts
Hybrid Learning
Professional Competencies
Observer hall 4
Şogor Nicolae E...
BEN SEDDIK HA...

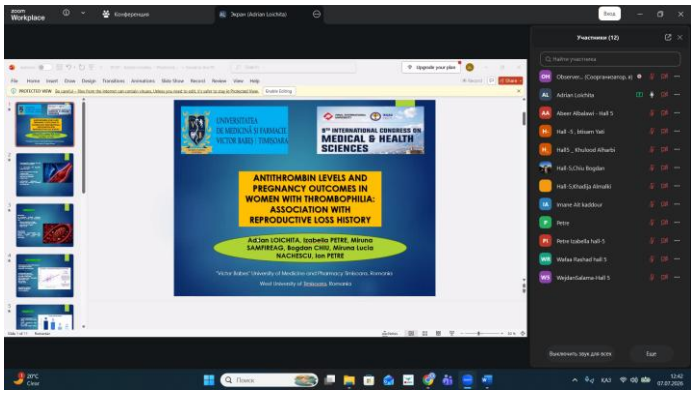

Hybrid Learning → Competency Development Model
INPUT
PROCESS
OUTPUT
Observer hall 4
Şogor Nicolae E...
BEN SEDDIK HA...

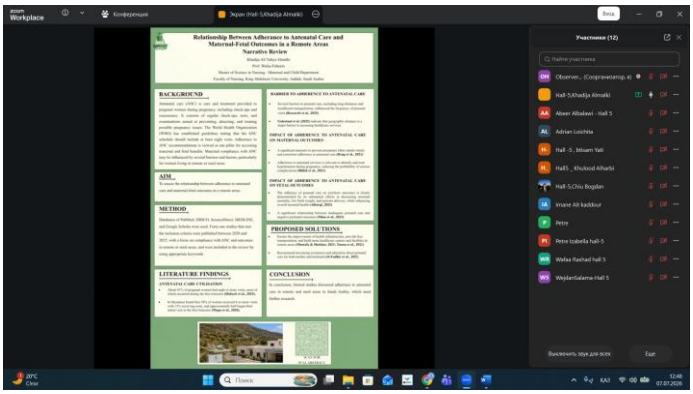

PROBLEMATIC SCREEN USE, SLEEP DISTURBANCES AND DEPRESSION IN ADOLESCENTS:
A LITERATURE REVIEW AND PREVENTION STRATEGIES
Observer hall 4
Şogor Nicolae E...
BEN SEDDIK HA...

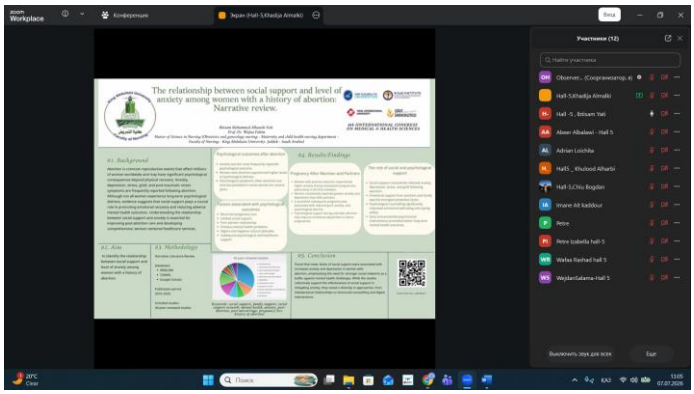

Aim
Evaluate arterial stiffness.
Compare hypertensive and normotensive pregnancies.
Assess cardiovascular risk.

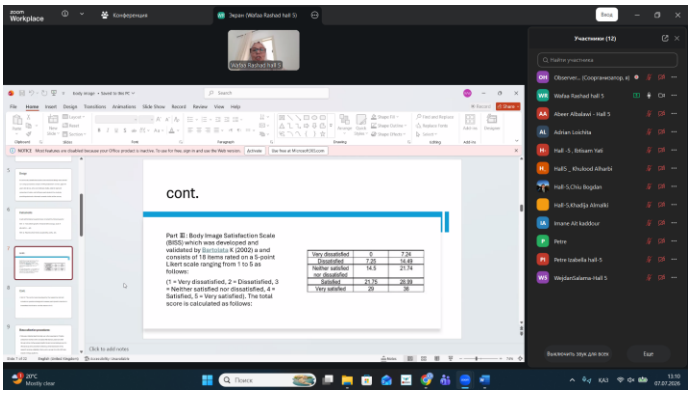

4. ARTIFICIAL INTELLIGENCE IN MEDICAL DIAGNOSTICS

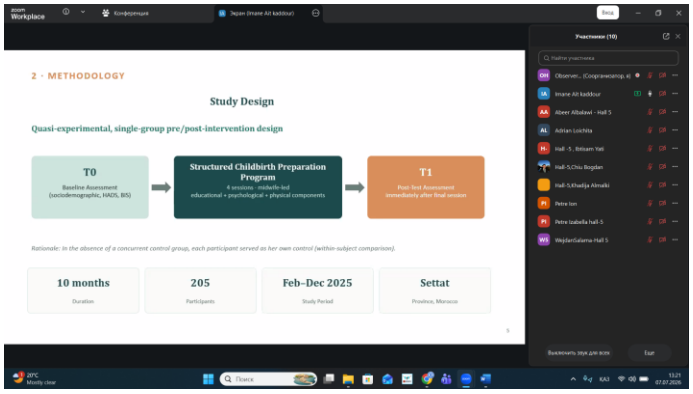

9TH INTERNATIONAL CONGRESS ON MEDICAL & HEALTH SCIENCES
ASSESSMENT OF ARTERIAL FUNCTION DURING PREGNANCY: CURRENT EVIDENCE AND CLINICAL IMPLICATIONS
Bogdan CHIU, Izabella PETRE, Miruna Lucia NACHESCU, Elena BUSUIOC, Tiberiu BULEU, Ion PETRE
"Victor Babeş" University of Medicine and Pharmacy Timişoara, Roma

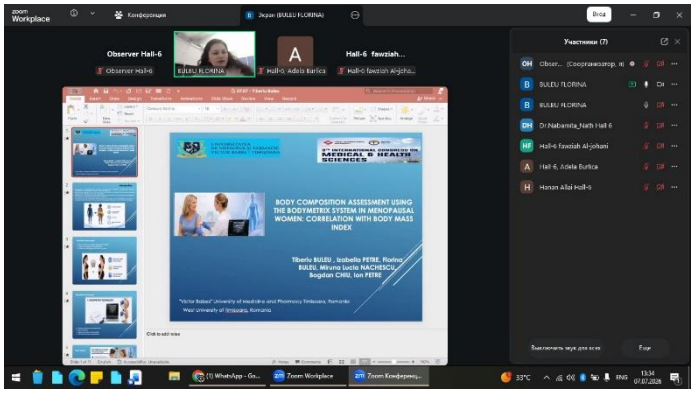

ANTITHROMBIN LEVELS AND PREGNANCY OUTCOMES IN WOMEN WITH THROMBOPHILIA: ASSOCIATION WITH REPRODUCTIVE LOSS HISTORY
Adi.Ion LOICHITA, Izabella PETRE, Miruna SAMFIREAG, Bogdan CHIU, Miruna Lucia NACHESCU, Ion PETRE


Relationship Between Adherance to Antenatal Care and Maternal-Fetal Outcomes in a Remote Areas
Narrative Review

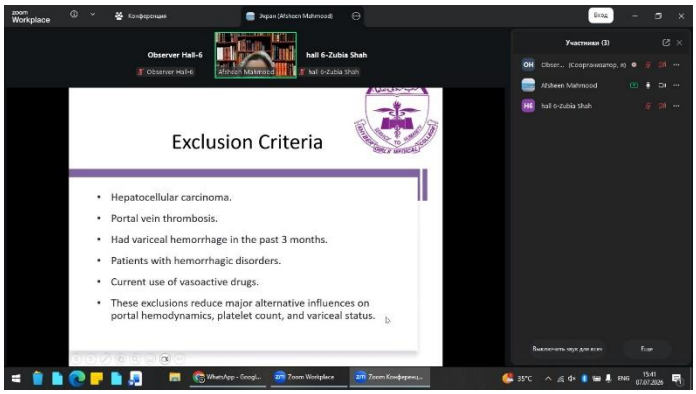

The relationship between social support and level of anxiety among women with a history of abortion: Narrative review.

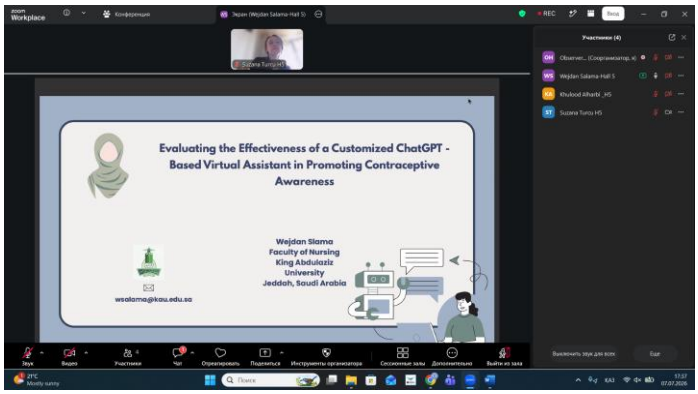

cont.

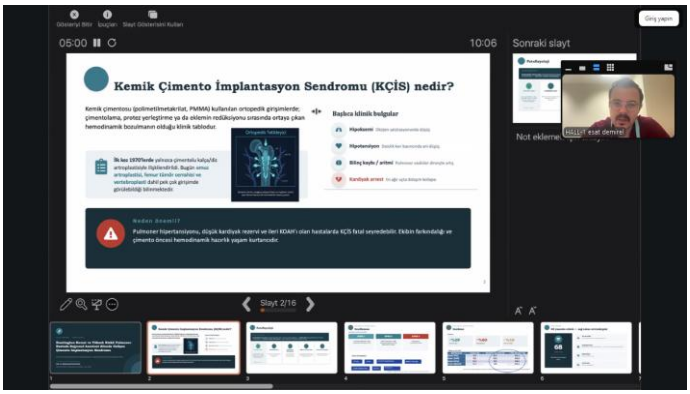

2 · METHODOLOGY
Study Design
Quasi-experimental, single-group pre/post-intervention design
T0
Baseline Assessment (sociodemographic, HADS, BIS)
Structured Childbirth Preparation Program
4 sessions · midwife-led
educational + psychological + physical components
T1
Post-Test Assessment – immediately after final session
Rationale: In the absence of a concurrent control group, each participant served as her own control (within-subject comparison).
10 months
Duration
205
Participants
Feb–Dec 2025
Study Period
Settat
Province, Morocco

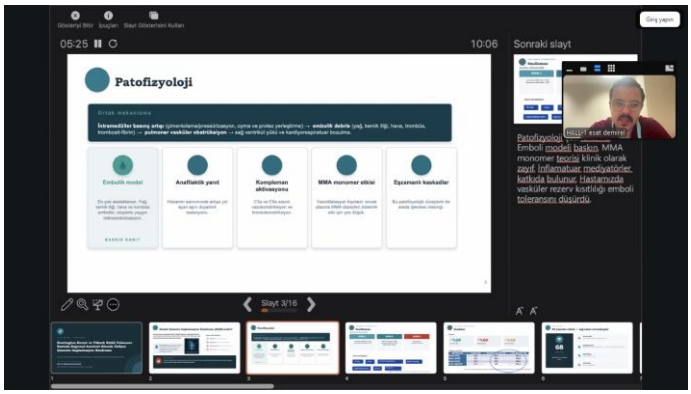

Observer Hall-6
Hall-6 fawziah...
BODY COMPOSITION ASSESSMENT USING THE BODYMETRIX SYSTEM IN MENOPAUSAL WOMEN: CORRELATION WITH BODY MASS INDEX

Observer Hall-6
Hall-6 fawziah...
MENOPAUSE: KNOWLEDGE, PERCEPTIONS AND THERAPEUTIC PREFERENCES AMONG ROMANIAN WOMEN
Sorin BURLICA, Izabella PETRE, Cezar PANTEA, Tiberiu BULEU, Ion PETRE


Observer Hall-6
hall 6-Zubia Shah
Exclusion Criteria
Hepatocellular carcinoma.
Portal vein thrombosis.
Had variceal hemorrhage in the past 3 months.
Patients with hemorrhagic disorders.
Current use of vasoactive drugs.
These exclusions reduce major alternative influences on portal hemodynamics, platelet count, and variceal status.

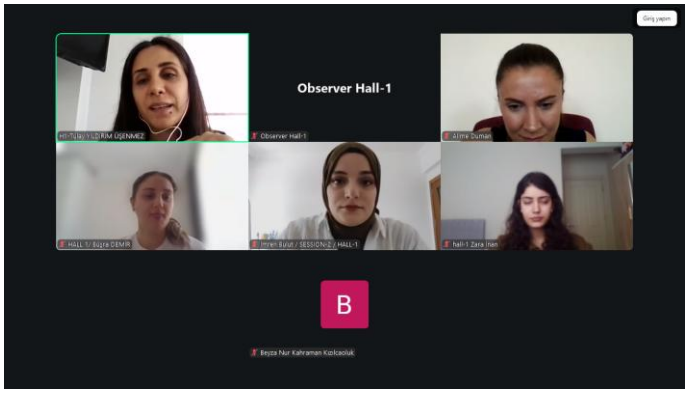

Evaluating the Effectiveness of a Customized ChatGPT - Based Virtual Assistant in Promoting Contraceptive Awareness
Wejdan Slama
Faculty of Nursing
King Abdulaziz University
Jeddah, Saudi Arabia
wsalama@kau.edu.sa


Kemik Çimento İmplantasyon Sendromu (KÇİS) nedir?
Sonraki slayt

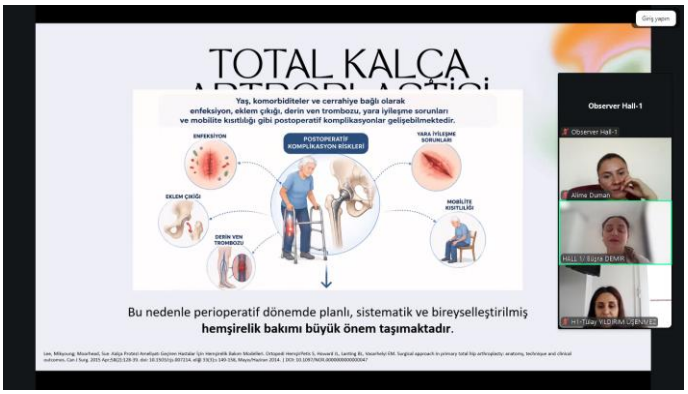

Patofizyoloji
Sonraki slayt

Hemostaz ve Koagülasyon İlişkisi
Aronya özütü plazma pıhtılaşma süresini uzatır ve fibrin polimerizasyon hızını azaltır.
Trombinin amidolitik aktivitesini doğrudan baskılar (antitrombin benzeri etki) ve fibrinoliz potansiyelini modifiye eder.
Sonraki slayt

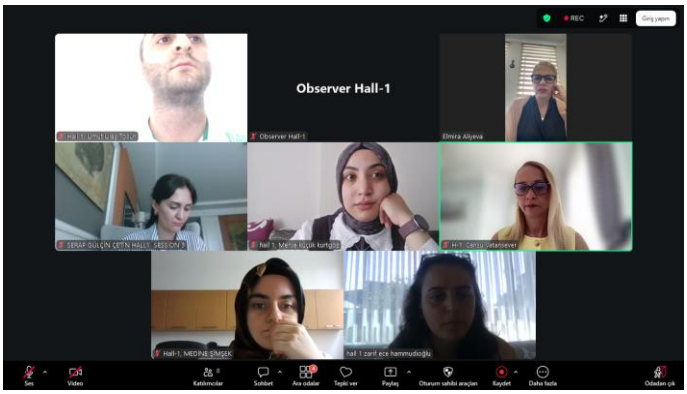
İkinci sorgulama ve gizli failin keşfi
Hastanın son 15-20 gündür "bağışıklık sistemini desteklemek" amacıyla düzenli olarak taze sıkılmış aronya (çoban üzümü) suyu tükettiği öğrenildi.
Reçetesiz satılan bir fonksiyonel gıda, cerrahiyi erteletecek düzeyde bir koagülopatiye neden olmuştu.
Sonraki slayt

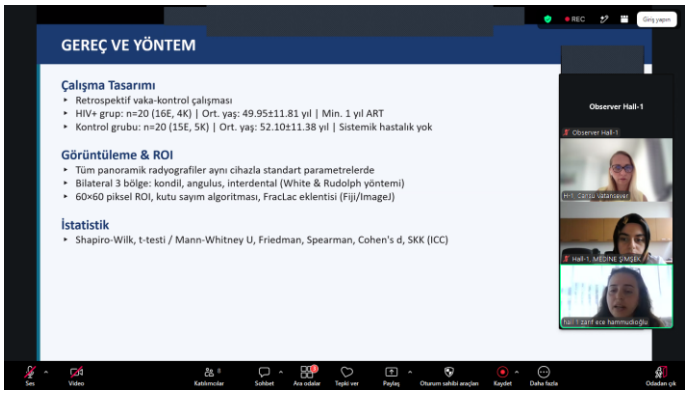

Observer Hall-1
B

Değişimin Aktörü: Psikiyatri Hemşiresi
Tedavi ekosisteminde köprü görevi gören en kritik halka.
Hasta (7/24 Gözlem)
Psikiyatri Hemşiresi
BDT Teknikleri
Observer Hall-1


TOTAL KALÇA
Yaş, komorbiditeler ve cerrahiye bağlı olarak enfeksiyon, eklem çıkığı, derin ven trombozu, yara iyileşme sorunları ve mobilite kısıtlığı gibi postoperatif komplikasyonlar gelişebilmektedir.
Bu nedenle perioperatif dönemde planlı, sistematik ve bireyselleştirilmiş hemşirelik bakımı büyük önem taşımaktadır.
Observer Hall-1

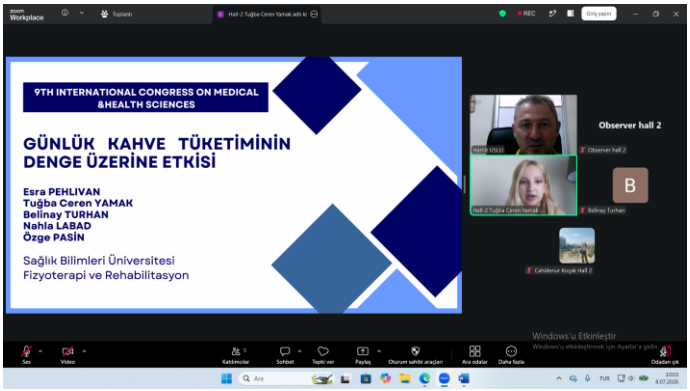
BİLGİSAYAR GÖRÜŞÜ
Bilgisayarlı görüşü (Computer Vision, CV), dijital görüntü ve videoları analiz ederek görsel
anlamlı bilgiler elde eden bir yapay zekâ teknolojisidir. Temel amacı, bilgisayarların görünt
algılamasını, tanımlamasını ve yorumlamasını sağlamaktır.
Yara bakımında; yara şiddetinin değerlendirilmesi, yara iyileşme sürecinin izlenmesi ve i
seyrinin tahmin edilmesinde kullanılmaktadır.
Observer Hall-1

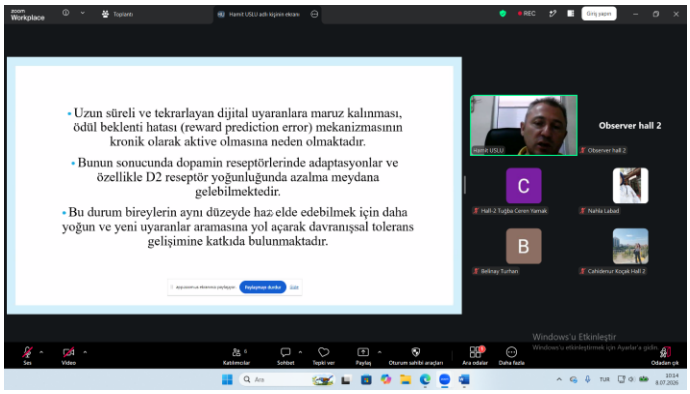

Observer Hall-1

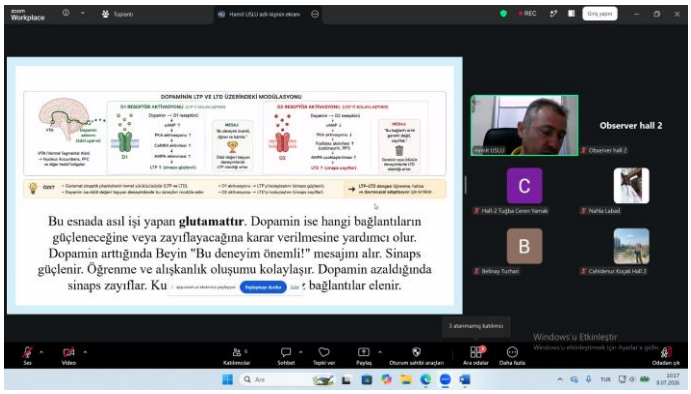

GEREÇ VE YÖNTEM
Çalışma Tasarımı
Retrospektif vaka-kontrol çalışması
HIV+ grup: n=20 (16E, 4K) | Ort. yaş: 49.95±11.81 yıl | Min. 1 yıl ART
Kontrol grubu: n=20 (15E, 5K) | Ort. yaş: 52.10±11.38 yıl | Sistemik hastalık yok
Görüntüleme & ROI
Tüm panoramik radyografiler aynı cihazla standart parametrelerde
Bilateral 3 bölge: kondil, angulus, interdental (White & Rudolph yöntemi)
60×60 piksel ROI, kutu sayım algoritması, FracLac eklentisi (Fiji/ImageJ)
İstatistik
Shapiro-Wilk, t-testi / Mann-Whitney U, Friedman, Spearman, Cohen's d, SKK (ICC)
Observer Hall-1

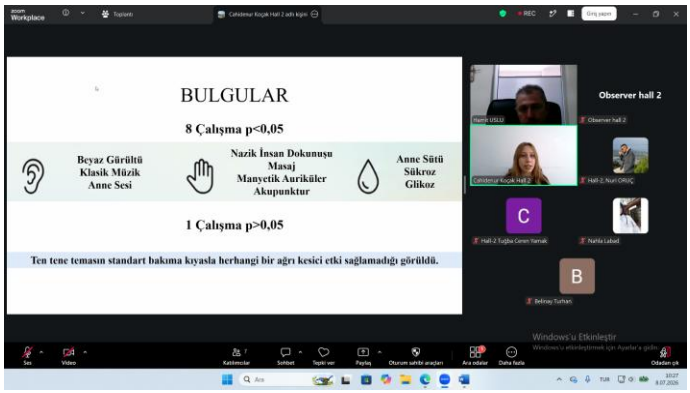
Materyal ve Metot — Çalışma Grupları
SAĞLIKLI KONTROL
n = 20
Herhangi bir sistemik hastalığı bulunmayan sağlıklı bireyler
Kadın: 10 | Erkek: 10
Eşit cinsiyet dağılımı
DİYABET
n = 20
Tip 2 Diyabet Mellitus tanısı almış bireyler; oral antiDM tedavi altında
Kadın: 10 | Erkek: 10
Eşit cinsiyet dağılımı
HİPERTANSİYON
n = 20
Hipertansiyon tanısı almış bireyler; oral antihipertansif tedavi
Kadın: 10 | Erkek: 10
Eşit cinsiyet dağılımı
Observer Hall-1

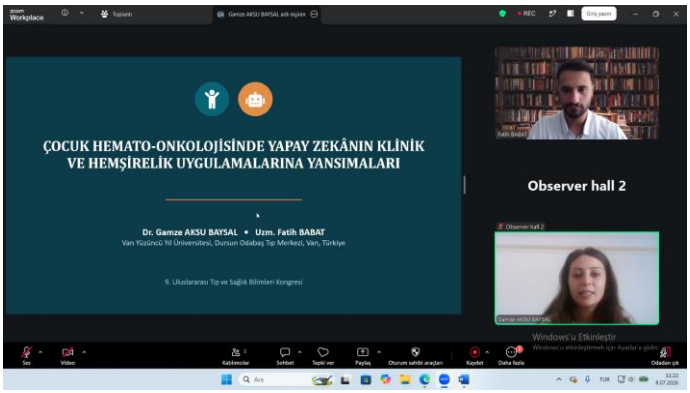
Maksillofasiyal Bulgular
Radyografik Bulgular
Osteopeni, kortikal incelme, lamina dura kaybı, psödokistik radyolusent alanlar
Diş ve Periodontal
Diş mobilitesi, kök rezorpsiyonu, diş yer değiştirmesi
Tanısal Zorluklar
Observer Hall-1

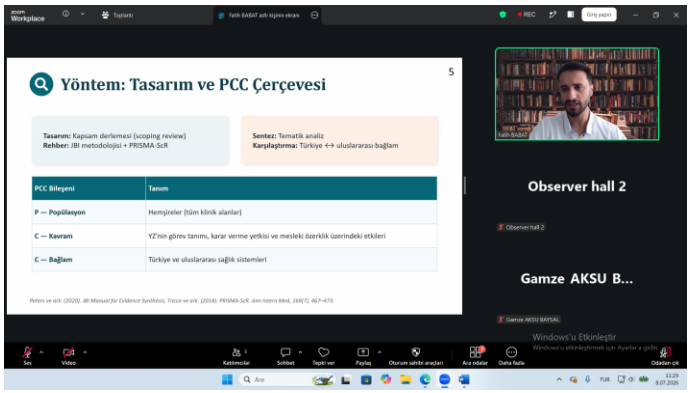

9TH INTERNATIONAL CONGRESS ON MEDICAL &HEALTH SCIENCES
GÜNLÜK KAHVE TÜKETİMİNİN DENGE ÜZERİNE ETKİSİ
Esra PEHLIVAN
Tuğba Ceren YAMAK
Belinay TURHAN
Nahla LABAD
Özge PASİN
Sağlık Bilimleri Üniversitesi
Fizyoterapi ve Rehabilitasyon
Observer hall 2


Uzun süreli ve tekrarlayan dijital uyaranlara maruz kalınması, ödül beklenti hatası (reward prediction error) mekanizmasının kronik olarak aktive olmasına neden olmaktadır.
Bunun sonucunda dopamin reseptörlerinde adaptasyonlar ve özellikle D2 reseptör yoğunluğunda azalma meydana gelebilmektedir.
Bu durum bireylerin aynı düzeyde haz elde edebilmek için daha yoğun ve yeni uyaranlar aramasına yol açarak davranışsal tolerans gelişimine katkıda bulunmaktadır.
Observer hall 2

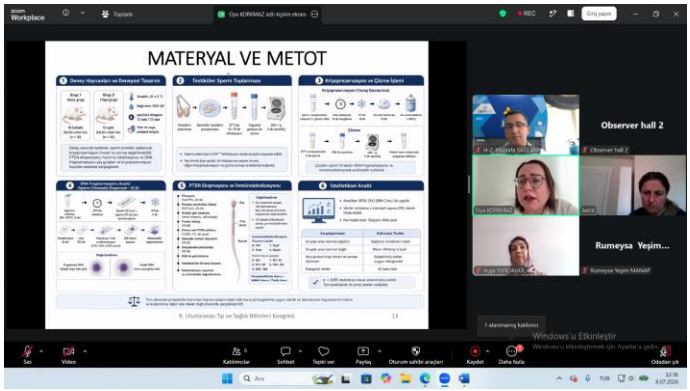

DOPAMİNİN LTP VE LTD ÜZERİNDEKİ MODÜLASYONU
Bu esnada asıl işi yapan glutamattır. Dopamin ise hangi bağlantıların güçleneceğine veya zayıflayacağına karar verilmesine yardımcı olur. Dopamin arttığında Beyin "Bu deneyim önemli!" mesajını alır. Sinaps güçlenir. Öğrenme ve alışkanlık oluşumu kolaylaşır. Dopamin azaldığında sinaps zayıflar. Ku bağlantılar elenir.
Observer hall 2

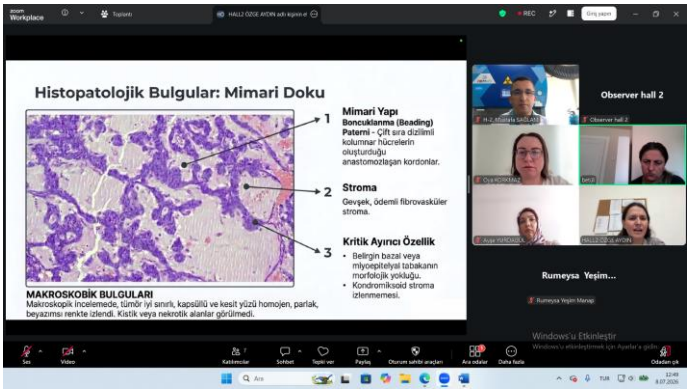

BULGULAR
8 Çalışma p<0,05
Beyaz Gürültü
Klasik Müzik
Anne Sesi
Nazik İnsan Dokunuşu
Masaj
Manyetik Auriküler
Akupunktur
Anne Sütü
Şükroz
Glikoz
1 Çalışma p>0,05
Ten tene temasın standart bakıma kıyasla herhangi bir ağrı kesici etki sağlamadığı görüldü.
Observer hall 2


ÇOCUK HEMATO-ONKOLOJİSİNDE YAPAY ZEKÂNIN KLİNİK VE HEMŞİRELİK UYGULAMALARINA YANSIMALARI
Dr. Gamze AKSU BAYSAL • Uzm. Fatih BABAT
Observer hall 2

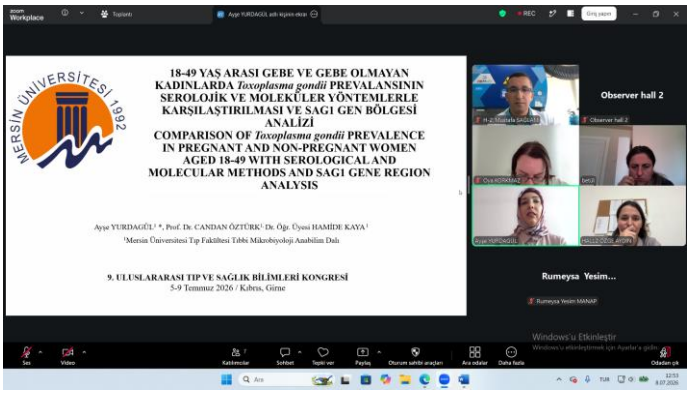

Yöntem: Tasarım ve PCC Çerçevesi
Tasarım: Kapsam derlemesi (scoping review)
Rehber: JBI metodoloji + PRISMA-ScR
Sentez: Tematik analiz
Karşılaştırma: Türkiye ↔ uluslararası bağlam
PCC Bileşeni
Tanım
P — Popülasyon
Hemşireler (tüm klinik alanlar)
C — Kavram
YZ'nin görev tanımı, karar verme yetkisi ve mesleki özerklik üzerindeki etkileri
C — Bağlam
Türkiye ve uluslararası sağlık sistemleri
Observer hall 2
Gamze AKSU B...

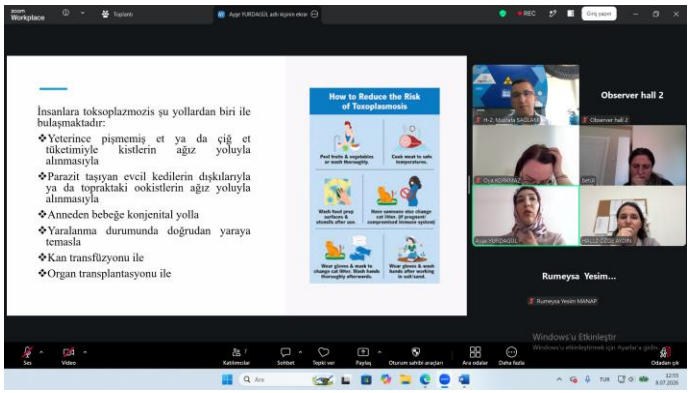
Bu nedenle spermatogenez boyunca DNA'nın korunması için çeşitli onarım mekanizmaları sürekli çalışır. Başlıca mekanizmalar;
✓BER (Base Excision Repair)
✓NER (Nucleotide Excision Repair)
✓MMR (Mismatch Repair)
✓DSBR (Double-Strand Break Repair)
Bu sistemler;
➢ Oksidatif hasarı onarır,
➢ Baz değişikliklerini düzeltir,
➢ Çift zincir kırıklarını tamir eder,
➢ Genomik stabiliteyi korur.
Observer hall 2
Rumeysa Yeşim...


MATERYAL VE METOT
Observer hall 2
Rumeysa Yeşim...


Histopatolojik Bulgular: Mimari Doku
1 Mimari Yapı
Boncuklanma (Beading) Paterni - Çift sıra dizilimli kolumnar hücrelerin oluşturduğu anastomozlaşan kordonlar.
2 Stroma
Gevşek, ödemli fibrovasküler stroma.
3 Kritik Ayırıcı Özellik
• Belirgin bazal veya mükoepitelyal tabakanın morfolojik yokluğu.
• Kondromiksoid stroma izlenmemesi.
MAKROSKOBİK BULGULARI
Makroskopik incelemede, tümör iyi sınırlı, kapsüllü ve kesit yüzü homojen, parlak, beyazımsı renkte izlendi. Kistik veya nekrotik alanlar görülmedi.
Observer hall 2
Rumeysa Yeşim...

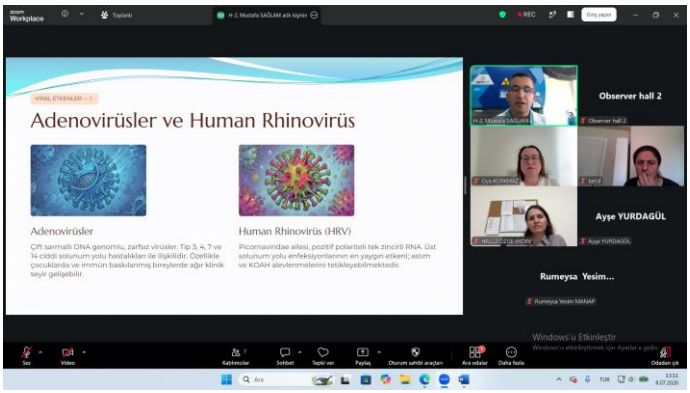
Observer hall 2

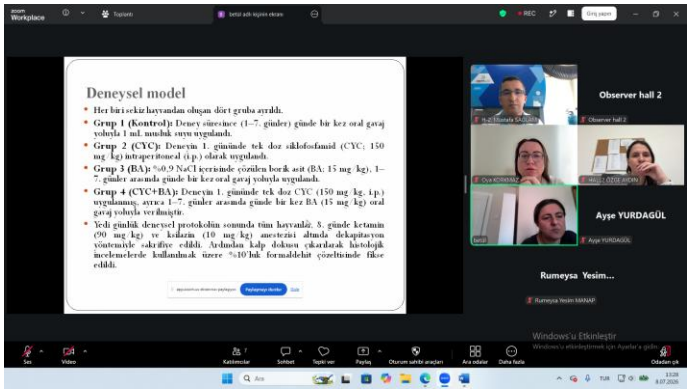

MERSİN ÜNİVERSİTESİ 1992
18-49 YAŞ ARASI GEBE VE GEBE OLMAYAN KADINLARDA Toxoplasma gondii PREVALANSININ SEROLOJİK VE MOLEKÜLER YÖNTEMLERLE KARŞILAŞTIRILMASI VE SAG1 GEN BÖLGESİ ANALİZİ
COMPARISON OF Toxoplasma gondii PREVALENCE IN PREGNANT AND NON-PREGNANT WOMEN AGED 18-49 WITH SEROLOGICAL AND MOLECULAR METHODS AND SAG1 GENE REGION ANALYSIS
Ayşe YURDAGÜL[1] *, Prof. Dr. CANDAN ÖZTÜRK[1] Dr. Öğr. Üyesi HAMİDE KAYA[1]
[1]Mersin Üniversitesi Tıp Fakültesi Tıbbi Mikrobiyoloji Anabilim Dalı
9. ULUSLARARASI TIP VE SAĞLIK BİLİMLERİ KONGRESİ
5-9 Temmuz 2026 / Kıbrıs, Girne
Observer hall 2
Rumeysa Yeşim...

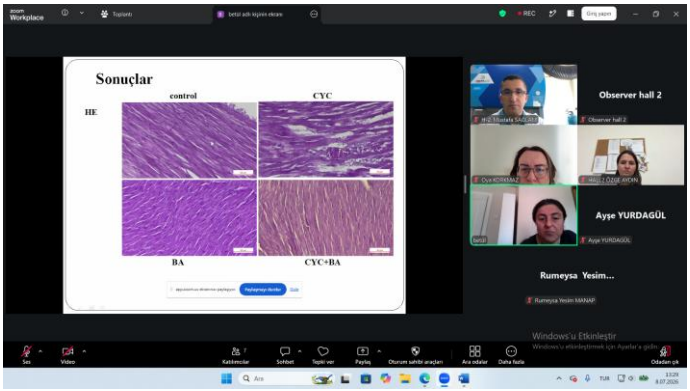

How to Reduce the Risk of Toxoplasmosis
Observer hall 2
Rumeysa Yesim...

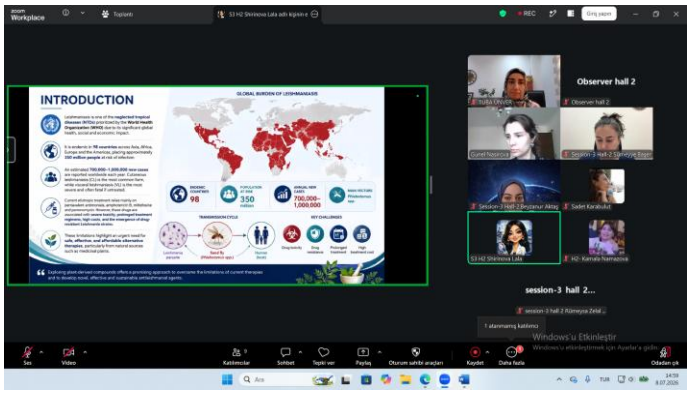
Hayvan Modelleri — Tema Bazlı Bulgular (n = 6)
Plasental Vaskülarizasyon Bozulması
Glikoz Taşıyıcı Baskısı (GLUT1 ↓)
Trofoblast Diferansiyasyon Bozukluğu
Cinsiyete Özgü Gen Ekspresyon Değişimi
Observer hall 2
Ayşe YURDAGÜL
Rumeysa Yesim...

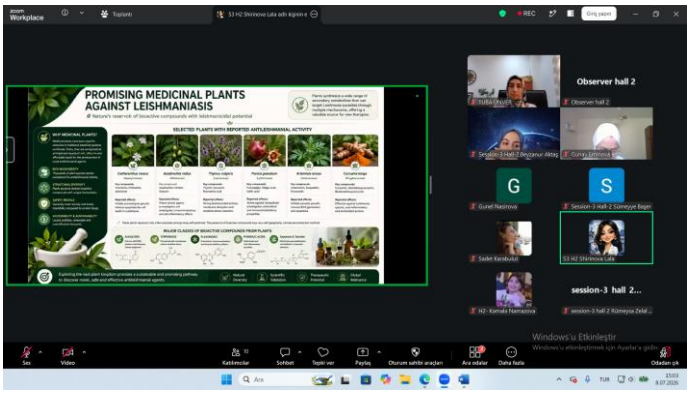
Solunum Yolu Enfeksiyonları: Genel Bakış
Solunum sistemi enfeksiyonları, üst ve alt solunum yollarını etkileyen ve toplum sağlığını doğrudan tehdit eden önemli bir hastalık grubudur.
Etiyoloji
Bulaş Yolları
Risk Grupları
Observer hall 2
Ayşe YURDAGÜL
Rumeysa Yesim...

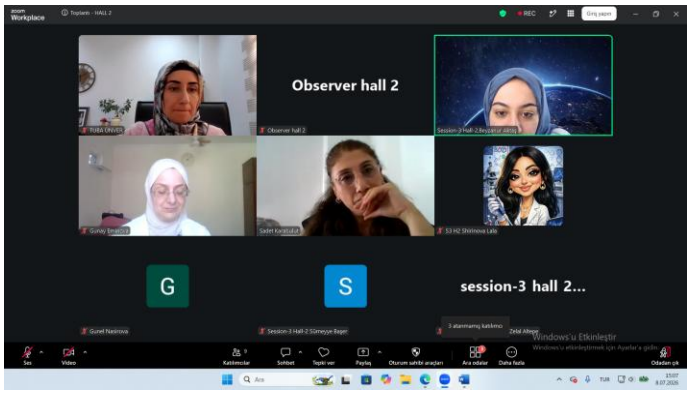

Adenovirüsler ve Human Rhinovirüs
Adenovirüsler
Human Rhinovirüs (HRV)
Observer hall 2
Ayşe YURDAGÜL
Rumeysa Yesim...

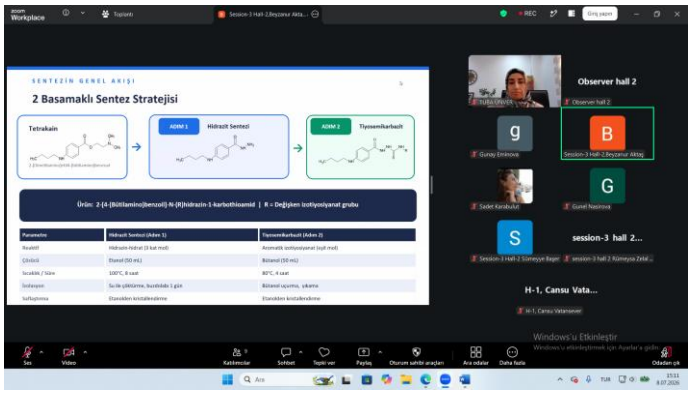

Deneysel model
Observer hall 2
Ayşe YURDAGÜL
Rumeysa Yesim...

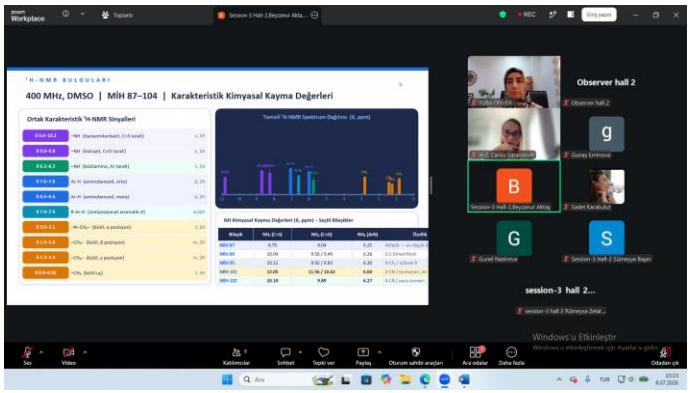

Sonuçlar
control
CYC
HE
BA
CYC+BA
Observer hall 2
Ayşe YURDAGÜL
Rumeysa Yesim...

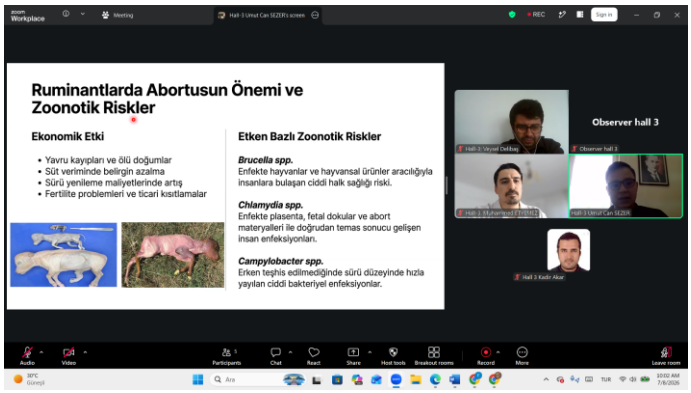

INTRODUCTION
Observer hall 2
session-3 hall 2...

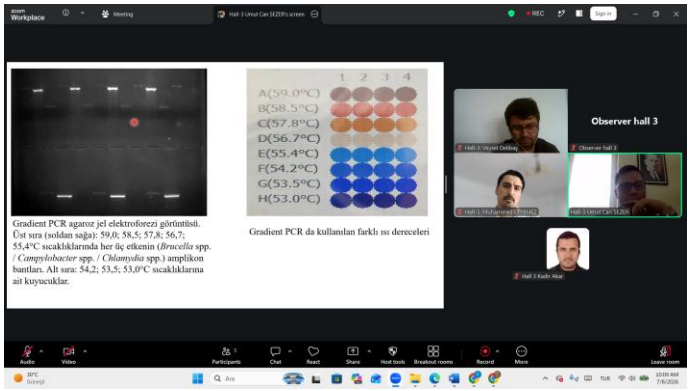

PROMISING MEDICINAL PLANTS AGAINST LEISHMANIASIS
Observer hall 2
session-3 hall 2...

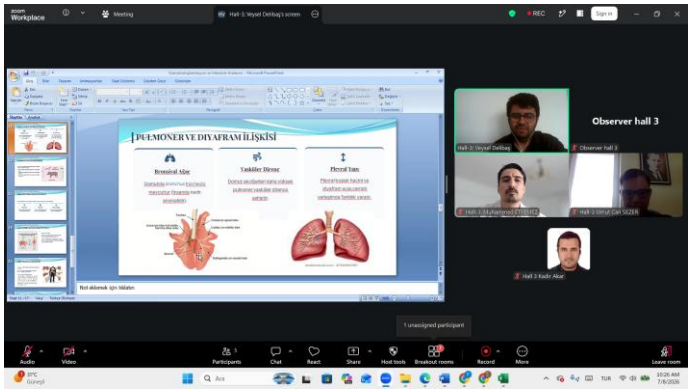

Observer hall 2
session-3 hall 2...

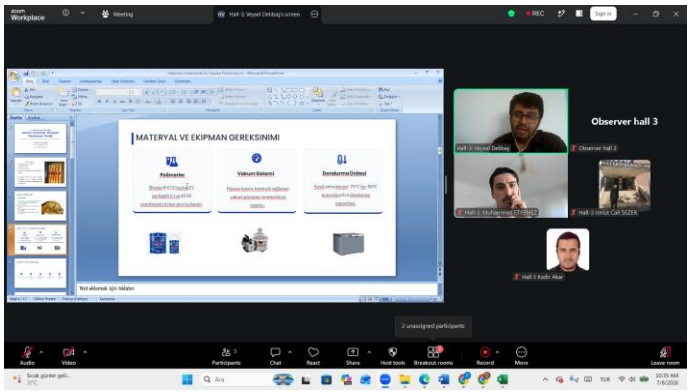

SENTEZİN GENEL AKIŞI
2 Basamaklı Sentez Stratejisi
Tetrakain
ADIM 1
Hidrazit Sentezi
ADIM 2
Tiyosemikarbazit
Observer hall 2
session-3 hall 2...
H-1, Cansu Vata...

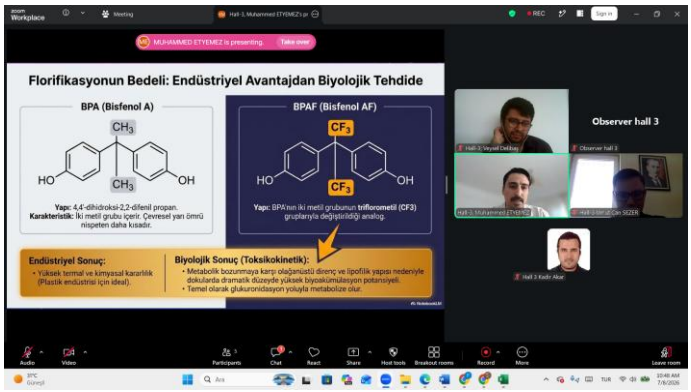

400 MHz, DMSO | MİH 87–104 | Karakteristik Kimyasal Kayma Değerleri
Observer hall 2
session-3 hall 2...

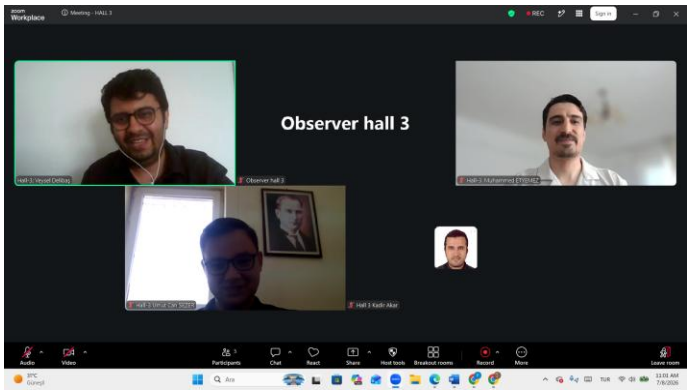

Ruminantlarda Abortusun Önemi ve Zoonotik Riskler
Ekonomik Etki
Yavru kayıpları ve ölü doğumlar
Süt veriminde belirgin azalma
Sürü yenileme maliyetlerinde artış
Fertilite problemleri ve ticari kısıtlamalar
Etken Bazlı Zoonotik Riskler
Brucella spp.
Enfekte hayvanlar ve hayvansal ürünler aracılığıyla insanlara bulaşan ciddi halk sağlığı riski.
Chlamydia spp.
Enfekte plasenta, fetal dokular ve abort materyalleri ile doğrudan temas sonucu gelişen insan enfeksiyonları.
Campylobacter spp.
Erken teşhis edilmediğinde sürü düzeyinde hızla yayılan ciddi bakteriyel enfeksiyonlar.
Observer hall 3

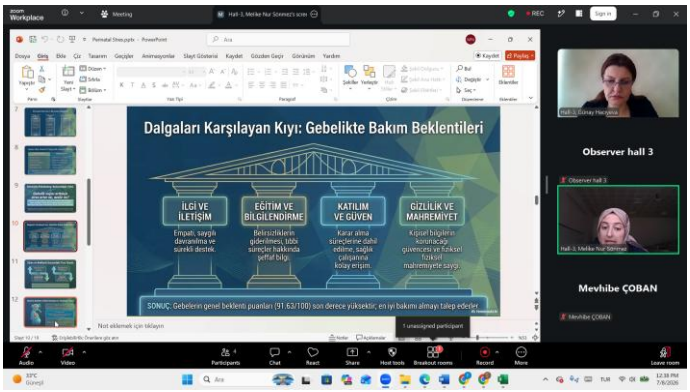

Gradient PCR agaroz jel elektroforezi görüntüsü. Üst sıra (soldan sağa): 59,0; 58,5; 57,8; 56,7; 55,4°C sıcaklıklarında her üç etkenin (Brucella spp. / Campylobacter spp. / Chlamydia spp.) amplikon bantları. Alt sıra: 54,2; 53,5; 53,0°C sıcaklıklarına ait kuyucuklar.
Gradient PCR da kullanılan farklı ısı dereceleri
Observer hall 3

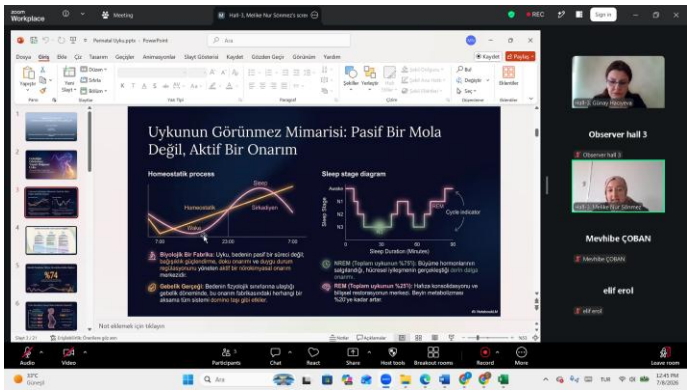

PULMONER VE DIYAFRAM İLİŞKİSİ
Observer hall 3

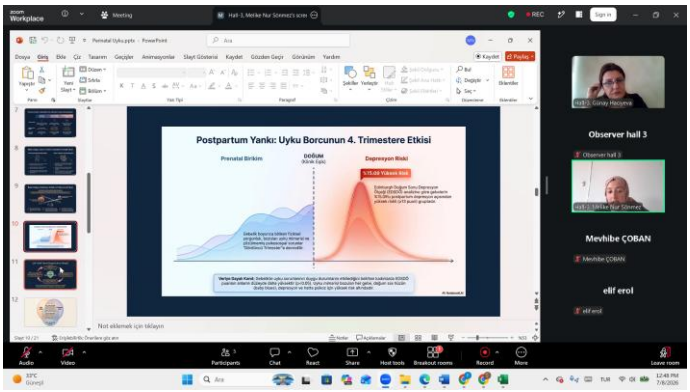

MATERYAL VE EKIPMAN GEREKSINIMI
Observer hall 3


Florifikasyonun Bedeli: Endüstriyel Avantajdan Biyolojik Tehdide
BPA (Bisfenol A)
BPAF (Bisfenol AF)
Endüstriyel Sonuç:
Biyolojik Sonuç (Toksikokinetik):
Observer hall 3


Observer hall 3

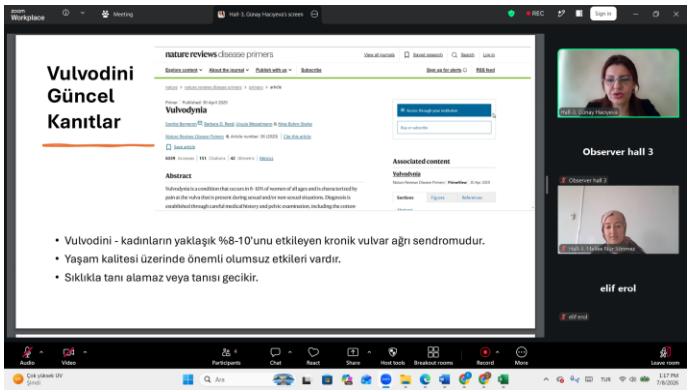

Dalgaları Karşılayan Kıyı: Gebelikte Bakım Beklentileri
İLGİ VE İLETİŞİM
EĞİTİM VE BİLGİLENDİRME
KATILIM VE GÜVEN
GİZLİLİK VE MAHREMİYET
Observer hall 3
Mevhibe ÇOBAN


Uykunun Görünmez Mimarisi: Pasif Bir Mola Değil, Aktif Bir Onarım
Homeostatik process
Sleep stage diagram
Observer hall 3
Mevhibe ÇOBAN
elif erol


Postpartum Yankı: Uyku Borcunun 4. Trimestere Etkisi
Observer hall 3
Mevhibe ÇOBAN
elif erol

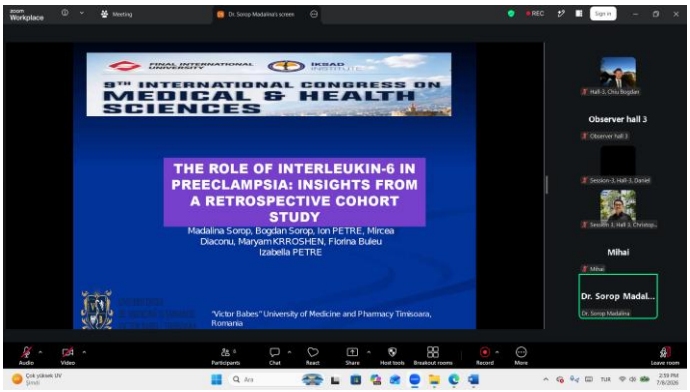
9. Uluslararası Tıp ve Sağlık Bilimleri Kongresi
5-9 Temmuz 2026 / Kıbrıs, Girne
Uluslararası Final Üniveristesi/ KKTC
AFETLERDE EBELİK BAKIMI
İnönü Üniversitesi Sağlık Bilimleri Enstitüsü
Ebelik Ana Bilim Dalı
Temmuz-2026
Mevhibe ÇOBAN
Observer hall 3
elif erol

Dünyada ve Türkiye'de Afetlerin Durumu
• Birleşmiş Milletler Afet Risk Azaltma Ofisi (UNDRR) ve Afet Epidemiyolojisi Araştırma Merkezi (CRED) tarafından yayımlanan rapora göre, 2000–2019 yılları arasında dünya genelinde toplam 7.348 afet meydana gelmiş; bu olaylar yaklaşık 1,23 milyon kişinin yaşamını yitirmesine, 4,2 milyar insanın etkilenmesine ve küresel ekonomide 2,97 trilyon ABD doları tutarında kayba neden olmuştur. Buna karşılık, 1980–1999 döneminde gerçekleşen 4.212 afet sonucunda yaklaşık 1,19 milyon kişi hayatını kaybetmiş, 3,25 milyar kişi etkilenmiş ve ekonomik kayıplar 1,63 trilyon ABD doları olarak kaydedilmiştir (CRED & UNDRR, 2020).
Observer hall 3
elif erol


Vulvodini Güncel Kanıtlar
• Vulvodini - kadınların yaklaşık %8-10'unu etkileyen kronik vulvar ağrı sendromudur.
• Yaşam kalitesi üzerinde önemli olumsuz etkileri vardır.
• Sıklıkla tanı alamaz veya tanısı gecikir.
Observer hall 3
elif erol

9. ULUSLARARASI TIP VE SAĞLIK BİLİMLERİ KONGRESİ
EMZİRME DANIŞMANLIĞINDA DİJİTAL DESTEK SİSTEMLERİNİN ANNE ÖZ-YETERLİLİĞİNE ETKİSİ
Elif EROL
Emine GERÇEK ÖTER
Observer hall 3
elif erol

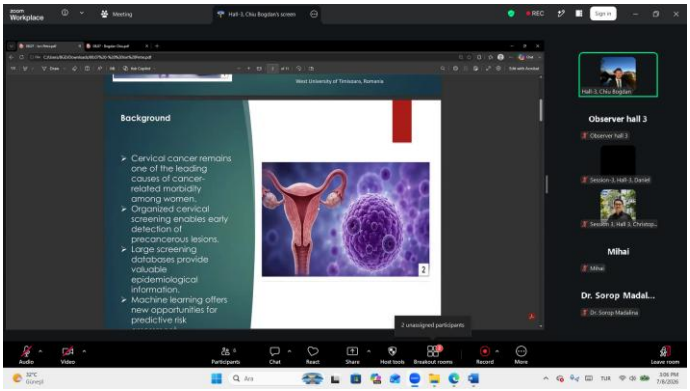
Sosyal Medya ve Anlık İletişim Ağları
Zaman ve Mekan Sınırının Kalkması
Yazılı mesaj, ses kaydı, fotoğraf ve görüntülü görüşme ile hızlı geri bildirim ve akran desteği sağlanır.
Yazılı Mesaj
Ses Kaydı
Fotoğraf
Görüntülü Görüşme
Hızlı Geri Bildirim ve Akran Desteği
Literatür Verileri
Öksüz & İnal (2023) / Türkiye
(RKÇ, n=129 primipar)
6 ay boyunca WhatsApp tabanlı danışmanlık.
6. ayda sadece anne sütü verme oranı:
Müdahale Grubu %62,5
vs
Kontrol Grubu %10,8
(p=0,001)
Emzirme güçlüğü puanlarında anlamlı azalma.
Fan ve ark. (2022) / Hong Kong
WhatsApp akran destek grupları (first-time mothers).
Emzirme öz-yeterlilik puanlarını anlamlı düzeyde artırmıştır.
Emzirme konusundaki olumlu tutumları geliştirmiştir.
Anlık iletişim ağları, annelerin yalnızlık hissini azaltır, öz-yeterlilik algısını güçlendirir ve emzirmenin sürdürülmesine önemli katkı sağlar.
Observer hall 3
elif erol

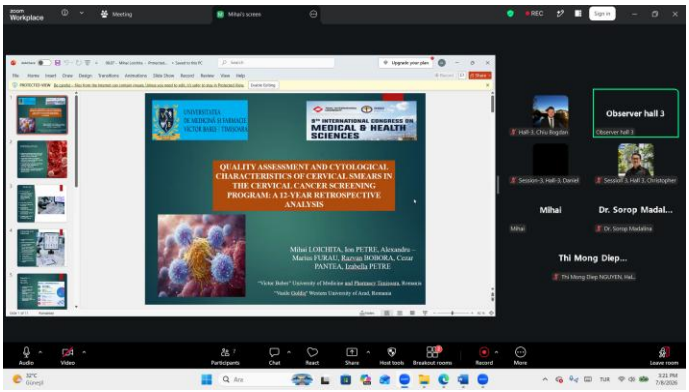

8TH INTERNATIONAL CONGRESS ON MEDICAL & HEALTH SCIENCES
THE ROLE OF INTERLEUKIN-6 IN PREECLAMPSIA: INSIGHTS FROM A RETROSPECTIVE COHORT STUDY
Madalina Sorop, Bogdan Sorop, Ion PETRE, Mircea Diaconu, Maryam KRROSHEN, Florina Buleu Izabella PETRE
"Victor Babes" University of Medicine and Pharmacy Timisoara, Romania
Observer hall 3
Mihai
Dr. Sorop Madal...

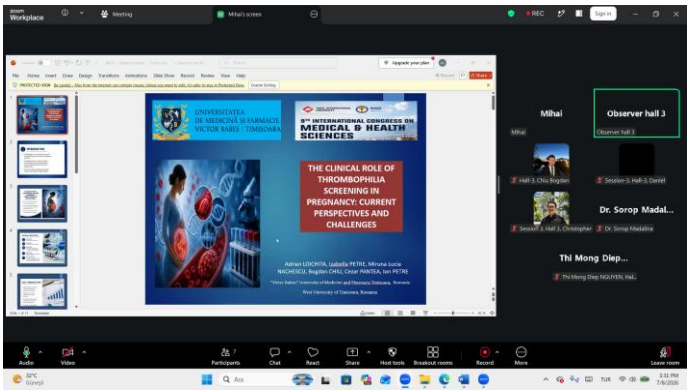
Conclusions
IL-6 is an important biomarker of inflammatory activation in preeclampsia.
Higher IL-6 concentrations are associated with increased proteinuria and unfavorable maternal–fetal outcomes.
IL-6 reflects endothelial dysfunction and placental injury, contributing to disease progression.
Assessment of IL-6 may improve risk stratification and support early identification of severe preeclampsia.
Further prospective studies are needed to validate IL-6 as a prognostic biomarker and potential therapeutic target.
Observer hall 3
Mihai
Dr. Sorop Madal...

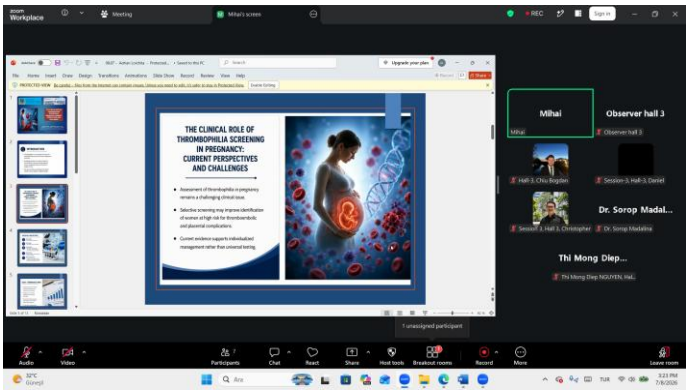
TIMIŞOARA
ROMANIA
The city on the Bega River, the heart of Banat.
Thank you for your attention!
Observer hall 3
Mihai
Dr. Sorop Madal...

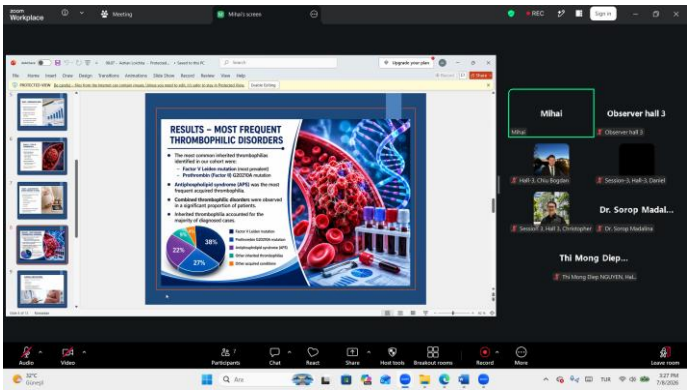
8TH INTERNATIONAL CONGRESS ON MEDICAL & HEALTH SCIENCES
MACHINE LEARNING-ASSISTED PREDICTION OF ABNORMAL CERVICAL CYTOLOGY OUTCOMES IN ROMANIA'S CERVICAL CANCER SCREENING PROGRAM (2012–2023)
Ion PETRE, Miruna Lucia NACHESCU, Mihai LOICHITA, Tiberiu BULEU, Alexandru – Marius FURAU, Razvan BOBORA, Izabella PETRE
"Victor Babes" University of Medicine and Pharmacy Timisoara, Romania
West University of Timisoara, Romania
Observer hall 3
Mihai
Dr. Sorop Madal...

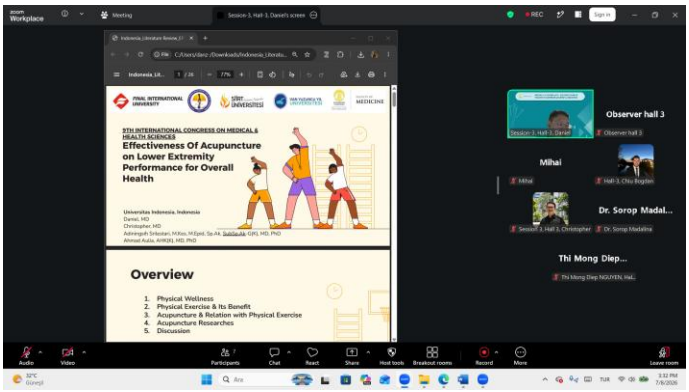

Background
Cervical cancer remains one of the leading causes of cancer-related morbidity among women.
Organized cervical screening enables early detection of precancerous lesions.
Large screening databases provide valuable epidemiological information.
Machine learning offers new opportunities for predictive risk
Observer hall 3
Mihai
Dr. Sorop Madal...

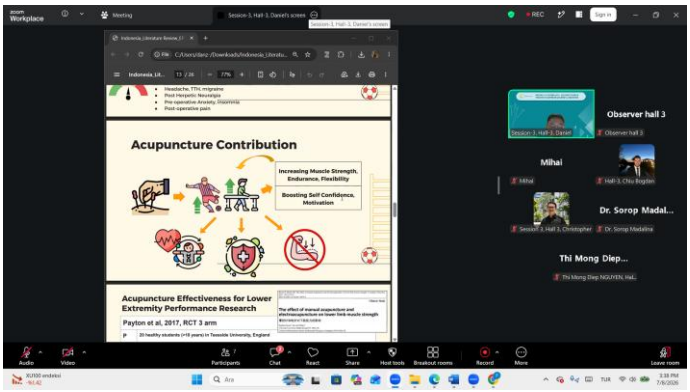

8TH INTERNATIONAL CONGRESS ON MEDICAL & HEALTH SCIENCES
QUALITY ASSESSMENT AND CYTOLOGICAL CHARACTERISTICS OF CERVICAL SMEARS IN THE CERVICAL CANCER SCREENING PROGRAM: A 12-YEAR RETROSPECTIVE ANALYSIS
Observer hall 3
Mihai
Dr. Sorop Madal...
Thi Mong Diep...

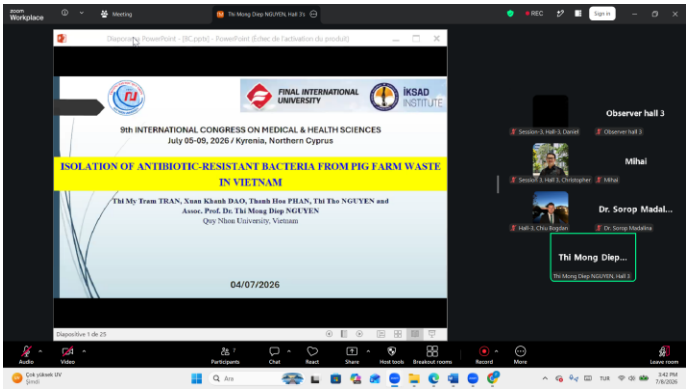

8TH INTERNATIONAL CONGRESS ON MEDICAL & HEALTH SCIENCES
THE CLINICAL ROLE OF THROMBOPHILIA SCREENING IN PREGNANCY: CURRENT PERSPECTIVES AND CHALLENGES
Mihai
Observer hall 3
Dr. Sorop Madal...
Thi Mong Diep...

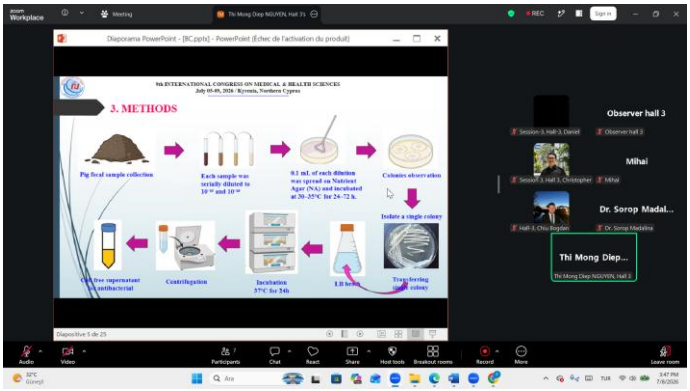

THE CLINICAL ROLE OF THROMBOPHILIA SCREENING IN PREGNANCY: CURRENT PERSPECTIVES AND CHALLENGES
Mihai
Observer hall 3
Dr. Sorop Madal...
Thi Mong Diep...

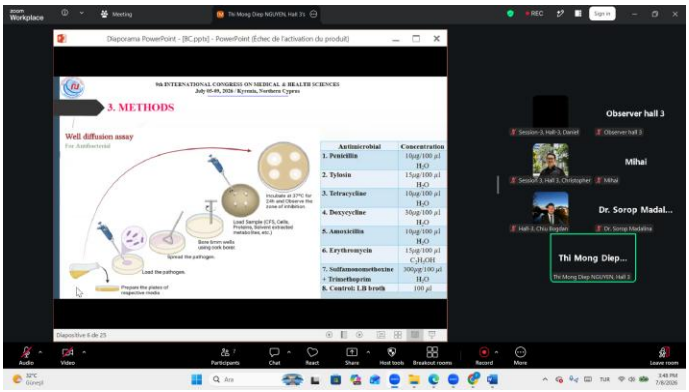

RESULTS – MOST FREQUENT THROMBOPHILIC DISORDERS
Mihai
Observer hall 3
Dr. Sorop Madal...
Thi Mong Diep...

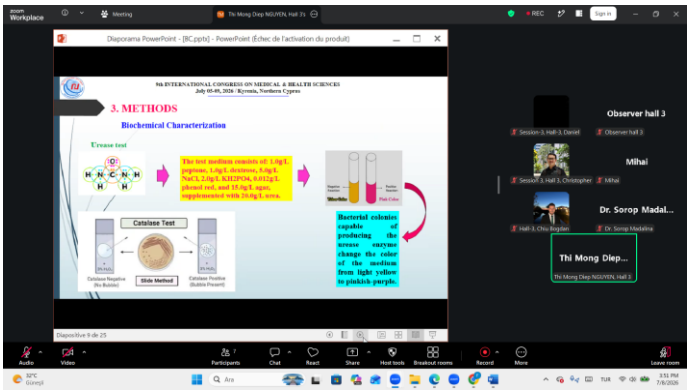

Effectiveness Of Acupuncture on Lower Extremity Performance for Overall Health
Overview
1. Physical Wellness
2. Physical Exercise & Its Benefit
3. Acupuncture & Relation with Physical Exercise
4. Acupuncture Researches
5. Discussion
Observer hall 3
Mihai
Dr. Sorop Madal...
Thi Mong Diep...

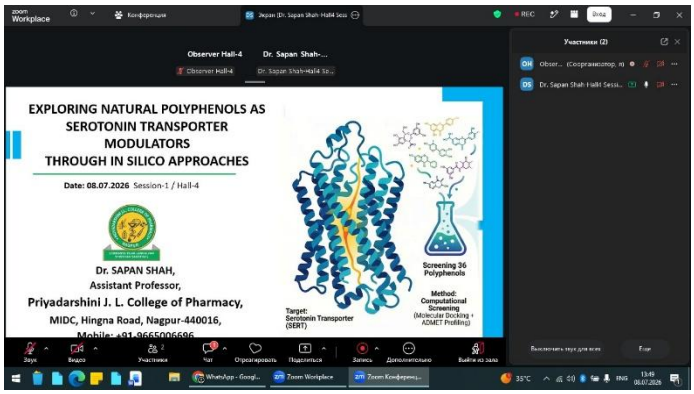

Acupuncture Contribution
Increasing Muscle Strength, Endurance, Flexibility
Boosting Self Confidence, Motivation
Acupuncture Effectiveness for Lower Extremity Performance Research
Payton et al, 2017, RCT 3 arm
Observer hall 3
Mihai
Dr. Sorop Madal...
Thi Mong Diep...

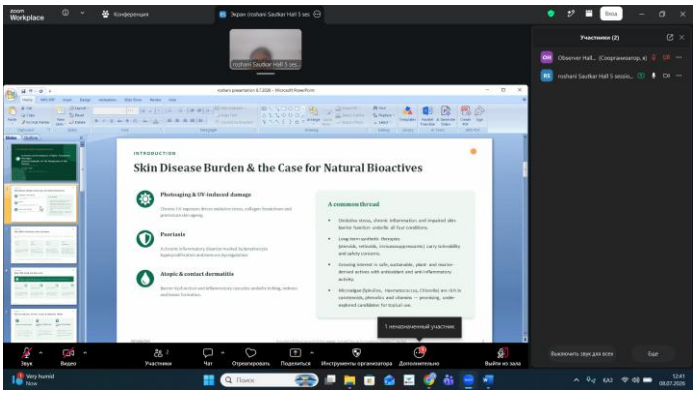

FINAL INTERNATIONAL UNIVERSITY
IKSAD INSTITUTE
9th INTERNATIONAL CONGRESS ON MEDICAL & HEALTH SCIENCES
July 05-09, 2026 / Kyrenia, Northern Cyprus
ISOLATION OF ANTIBIOTIC-RESISTANT BACTERIA FROM PIG FARM WASTE IN VIETNAM
Thi My Tram TRAN, Xuan Khanh DAO, Thanh Hoa PHAN, Thi Tho NGUYEN and Assoc. Prof. Dr. Thi Mong Diep NGUYEN
Quy Nhon University, Vietnam
04/07/2026
Observer hall 3
Mihai
Dr. Sorop Madal...
Thi Mong Diep...

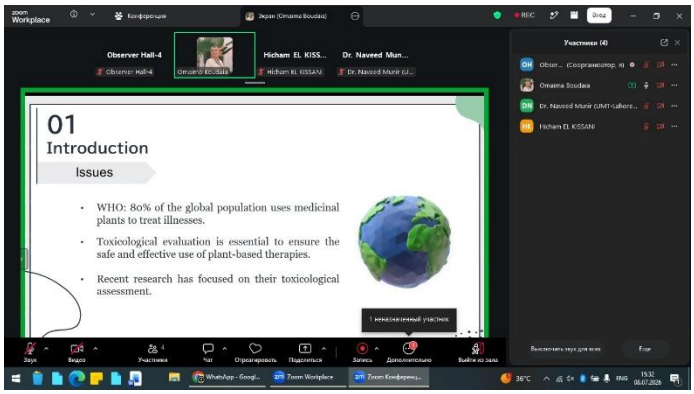

3. METHODS
Pig fecal sample collection
Each sample was serially diluted to 10⁻¹ and 10⁻²
0.1 mL of each dilution was spread on Nutrient Agar (NA) and incubated at 30-35°C for 24-72 h.
Colonies observation
Isolate a single colony
Transferring single colony
LB broth
Incubation 37°C for 24h
Centrifugation
Observer hall 3
Mihai
Dr. Sorop Madal...
Thi Mong Diep...

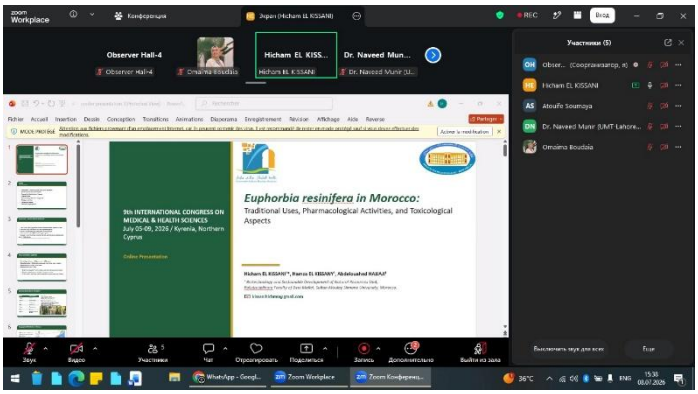

3. METHODS
Well diffusion assay
Antimicrobial
Concentration
1. Penicillin
2. Tylosin
3. Tetracycline
4. Doxycycline
5. Amoxicillin
6. Erythromycin
7. Sulfamonomethoxine
+ Trimethoprim
8. Control: LB broth
Observer hall 3
Mihai
Dr. Sorop Madal...
Thi Mong Diep...

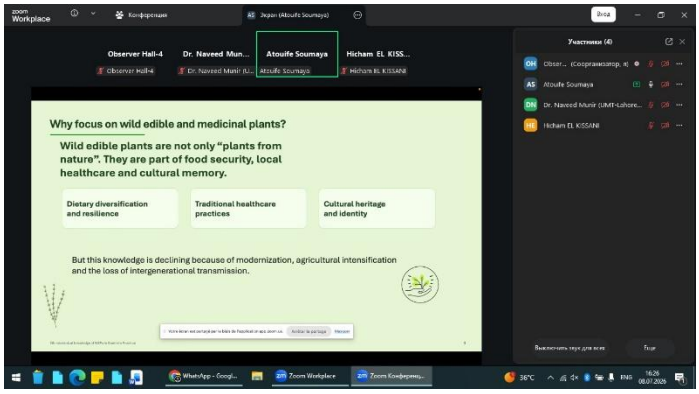

3. METHODS
Biochemical Characterization
Urease test
Catalase Test
Slide Method
Bacterial colonies capable of producing the urease enzyme change the color of the medium from light yellow to pinkish-purple.
Observer hall 3
Mihai
Dr. Sorop Madal...
Thi Mong Diep...

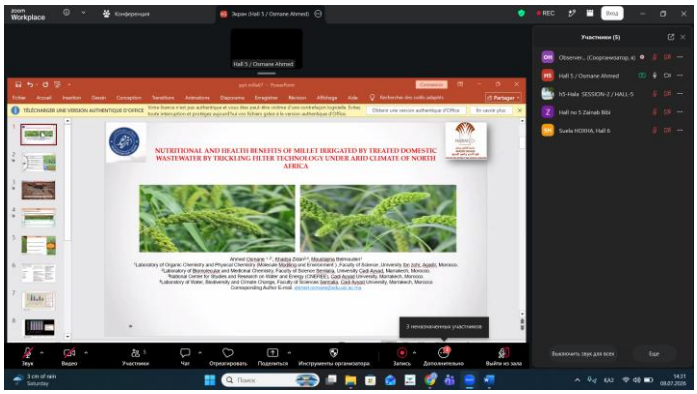

EXPLORING NATURAL POLYPHENOLS AS SEROTONIN TRANSPORTER MODULATORS THROUGH IN SILICO APPROACHES
Date: 08.07.2026 Session-1 / Hall-4
Dr. SAPAN SHAH,
Assistant Professor,
Priyadarshini J. L. College of Pharmacy,
MIDC, Hingna Road, Nagpur-440016,
Screening 36 Polyphenols
Method: Computational Screening (Molecular Docking + ADMET Profiling)
Target: Serotonin Transporter (SERT)

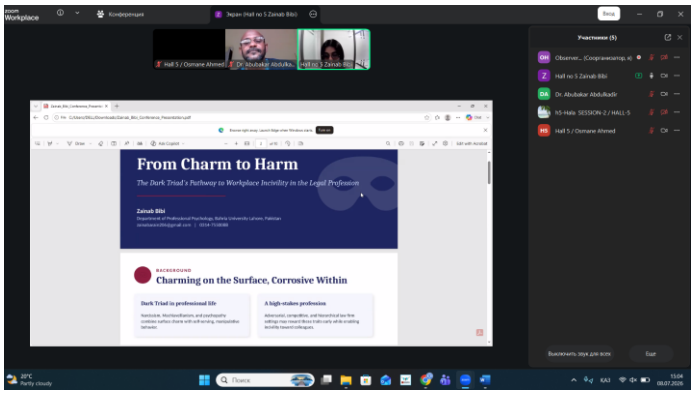

Skin Disease Burden & the Case for Natural Bioactives
Photoaging & UV-induced damage
Psoriasis
Atopic & contact dermatitis
A common thread

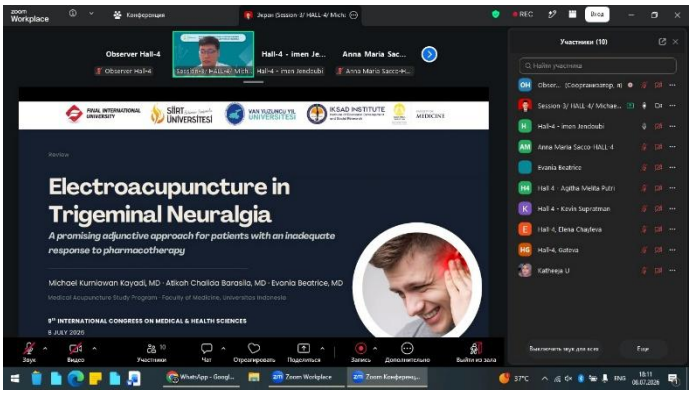

01
Introduction
Issues
WHO: 80% of the global population uses medicinal plants to treat illnesses.
Toxicological evaluation is essential to ensure the safe and effective use of plant-based therapies.
Recent research has focused on their toxicological assessment.

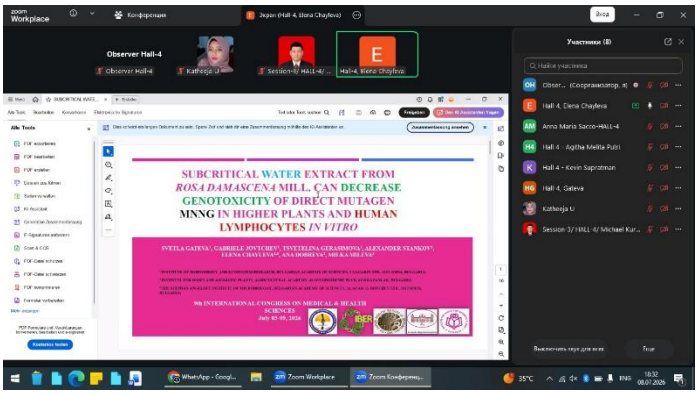

Euphorbia resinifera in Morocco:
Traditional Uses, Pharmacological Activities, and Toxicological Aspects

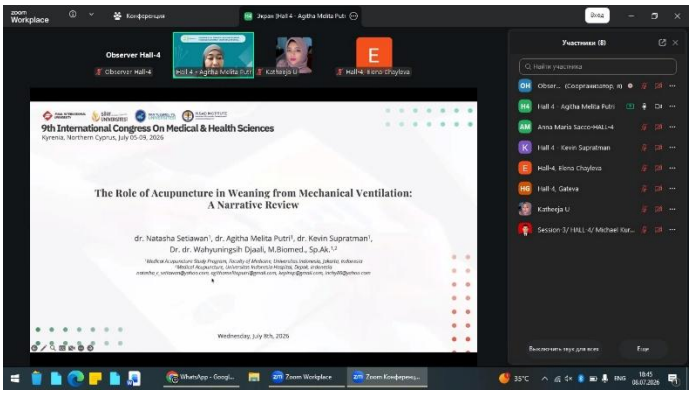

Why focus on wild edible and medicinal plants?
Wild edible plants are not only "plants from nature". They are part of food security, local healthcare and cultural memory.
Dietary diversification and resilience
Traditional healthcare practices
Cultural heritage and identity
But this knowledge is declining because of modernization, agricultural intensification and the loss of intergenerational transmission.

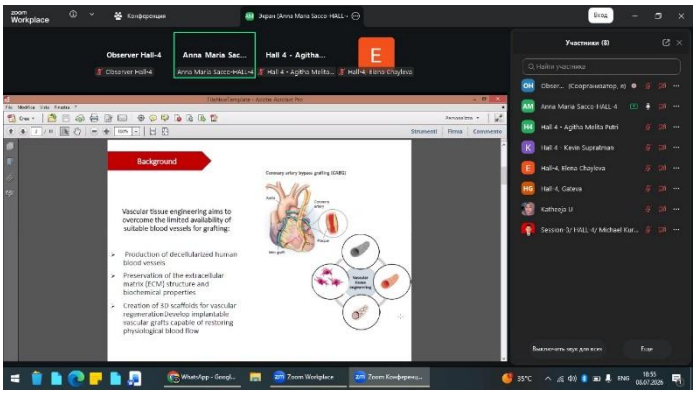

NUTRITIONAL AND HEALTH BENEFITS OF MILLET IRRIGATED WITH TREATED DOMESTIC WASTEWATER BY TRICKLING FILTER TECHNOLOGY UNDER ARID CLIMATE OF NORTH AFRICA

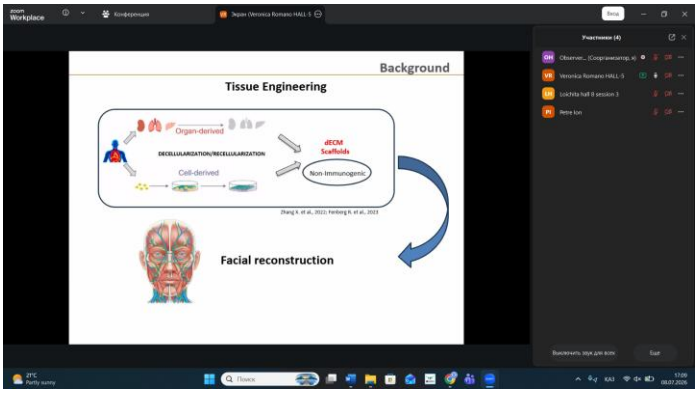

From Charm to Harm
The Dark Triad's Pathway to Workplace Incivility in the Legal Profession
Zainab Bibi
Charming on the Surface, Corrosive Within
Dark Triad in professional life
A high-stakes profession

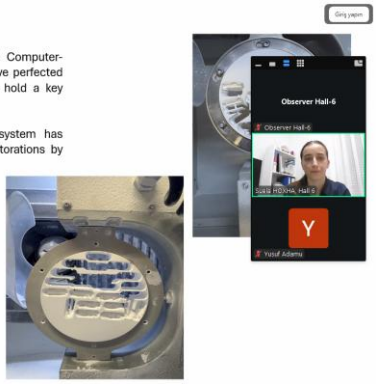

Electroacupuncture in Trigeminal Neuralgia
A promising adjunctive approach for patients with an inadequate response to pharmacotherapy
Michael Kurniawan Kayadi, MD · Atikah Chalida Barasila, MD · Evania Beatrice, MD
9th INTERNATIONAL CONGRESS ON MEDICAL & HEALTH SCIENCES
8 JULY 2026

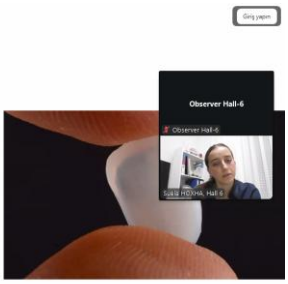

SUBCRITICAL WATER EXTRACT FROM ROSA DAMASCENA MILL. CAN DECREASE GENOTOXICITY OF DIRECT MUTAGEN MNNG IN HIGHER PLANTS AND HUMAN LYMPHOCYTES IN VITRO

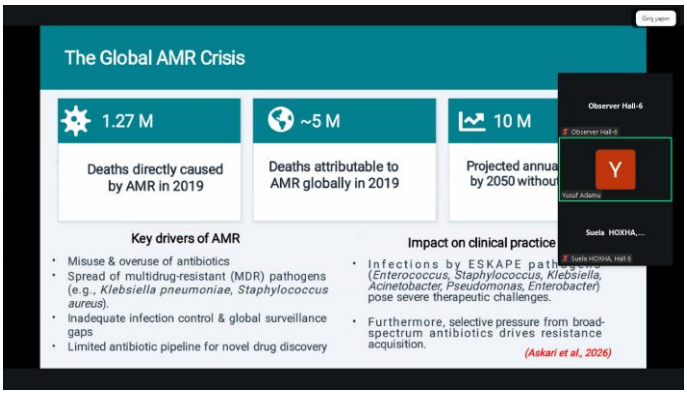

9th International Congress On Medical & Health Sciences
The Role of Acupuncture in Weaning from Mechanical Ventilation: A Narrative Review


Background
Vascular tissue engineering aims to overcome the limited availability of suitable blood vessels for grafting:
Production of decellularized human blood vessels
Preservation of the extracellular matrix (ECM) structure and biochemical properties
Creation of 3D scaffolds for vascular regeneration/develop implantable vascular grafts capable of restoring physiological blood flow


Background
Tissue Engineering
Organ-derived
Cell-derived
DECELLULARIZATION/RECELLULARIZATION
dECM Scaffolds
Non-Immunogenic
Facial reconstruction


Advancements in Computer-Aided Design and Computer-Aided Manufacturing (CAD-CAM) technology have perfected the properties of dental ceramics, which now hold a key position in the field of Dentistry[10, 11].
Suganna et al. (2022) emphasize that this system has transformed the process of creating dental restorations by increasing accuracy and efficiency[12].


The optical properties of dental ceramics are:
TRANSPARENCY is an extreme value of high translucency. A transparent material allows light to pass through it without being weakened[13].
TRANSLUCENCY is the ability of a material to allow a certain amount of light to penetrate through it while also scattering it. It determines the aesthetic success of dental ceramics[14].
OPALESCENCE is the phenomenon where an object appears to have a chalky appearance. OPACITY is the ability of a material to block the passage of light through it[15].


The Global AMR Crisis
1.27 M
Deaths directly caused by AMR in 2019
~5 M
Deaths attributable to AMR globally in 2019
10 M
Key drivers of AMR
Misuse & overuse of antibiotics
Spread of multidrug-resistant (MDR) pathogens (e.g., Klebsiella pneumoniae, Staphylococcus aureus).
Inadequate infection control & global surveillance gaps
Limited antibiotic pipeline for novel drug discovery
Impact on clinical practice
Infections by ESKAPE pathogens (Enterococcus, Staphylococcus, Klebsiella, Acinetobacter, Pseudomonas, Enterobacter) pose severe therapeutic challenges.
Furthermore, selective pressure from broad-spectrum antibiotics drives resistance acquisition.
(Askari et al., 2026)

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Nigeria	8	USA	1
Pakistan	7	France	1
Northern Cyprus (TRNC)	6	Croatia	1
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Algeria	4	Vietnam	1
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Italy	3	Republic of Moldova	1
Albania	2		

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06.07.2026 / Kyrenia Local Time: 09 30 : 10 30

INTERNATIONAL FINAL UNIVERSITY

-IN PERSON SESSION-

06.07.2026 / INTERNATIONAL FINAL UNIVERSITY

HALL-1 / Kyrenia Local Time: 10 30 : 12 30

HEAD OF SESSION: Prof. Dr. Mahmut TAŞ

AUTHORS	AFFILIATION	TOPIC TITLE
Assoc. Prof. Dr. Esra TURAL BÜYÜK PhD. Gözde GÜNDÜZ	Ondokuz Mayıs University, Türkiye Samsun City Hospital, Türkiye	THE ROLE OF SANDPLAY THERAPY IN PREOPERATIVE PREPARATION OF CHILDREN: A PEDIATRIC NURSING PERSPECTIVE
Assist. Prof. Dr. Tuncay ULU	Van Yüzüncü Yıl University, Türkiye	FIBROMYALGIA-RELATED DIAGNOSTIC DELAY AND EXCESSIVE TESTING: WHAT SHOULD PRIMARY CARE PHYSICIANS DO?
Res. Assist. Hilal Gül BOYRAZ YANIK Res. Assist. Fatma AKSOY ŞİRİN Prof. Dr. Nülüfer ERBİL	Ordu University, Türkiye	NURSING STUDENTS' SELF-COMPASSION, PROFESSIONAL VALUES, AND EMOTIONAL EMPATHY: A DESCRIPTIVE AND CORRELATIONAL STUDY
Prof. Dr. Nejla CANBULAT ŞAHİNER Assoc. Prof. Dr. Hacer Sibel KARAPINAR Havvanur BAYAM Assoc. Prof. Dr. Dilek MENEKŞE Nezahat YILMAZ Assoc. Prof. Dr. Murat KONAK Prof. Dr. Ayşe Sonay TÜRKMEN Dr. Mehmet Alperen TURGUT	Karamanoglu Mehmetbey University, Türkiye Selcuk University, Türkiye Sakarya University, Türkiye Mersin University, Türkiye	THE EFFECT OF CIRCADIAN CHARACTERISTICS OF BREAST MILK ON INFANT GROWTH PARAMETERS AND NUTRIENT ABSORPTION IN PRETERM INFANTS: ALL RESULTS
Prof. Dr. Nejla CANBULAT ŞAHİNER Assoc. Prof. Dr. Alper Yusuf KÖROĞLU	Karamanoğlu Mehmetbey University, Türkiye	ARTIFICIAL INTELLIGENCE AND GAMIFICATION IN HEALTH EDUCATION
Assoc. Prof. Alper Yusuf KÖROĞLU Prof. Dr. Nejla CANBULAT ŞAHİNER	Karamanoğlu Mehmetbey University, Türkiye	RISKY PLAY IN EARLY CHILDHOOD: A REVIEW FROM HEALTH AND DEVELOPMENT PERSPECTIVES
Assoc. Prof. Alper Yusuf KÖROĞLU	Karamanoğlu Mehmetbey University, Türkiye	AN EXAMINATION OF PARENTAL PHUBBING (TECHNOFERENCE) BEHAVIOR FROM A DEVELOPMENTAL PERSPECTIVE
Prof. Dr. Nurhan DOĞAN	Afyonkarahisar Health Sciences University, Türkiye	STATISTICAL ANALYSIS OF DEPENDENT GROUPS IN CLINICAL FOLLOWUP STUDIES: PARAMETRIC, NONPARAMETRIC, AND CATEGORICAL DATA ANALYSES
Assoc. Prof. Dr. İbrahim MUTLU Feyzanur HANTAL Sümeyra ÇOLAK Assoc. Prof. Dr. Talip ÇELİK Assist. Prof. Dr. Umut MAYETİN Assoc. Prof. Dr. Alp ERTÜRK	Kocaeli University, Türkiye	DESIGN, SIGNAL PROCESSING OPTIMIZATION, AND LABORATORY VALIDATION OF AN NDIR-BASED REMOTE-MONITORED CAPNOMETER VIA A NOVEL RESPIRATORY SIMULATION PLATFORM

-IN PERSON SESSION-

06.07.2026 / INTERNATIONAL FINAL UNIVERSITY

HALL-2 / Kyrenia Local Time: 10 30 : 12 30

HEAD OF SESSION: Assoc. Prof. Dr. Eda ACIKGOZ

AUTHORS	AFFILIATION	TOPIC TITLE
Dr. Songül Ece GÖNEN Dr. Emine Kübra DİNDAR Dr. Ecem KAYA	Siirt Education and Research Hospital, Türkiye Siirt University, Türkiye Aydın Nazilli State Hospital, Türkiye	FETAL MUSCULAR VENTRICULAR SEPTAL DEFECT DETECTED AFTER INAPPROPRIATE RETINOIC ACID USE IN MONOCHORIONIC DIAMNIOTIC TWIN PREGNANCY: CASE REPORT
Assoc. Prof. Dr. Eda ACIKGOZ	Van Yuzuncu Yil University, Türkiye	METABOLIC STRESS-DRIVEN LIPID DROPLET REMODELING IN CANCER CELLS: INSIGHTS INTO ADAPTIVE SIGNALING NETWORKS
Dr. Emine Kübra DİNDAR Dr. Özcan DEVECİ Dr. Naci Ömer ALAYURT Dr. Abdulselam EKİN	Siirt University, Türkiye Privat Genesis Hospital, Türkiye	THE EFFICACY OF THE HALP SCORE IN PREDICTING MORTALITY AMONG INTENSIVE CARE PATIENTS with DIFFERENT DIAGNOSES
Ebru Bakac Assoc. Prof. Dr. Deniz Agirbasli Assoc. Prof. Dr. Aysel Kalaycı	İstanbul University-Cerrahpasa, Türkiye	MOLECULAR AND CLINICAL CHARACTERIZATION OF A SPAST VARIANT AND A NOVEL CYP7B1 VARIANT IN HEREDITARY SPASTIC PARAPLEGIA
Mehmet Karaçay Gözde Arslan Müjdat Atılgan Sudenur Arsoy Zeynep Nur Şentürk Yağmur Aydın Atalay Ezgi Yumuşak Ahmet Akkoç Salih Haldun Bal Diğdem Yöyen Ermiş Haluk Barbaros Oral Ayça Sayı Yazgan	Van Yüzüncü Yıl University, Türkiye Istanbul Technical University, Türkiye Bursa Uludag University, Türkiye	IMPACT OF DIFFERENT MOG35-55 PEPTIDE PREPARATIONS ON CLINICAL AND HISTOPATHOLOGICAL OUTCOMES IN THE EXPERIMENTAL AUTOIMMUNE ENCEPHALOMYELITIS MODEL
Kamil ÖZTÜRK Nihat HİÇYILMAZ	Siirt Education and Research Hospital, Türkiye Siirt University, Türkiye	THE IMPORTANCE OF FECAL OCCULT BLOOD TESTING IN PRIMARY CARE: A CASE LEADING TO THE DETECTION OF COLORECTAL POLYPOSIS
Assoc. Prof. Dr. Celil KAÇOĞLU Assist. Prof. Dr. Cemal POLAT	Eskişehir Technical University, Türkiye	THE RELATIONSHIP BETWEEN KINESIOPHOBIA AND PERFORMANCE PERCEPTION FOLLOWING ANKLE INJURIES IN YOUNG FEMALE VOLLEYBALL PLAYERS: A PRELIMINARY STUDY
Assist. Prof. Dr. Cemal POLAT	Eskişehir Technical University, Türkiye	AN EXAMINATION OF THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND THE PERCEPTION OF BODY AND HEALTH AMONG SPORTS SCIENCE STUDENTS: A PILOT STUDY
Şüheda İLHAN Adile Can İLHAN	FizyoBil Healthy Life Center, Türkiye	EFFECTIVENESS OF REFORMER PILATES COMBINED WITH PELVIC FLOOR MUSCLE TRAINING IN WOMEN WITH POSTPARTUM URINARY INCONTINENCE: A RANDOMIZED CONTROLLED STUDY

-IN PERSON SESSION-

06.07.2026 / INTERNATIONAL FINAL UNIVERSITY

HALL-3 / Kyrenia Local Time: 10 30 : 12 30

HEAD OF SESSION: Prof. Dr. Meltem SOYLU

AUTHORS	AFFILIATION	TOPIC TITLE
Prof. Dr. Nurgül Bölükbaş Res. Assist. Yüsra Nur Günday	Ordu University, Türkiye Amasya University, Türkiye	INTENSIVE CARE NURSES' OPINIONS AND PRACTICES REGARDING PATIENT HANDOVER: A DESCRIPTIVE STUDY
Gizem AÇIKGÖZ Zuhal BAHAR Cennet ÇİRİŞ YILDIZ Burcu ÖZKAN Meryem ERCEYLAN Güzin ÜNLÜ SUVARİ	Istanbul Kent University, Türkiye Istanbul Aydın University, Türkiye Fenerbahçe University, Türkiye İstinye University, Türkiye Acıbadem University, Türkiye	THE ROLE OF COGNITIVE APPROACHES IN NURSING STUDENTS' LEARNING EXPERIENCES: A QUASI-EXPERIMENTAL STUDY
Esra ALDIRMAZ	Final International University, Northern Cyprus	THE IMPORTANCE OF EXERCISE IN DUCHENNE MUSCULAR DYSTROPHY
Assist. Prof. Dr. Aslı Emine Özen-de Haas Assist. Prof. Dr. Günsu Soykut	Final International University, Northern Cyprus	A COMPARATIVE STUDY OF PLANT-BASED AND COW'S MILK PRODUCTS AVAILABLE IN CYPRUS
Dr. Dilara Olgaçer	Final International University, Northern Cyprus	STRENGTHENING SCHOOL-FOOD SYSTEM CONNECTIONS TO IMPROVE CHILDREN'S DIETS: INSIGHTS FROM PROJECT DAIRE
Dr. Yasemin Tözün Assist. Prof. Dr. İ.Ata Orgun Assoc. Prof. Dr. Hülya Şenol	Cyprus Health and Social Sciences University, Northern Cyprus	COMPARISON OF FACIAL PROFILE ATTRACTIVENESS PERCEPTION AMONG INDIVIDUALS WITH SKELETAL CLASS I, II, AND III MALOCCLUSIONS
Samet YILDIZ Prof. Dr. Meltem SOYLU	Alanya Alaaddin Keykubat University, Türkiye	RELATIONSHIP BETWEEN MIGRAINE and CAFFEINE: TRIGGER or PROTECTIVE FACTOR? A REVIEW of CURRENT EVIDENCE
Yılmaz AKGÜNDÜZ Assoc. Prof. Dr. Ertuğrul GÜREŞCİ	Kırşehir Ahi Evran University, Türkiye	HEALTH SERVICES COOPERATIVISM IN THE WORLD FROM A GLOBAL PERSPECTIVE
Assist. Prof. Ceren ŞARAHMAN KAHRAMAN Prof. Dr. Meltem SOYLU	Alanya Alaaddin Keykubat University, Türkiye	THE IMPACT OF WAR, MIGRATION, AND PSYCHOLOGICAL FACTORS ON FOOD SECURITY

-IN PERSON SESSION-

06.07.2026 / INTERNATIONAL FINAL UNIVERSITY

HALL-4 / Kyrenia Local Time: 10 30 : 12 30

HEAD OF SESSION: Assoc. Prof. Dr. Zehra Kaya

AUTHORS	AFFILIATION	TOPIC TITLE
Assist. Prof. Niran ÇOBAN Aleyna TOPAL	Yalova University, Türkiye Haseki Training and Research Hospital, Türkiye	THE EFFECT OF PREOPERATIVE MANDALA COLORING ON ANXIETY AND STRESS LEVELS
Lec. Hüsna GÜZEL Lec. Yeliz ÇIRAK Asst. Prof. Dr. Elif Sena DÜŞGÜN Asst. Prof. Dr. Buse SERT	Fenerbahçe University, Türkiye Gedik University, Türkiye	AN INVESTIGATION OF THE RELATIONSHIP BETWEEN PAIN INTENSITY, RESPIRATORY FUNCTION, AND STRESS LEVELS IN INDIVIDUALS WITH PRIMARY DYSMENORRHEA
Prof. Dr. Ergül BELGE KURUTAŞ Asst. Prof. Figen GÜZELGÜL Prof. Dr. Perihan ÖZTÜRK	Kahramanmaras Sutcu Imam University, Türkiye Tokat Gaziosmanpasa University, Türkiye	GPER-1 LEVELS IN FEMALE PATIENTS WITH ACNE VULGARIS
İskender YILMAZ Assos. Prof. Dr. Sevda Lafçı Fahrioğlu Prof. Dr. Sezgin İlgi	Girne University, Northern Cyprus Cyprus Health and Social Sciences University, Northern Cyprus Near East University, Northern Cyprus	DEVELOPMENT AND PRELIMINARY EVALUATION OF THE AI-INTEGRATED ANATOMY LEARNING QUESTIONNAIRE AMONG MEDICAL STUDENTS
Assos. Prof. Dr. Sevda Lafçı Fahrioğlu Res. Assist. Yağmur Öztürk Assist. Prof. Dr. Al-Gailnai Lubna Prof. Dr. Sezgin İlgi	Cyprus Health and Social Sciences University, Northern Cyprus	ANATOMICAL DISTRIBUTION AND NEUROBIOLOGICAL INTERACTION NETWORK OF GLP- 1 RECEPTORS
Assoc. Prof. Dr. Mehmet ÜYÜKLÜ Assist. Prof. Dr. Sevgi GÜNEŞ	Siirt University, Türkiye	PROTECTIVE EFFECT OF NITRIC OXIDE IN ERYTHROCYTES EXPOSED TO MECHANICAL TRAUMA
Dr. Ares Alizade	Yüzüncü Yıl University, Türkiye	FROM BACTERIAL METABOLITES TO NEURAL SIGNALS: PHARMACODYNAMIC EFFECTS OF VSL#3 ON THE GUT–BRAIN AXIS
Assist. Prof. Dr. Burak Muğdat Karan Assoc. Prof. Dr. Zehra Kaya Dr. İskan Çallı	Van Yuzuncu Yil University, Türkiye	EVALUATION OF THE ASSOCIATION BETWEEN CYP1A1 RS4646421 POLYMORPHISM AND GASTRIC CANCER
Assoc. Prof. Dr. Zehra Kaya Assist. Prof. Dr. Burak Muğdat Karan Dr. Necat ALMALI	Van Yuzuncu Yil University, Türkiye Bakırköy Acıbadem Hospital, Türkiye	ROLE OF rs246395 POLYMORPHISM IN GASTRIC CANCER SUSCEPTIBILITY

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-ONLINE SESSION-

07.07.2026 / SESSION-1 / HALL-1

Kyrenia Local Time: 10 00 : 12 00 | Ankara Local Time: 10 00 : 12 00

HEAD OF SESSION: Dr. Tutku BALCI

AUTHORS	AFFILIATION	TOPIC TITLE
Res. Assist. Yaren ARAY	Istanbul Esenyurt University, Türkiye	AN ECO-FRIENDLY AND PERFORMANCE-ENHANCING APPROACH: EFFECTS OF PLANT-BASED PROTEIN SOURCES ON ATHLETIC PERFORMANCE
Dr. Tutku BALCI Assoc. Prof. Dr. Dilek ONGAN	Izmir Katip Celebi University, Türkiye	MICROBIOTA-ESTROGEN INTERACTION IN POSTMENOPAUSAL WOMEN
Ebru AKBAŞ Asst. Prof. Gülden ATAN	Ağrı Doğubayazıt Doç. Dr. Yaşar Eryılmaz State Hospital, Türkiye Van Yüzüncü Yıl University, Türkiye	THE EFFECT OF DIGITAL HEALTH APPLICATIONS AND TELE-NURSING ON GLYCEMIC CONTROL AND SELF-CARE AGENCY IN INDIVIDUALS WITH TYPE 2 DIABETES
Betül Hüseyin	Gazi University, Türkiye	NUTRITION LITERACY AND ASSOCIATED FACTORS IN YOUNG WOMEN
Merve ÇAĞLAN Dr. Sezer YAKUPOĞLU Assoc. Prof. Dr. Zehra Margot ÇELİK Assoc. Prof. Dr. Şule AKTAÇ	Marmara University, Türkiye Kartal Dr. Lütfi Kırdar City Hospital, Türkiye	PREOPERATIVE ORAL CARBOHYDRATE LOADING IN BURN PATIENTS

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-ONLINE SESSION-

07.07.2026 / SESSION-1 / HALL-2

Kyrenia Local Time: 10 00 : 12 00 | Ankara Local Time: 10 00 : 12 00

HEAD OF SESSION: Assist. Prof. Dr. Cigdem GUNGORMEZ

AUTHORS	AFFILIATION	TOPIC TITLE
Assist. Prof. Dr. Cigdem GUNGORMEZ	Siirt University, Türkiye	IDENTIFICATION OF HUB GENES AND POTENTIAL THERAPEUTIC TARGETS IN ENDOMETRIAL CANCER: AN INTEGRATED BIOINFORMATICS ANALYSIS OF GEO AND TCGA-UCEC DATASETS
Assist. Prof. Dr. Mustafa Furkan OZTURK Assist. Prof. Dr. Ahmet Turan URHAN Assist. Prof. Dr. Ziya TAN Dr. Sefa SONMEZ	Tokat Gaziosmanpaşa University, Türkiye	ANALYSIS OF CUBITAL ANGLE VALUES IN YOUNG ADULTS BY GENDER
Ibrahim ELALAVİ	Dokuz Eylul University, Türkiye	MEDICINAL PLANTS USED FOR ANIMAL HEALTH IN SYRIA: AN ETHNOBOTANICAL ASSESSMENT
Elif DÖNMEZOĞLU KÜTÜKÇÜ Assoc. Prof. Dr. Nevin KARAKUŞ Assoc. Prof. Dr. Mesut ÖNAL Dr. Tugay SANDALCI Derya SEZEN	Tokat Gaziosmanpaşa University, Türkiye	INVESTIGATION OF THE RELATIONSHIP BETWEEN VASCULAR ENDOTHELIAL GROWTH FACTOR A rs3025039 C>T POLYMORPHİSM AND HYPERTENSIVE DISORDDERS IN PREGNANT WOMEN
Nilufar BAYRAMLİ	Baku Engineering University, Azerbaijan	ESSENTIAL OILS USED IN AROMATHERAPY

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-ONLINE SESSION-

07.07.2026 / SESSION-1 / HALL-3

Kyrenia Local Time: 10 00 : 12 00 | Ankara Local Time: 10 00 : 12 00

HEAD OF SESSION: Assoc. Prof. Dr. Zerrin FIRAT

AUTHORS	AFFILIATION	TOPIC TITLE
Önder ÇETİNBAŞ Assist. Prof. Dr. Ahmet GENÇ	İstanbul Aydın University, Türkiye	INVESTIGATING THE RELATIONSHIP BETWEEN INDIVIDUALS' DIGITAL HEALTH LITERACY AND THEIR ATTITUDES TOWARD THE USE OF ARTIFICIAL INTELLIGENCE FOR HEALTH PURPOSES
Şeyma ÖZER GÜNEŞ Assist. Prof. Dr. Aynur KAYNAR ŞİMŞEK	Marmara University, Türkiye	AN OVERVIEW OF WORKPLACE VIOLENCE IN NURSING
Assoc.Prof. Dr. Zerrin FIRAT Tuğba TUFAN Nergiz DURSUN Assist. Prof. Şükrü DOKUR	Bursa Uludağ University, Türkiye	THE IMPACT OF A QUALIFIED WORKFORCE ON MANAGERIAL EFFECTIVENESS IN HEALTHCARE TOURISM: AN ASSESSMENT OF HEALTHCARE ORGANIZATIONS
Assoc. Prof. Dr. Zerrin FIRAT Tuğba TUFAN Nergiz DURSUN Assist. Prof. Şükrü DOKUR	Bursa Uludağ University, Türkiye	THE MANAGEABILITY AND SUSTAINABILITY OF HEALTHCARE SERVICES IN MEDICAL TOURISM: A CONCEPTUAL ASSESSMENT FROM THE PERSPECTIVE OF HEALTHCARE ORGANIZATION MANAGEMENT
Lec. Neşe ERAY Prof. Dr. Safiye ÖZVURMAZ	Aydın Adnan Mnederes University, Türkiye	A RISK-BASED PUBLIC HEALTH NURSING APPROACH TO THE PREVENTION OF HOME ACCIDENTS AMONG OLDER PEOPLE
Lec. Neşe ERAY	Aydın Adnan Mnederes University, Türkiye	RISK APPROACH IN MIGRANTS AND THE ROLE OF PUBLIC HEALTH NURSES IN PREVENTIVE HEALTH SERVICES

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-ONLINE SESSION-

07.07.2026 / SESSION-1 / HALL-4

Kyrenia Local Time: 10 00 : 12 00	Ankara Local Time: 10 00 : 12 00

HEAD OF SESSION: Assist. Prof. Rıza Korhan SEZİN

AUTHORS	AFFILIATION	TOPIC TITLE
Assist. Prof. Rıza Korhan SEZİN Assoc. Prof. Dr. Özlem Cangökçe YAŞAR Lec. İbrahim ERENSOY	Ondokuz Mayıs University, Türkiye	MULTIDIMENSIONAL EVALUATION OF GROUP VOICE THERAPY OUTCOMES IN OLDER ADULTS
Merve GÖK Melek KÖSE Assoc. Prof. Dr. Mümüne Merve PARLAK	Ankara Yıldırım Beyazıt University, Türkiye	APHASIA AND AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (AAC) USAGE PROFILE: A CASE REPORT
Melek KÖSE Merve GÖK Assoc. Prof. Dr. Mümüne Merve PARLAK	Ankara Yıldırım Beyazıt University, Türkiye	A REVIEW OF STUDIES ON AUGMENTATIVE AND ALTERNATIVE COMMUNICATION SYSTEMS FOR INDIVIDUALS WITH HEARING IMPAIRMENT
Esin ERGE Assoc. Prof. Dr. Elife BARMAK	Ankara Yıldırım Beyazıt University, Türkiye	AN INVESTIGATION INTO THE EFFECTIVENESS OF LANGUAGE AND SPEECH INTERVENTION IN A CASE OF CONGENITAL VISUAL IMPAIRMENT
Assist. Prof. Anı PARABAKAN POLAT Şükran ÖZEN Sude ÜSTAL Simgenur ONGUN Sıla NALBAT Dr. Volkan TÜRKMEN	University of Health Sciences, Türkiye	INDIVIDUAL VALUES AS PREDICTORS OF CONFLICT MANAGEMENT STYLES AMONG AUDIOLOGISTS

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-ONLINE SESSION-

07.07.2026 / SESSION-1 / HALL-5

Kyrenia Local Time: 10 00 : 12 00	Ankara Local Time: 10 00 : 12 00

HEAD OF SESSION: Assoc. Prof. Dr. Izabella PETRE

AUTHORS	AFFILIATION	TOPIC TITLE
PhD Madalina Sorop Assist Prof. Dr. Bogdan Sorop Lect. Ion PETRE Assist Prof. Dr. Mircea Diaconu Lect. Florina Buleu Assoc.Prof. Dr. Izabella PETRE	Victor Babes University of Medicine and Pharmacy Timisoara, Romania	VITAMIN D AS A BIOMARKER IN PREGNANCIES COMPLICATED BY PREECLAMPSIA AND SARS-COV-2 INFECTION
Assoc. Prof. Dr. Izabella PETRE Assoc. Prof. Dr. Miruna Lucia NACHESCU Bogdan CHIU Elena BUSUIOC Tiberiu BULEU Maryam KRROSHEN Lec. Ion PETRE	Victor Babes University of Medicine and Pharmacy Timisoara, Romania	ASSESSMENT OF ARTERIAL STIFFNESS AS A PREDICTOR OF CARDIOVASCULAR RISK IN PREGNANCIES COMPLICATED BY HYPERTENSIVE DISORDERS
Bogdan CHIU Assoc. Prof. Dr. Izabella PETRE Assoc. Prof. Dr. Miruna Lucia NACHESCU Elena BUSUIOC Tiberiu BULEU Lect. Ion PETRE	Victor Babes University of Medicine and Pharmacy Timisoara, Romania	ASSESSMENT OF ARTERIAL FUNCTION DURING PREGNANCY: CURRENT EVIDENCE AND CLINICAL IMPLICATIONS
Adrian LOICHITA Assoc. Prof. Dr. Izabella PETRE Assist. Prof. Dr. Miruna SAMFIREAG Bogdan CHIU Assoc. Prof. Dr. Miruna Lucia NACHESCU Lect. Ion PETRE	Victor Babes University of Medicine and Pharmacy Timisoara, Romania	ANTITHROMBIN LEVELS AND PREGNANCY OUTCOMES IN WOMEN WITH THROMBOPHILIA: ASSOCIATION WITH REPRODUCTIVE LOSS HISTORY
Khadija Almalki Prof. Wafaa Faheem	King Abdulaziz University, Saudi Arabia	RELATIONSHIP BETWEEN ADHERENCE TO ANTENATAL CARE AND MATERNAL-FETAL OUTCOMES IN A REMOTE AREAS
Ibtisam Yati Prof. Dr. Wafaa Fahim	King Abdulaziz University, Saudi Arabia	THE RELATIONSHIP BETWEEN SOCIAL SUPPORT AND LEVEL OF ANXIETY AMONG WOMEN WITH A HISTORY OF ABORTION: NARRATIVE REVIEW
Bushra Eid Alfahmi Ebthal Abdullah Almutairi Layan Mohammed Aljahdali Wadyan Hejab Althiyabi Wafaa A Rashad	King Abdulaziz University, Saudi Arabia	PERCEIVED BODY IMAGE AND INTENTION TO BREASTFEED AMONG POSTPARTUM WOMEN IN SAUDI ARABIA
RN. Abeer Albalawi Prof. Dr. Wedad Almutairi	King Abdulaziz University, Saudi Arabia	EFFECTS OF BIRTH SKIN-TO-SKIN CONTACT ON MATERNAL OUTCOMES A SCOPING REVIEW
Imane Ait kaddour	Hassan 1st Settat University, Morocco	EVALUATION OF A CHILDBIRTH PREPARATION PROGRAM REGARDING ANXIETY, DEPRESSION, AND BODY IMAGE AMONG PREGNANT WOMEN: A SINGLE-GROUP PRE-POST COHORT STUDY IN THE PROVINCE OF SETTAT (MOROCCO)

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-ONLINE SESSION-

07.07.2026 / SESSION-1 / HALL-6

Kyrenia Local Time: 10 00 : 12 00	Ankara Local Time: 10 00 : 12 00

HEAD OF SESSION: Assist. Prof. Dr. Nabamita Nath

AUTHORS	AFFILIATION	TOPIC TITLE
Assist. Prof. Dr. Nabamita Nath Prof. Dr. Dipayan Choudhuri	Netaji Subhash Mahavidyalaya, India Tripura University, India	CORRELATION OF HEALH RELATED QUALITY OF LIFE AND METABOLIC SYNDROME IN POST- MENOPAUSAL WOMEN: INSIGHTS FROM NORTH-EAST INDIA
Sorin BURLICA Assoc. Prof. Dr. Izabella PETRE Cezar PÂNTEA Tiberiu BULEU Lect. Ion PETRE	Victor Babes University of Medicine and Pharmacy Timisoara, Romania	MENOPAUSE: KNOWLEDGE, PERCEPTIONS AND THERAPEUTIC PREFERENCES AMONG ROMANIAN WOMEN
Fawziah Aljohani Dr. Walaa Maghrabi	King Abdulaziz University, Saudi Arabia	MEN'S PERCEPTIONS AND ATTITUDES TOWARD FEMALE MENOPAUSE
Allai H Boureggab S Badaoui B Allai L Bellejdel I Mimouni A Choukri M Taheri H	Mohammed First University, Morocco Mohammed VI University Hospital Center, Morocco Mohammed I University, Morocco	INFERTILITY: A COMPLEX DISORDER INFLUENCED BY DEMOGRAPHIC, CLINICAL, AND HORMONAL FACTORS
Tiberiu BULEU Assoc. Prof. Dr. Izabella PETRE Lect. Florina BULEU Assoc. Prof. Dr. Miruna Lucia NACHESCU Bogdan CHIU Lect. Ion PETRE	Victor Babes University of Medicine and Pharmacy Timisoara, Romania	BODY COMPOSITION ASSESSMENT USING THE BODYMETRIX SYSTEM IN MENOPAUSAL WOMEN: CORRELATION WITH BODY MASS INDEX
Logith. S Dr. R. Devi S.Logith M.keerthana	Bharath Institute of Higher Education and Research, India	POLYCYSTIC OVARY SYNDROME (PCOS): ROLE OF PHARMACISTS IN AWARENESS AND MANAGEMENT

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-ONLINE SESSION-

07.07.2026 / SESSION-2 / HALL-1

Kyrenia Local Time: 12 30 : 14 30 | Ankara Local Time: 12 30 : 14 30

HEAD OF SESSION: Dr. Gamze AKSU BAYSAL

AUTHORS	AFFILIATION	TOPIC TITLE
Sinem CECE Buse SERT	Ankara Medipol University, Türkiye	CAN SMARTPHONE USAGE TIME BE A HEALTH RISK INDICATOR FOR CHILDREN? A THRESHOLD VALUE ANALYSIS FROM TURKISH DATA FOR MHEALTH MONITORING
HANDE BAŞ Prof. Dr. İLKNUR MAYA	Çanakkale Onsekiz Mart University, Türkiye	THE OPINIONS OF PRE-SCHOOL TEACHERS REGARDING THE IMPACT OF PARTICIPATION IN PROFESSIONAL DEVELOPMENT TRAINING ON INSTRUCTIONAL QUALITY
Dr. Gamze AKSU BAYSAL Fatih BABAT	Van Yuzuncu Yıl University, Türkiye	APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN PEDIATRIC HEMATO-ONCOLOGY: IMPLICATIONS FOR CLINICAL AND NURSING PRACTICE
Fatih BABAT Dr. Gamze AKSU BAYSAL	Van Yuzuncu Yıl University, Türkiye	AI-SUPPORTED DECISION-MAKING IN NURSING AND THE BLURRING OF ROLE AND AUTHORITY BOUNDARIES: A COMPARATIVE SCOPING REVIEW OF THE TURKISH AND INTERNATIONAL LITERATURE

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-ONLINE SESSION-

07.07.2026 / SESSION-2 / HALL-2

Kyrenia Local Time: 12 30 : 14 30 | Ankara Local Time: 12 30 : 14 30

HEAD OF SESSION: Assist. Prof. Dr. Zeliha ÇELİK

AUTHORS	AFFILIATION	TOPIC TITLE
Sinenur YAVUZ Prof. Dr. Ela TARAKCI	Istanbul University, Türkiye	THE USE OF TECHNOLOGY IN NEUROLOGICAL PHYSIOTHERAPY AND REHABILITATION: A LITERATURE REVIEW ON THE USE OF UPPER EXTREMITY ROBOTS
Res. Assist. Esra Gülsüm DANIŞ	Firat University, Türkiye	EFFECTS OF QUERCETIN SUPPLEMENTATION ON EXERCISE-INDUCED OXIDATIVE STRESS AND ANTIOXIDANT DEFENSE SYSTEMS: A MINI SYSTEMATIC REVIEW
Mustafa Tuna	Privat Meydan Hospital, Türkiye	EVALUATION OF THE EFFECTIVENESS OF PHARMACOLOGICAL TREATMENTS USED IN PATIENTS WITH OSTEOPOROSIS THROUGH DUAL- ENERGY X-RAY ABSORPTIOMETRY (DXA) FINDINGS
Assist. Prof. Dr. Zeliha ÇELİK	Amasya University, Türkiye	EVALUATION OF THE RELATIONSHIP BETWEEN HEALTH LITERACY, PHYSICAL ACTIVITY, AND SLEEP HABITS IN PHYSIOTHERAPY AND REHABILITATION STUDENTS
Assist. Prof. Dr. Merve FIRAT Prof. Dr. Figen TUNCAY	Kırşehir Ahi Evran University, Türkiye	FACTORS ASSOCIATED WITH BALANCE IN INDIVIDUALS WITH CHRONIC LOW BACK PAIN

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-ONLINE SESSION-

07.07.2026 / SESSION-2 / HALL-3

Kyrenia Local Time: 12 30 : 14 30 | Ankara Local Time: 12 30 : 14 30

HEAD OF SESSION: Asst. Prof. Dr. Derya KAVGAOĞLU

AUTHORS	AFFILIATION	TOPIC TITLE
Asst. Prof. Dr. Derya KAVGAOĞLU Lect. Ayşe Mücella SOYDAN Assoc. Prof. Dr. Nurten ELKİN	Istanbul Gelişim University, Türkiye	ADOLESCENT RISK BEHAVIORS AND PSYCHOSOCIAL PROTECTIVE FACTORS IN THE DIGITAL AGE: A REVIEW FROM A PUBLIC HEALTH PERSPECTIVE
Assoc. Prof. Dr. Nurten ELKİN Asst. Prof. Dr. Derya KAVGAOĞLU Lecturer Ayşe Mücella SOYDAN	Istanbul Gelişim University, Türkiye	THE PROTECTIVE ROLE OF HEALTH LITERACY AGAINST HEALTH MISINFORMATION ON SOCIAL MEDIA: A REVIEW
Prof. Dr. Halis SAKIZ Dr. Turan SEZAN Dr. Mehmet DENKTAŞ Ferhat SEYDAOĞULLARI	Artuklu University, Türkiye	EXAMINING THE LONGITUDINAL RELATIONSHIPS AMONG SCHOOL BELONGING, SCHOOL CLIMATE, SELF-EFFICACY, PSYCHOLOGICAL WELL-BEING, AND PERCEIVED HEALTH WITHIN THE HEALTH-PROMOTING SCHOOL FRAMEWORK: A STRUCTURAL EQUATION MODELING APPROACH
Ahmet Semih ŞAHİNOĞLU Assist. Prof. Dr. Ali DAYİ	Securitas, Türkiye Bandırma Onyedi Eylül University, Türkiye	THE INVESTIGATION OF THE RELATIONSHIP BETWEEN RISKY BEHAVIORS, TRAIT ANGER AND ANGER EXPRESSION LEVEL AND LOCUS OF CONTROL AMONG COLLEGE STUDENTS
Hale POLAT Prof. Dr. İlknur MAYA	Çanakkale University, Türkiye Çanakkale Onsekiz Mart University, Türkiye	TEACHERS' VIEWS ON THE EFFECT OF BREAKFAST HABITS OF PRIMARY AND MIDDLE SCHOOL STUDENTS ON SCHOOL MOTIVATION
Günay QURBANOVA	Synergy University, Russia	PSYCHOLOGICAL READINESS FOR MARRIAGE AND PERSONALITY MATURITY: KEY FACTORS FOR SUCCESSFUL FAMILY LIFE

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-ONLINE SESSION-

07.07.2026 / SESSION-2 / HALL-4

Kyrenia Local Time: 12 30 : 14 30 | Ankara Local Time: 12 30 : 14 30

HEAD OF SESSION: Assist. Prof. Dr. Selim ÖĞÜT

AUTHORS	AFFILIATION	TOPIC TITLE
Rasul Shukurov Khayala Mammadova	Khazar University, Azerbaijan Azerbaijan Medical University, Azerbaijan	BIOPHYSICS OF DENTAL IMPLANTS AND MECHANISMS OF OSSEOINTEGRATION
Khayala Mammadova	Azerbaijan Medical University, Azerbaijan	COMPUTATIONAL BIOPHYSICS AND GREEN MEDICINAL CHEMISTRY OF BIOACTIVE HETEROCYCLIC COMPOUNDS: ADVANCES IN SYNTHESIS, MOLECULAR DOCKING, DFT AND THERAPEUTIC APPLICATIONS
Assoc. Prof. Dr. Serçin ÖZLEM ÇALIŞKAN Assist. Prof. Dr. Simge ÜNAY Res. Assist. Dr. Erdi Can AYTAR Assoc. Prof. Dr. Ferhat ŞİRİNYILDIZ	Uşak University, Türkiye	INVESTIGATION OF THE IN VITRO ANTILEISHMANIAL ACTIVITY OF THYMOQUINONE AGAINST Leishmania tropica PROMASTIGOTES AND ITS MOLECULAR INTERACTION WITH THE PTR1 ENZYME
Assist. Prof. Dr. Selim ÖĞÜT	Bandırma Onyedi Eylül University, Türkiye	SELENIUM AND miRNA-MEDIATED GENE REGULATION IN RESPONSE TO RADIATION STRESS IN THYROID CELLS
Assos. Prof. Dr. Deniz KARAKÇI	Tekirdağ Namık Kemal University, Türkiye	EFFECTS OF BERBERIS VULGARIS ON THE AMPK PATHWAY
Assist. Prof. Dr. Ahmet BÜYÜKBEN	Afyon Kocatepe University, Türkiye	PHYTOCHEMICALS AND PHYTOTHERAPY: HISTORICAL CONTEXT AND CURRENT TREND
Hüseyin Saygın PORTAKAL Assist. Prof. Dr. Ayşegül KAYMAK ÖZDEMİR Assoc. Prof. Dr. Cihangir YANDIM Assoc. Prof. Dr. Osman DOLUCA	Ege University, Türkiye Izmir University, Türkiye	NOVEL S100A9 TARGETING INHIBITORS: IN SILICO DISCOVERY AND IN VITRO VALIDATION

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-ONLINE SESSION-

07.07.2026 / SESSION-2 / HALL-5

Kyrenia Local Time: 12 30 : 14 30	Ankara Local Time: 12 30 : 14 30

HEAD OF SESSION: Dr. Asma Seemi Malik

AUTHORS	AFFILIATION	TOPIC TITLE
Hafsat Almustapha Bindawa Maryam Hussaini Abdulrahman Amiru	Umaru Musa Yar'adua University, Nigeria	BURDEN OF METHICILLIN-RESISTANT STAPHYLOCOCCS AURES INFECTION AMONG NEONATES
Ajibola Abdulrahman Ishola Barnabas Bem Vangerwua Ibraheem Abiodun Salako Oyetunji Abimbola Oluokun	Federal University of Health Sciences, Nigeria	PEDIATRIC HEARING CARE IN NIGERIA: SCREENING, PREVALENCE, INTERVENTIONS, AND POLICY CHALLENGES (2000–2026)
Dr. Asma Seemi Malik Dr. Anam Afzal Dr. Amjad Mahmood	Lahore College for Women University, Pakistan Punjab College of Information Technology, Pakistan	DETERMINANTS OF MATERNAL MORTALITY IN PAKISTAN: EVALUATING THE EFFECTIVENESS OF PRENATAL AND POSTNATAL HEALTHCARE PROGRAMS
Aisha Umar Hauwa Hussaini	Sokoto State University, Nigeria	KNOWLEDGE, ATTITUDES, AND PRACTICES (KAP) OF TRADITIONAL MEDICINE PRACTITIONERS IN THE MANAGEMENT OF FUNGAL INFECTIONS IN SOKOTO STATE, NIGERIA
Atalya Vetta Widarto Dr. Wahyuningsih Djaali Miranda Hartini Marpaung Kevin Supratman	Universitas Indonesia, Indonesia	EARLY PREGNANCY LOW BACK PAIN MANAGED WITHOUT ANALGESICS: A CASE REPORT OF SCALP ACUPUNCTURE
Ermir Roçi Tedi Mana Elmas Shaqiri Gentian Vyshka	University Hospital Center "Mother Teresa", Albania University of Medicine in Tirana, Albania	REPORTING CASES IN MEDICINE, FROM RARITIES TO COMMON SENSE

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-ONLINE SESSION-

07.07.2026 / SESSION-2 / HALL-6

Kyrenia Local Time: 12 30 : 14 30	Ankara Local Time: 12 30 : 14 30

HEAD OF SESSION: Assoc. Prof. Dr. Afsheen Mahmood

AUTHORS	AFFILIATION	TOPIC TITLE
Ervin Bejko Krenar Lilaj	University Hospital Center "Mother Theresa," Tirana, Albania	PERIOPERATIVE HEMODYNAMIC MANAGEMENT IN ISCHEMIC HEART DISEASE
Volodymyr Sulyma Igor Malkov Pavlo Palyura Glib Astakhov	Dnipro State Medical University, Ukraine Medical Plaza Dnipro, Ukraine Garvis Dnipro, Ukraine	THE RESULTS OF SURGICAL TREATMENT OF PATIENTS WITH CHRONIC HEMORRHOIDS OF LIGASURE VESSEL SEALING SYSTEM
Assoc. Prof. Dr. Afsheen Mahmood	Khyber Girls Medical College, Pakistan	ASSOCIATION BETWEEN PLATELET COUNT AND GRADING OF ESOPHAGEAL VARICES IN PATIENTS WITH LIVER CIRRHOSIS
PhD Lorena SALIAJ Marinel SALIAJ	Mediterranean University of Albania Careggi University Hospital, Italy	STATISTICAL MODELING OF GASTROINTESTINAL SYMPTOM DYNAMICS FOLLOWING HELICOBACTER PYLORI ERADICATION: A LONGITUDINAL PREDICTIVE FRAMEWORK
Dr. Zubia Shah	Khyber Girls Medical College, Pakistan	TO STUDY THE CORRELATION OF DIABETIC MICROVASCULATURE COMPLICATIONS IN CHRONIC KIDNEY DISEASE
Logith. S M.Keerthana Dr.R.Devi Dr.R.Srinivasan	Bharath Institute of Higher Educational and Research, India	CHRONIC KIDNEY DISEASE: PATHOPHYSIOLOGY, MANAGEMENT, AND ROLE OF PHARMACISTS IN PATIENT CARE

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-ONLINE SESSION-

07.07.2026 / SESSION-3 / HALL-1

Kyrenia Local Time: 15 00 : 17 00 | Ankara Local Time: 15 00 : 17 00

HEAD OF SESSION: Assoc. Prof. Dr. Taylan TUĞRUL

AUTHORS	AFFILIATION	TOPIC TITLE
Assoc. Prof. Dr. Taylan TUĞRUL	Van Yüzüncü Yıl University, Türkiye	STATISTICAL CONVERGENCE ANALYSIS IN 6 MV PHOTON DOSIMETRY: IMPACT OF PARTICLE HISTORY COUNT ON PDD PARAMETERS IN TOPAS MONTE CARLO SIMULATIONS
Assoc. Prof. Dr. Taylan TUĞRUL	Van Yüzüncü Yıl University, Türkiye	VALIDATION OF ELECTRON RANGE PARAMETERS IN SUPERFICIAL RADIOTHERAPY: SIMULATION-BASED ANALYSIS OF ENERGY-DEPENDENT PDD PROFILES
Assist. Prof. Muhammet Uzun Habip Eser AKKAYA	Atilim University Private Ankara Medicana Hospital, Türkiye UHS Ankara Training and Research Hospital, Türkiye	COMPUTED TOMOGRAPHY FINDINGS IN ADULT PATIENTS PRESENTING WITH NON-TRAUMATIC HEADACHE: A TWO-CENTER RETROSPECTIVE STUDY
Mursel DUZOVA Ulku Saygili DUZOVA	Selcuk University, Türkiye	CLINICAL IMPORTANCE OF HYPERTHERMIA APPLICATIONS IN RADIOTHERAPY: A COMBINED TREATMENT APPROACH ENHANCING RADIOSENSITIVITY
Mursel DUZOVA Ulku Saygili DUZOVA	Selcuk University, Türkiye	CLINICAL IMPORTANCE OF SARCOPENIA IN CANCER PATIENTS RECEIVING RADIOTHERAPY: IMPACT ON TREATMENT TOLERANCE, TOXICITY, AND ONCOLOGICAL OUTCOMES

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-ONLINE SESSION-

07.07.2026 / SESSION-3 / HALL-2

Kyrenia Local Time: 15 00 : 17 00 | Ankara Local Time: 15 00 : 17 00

HEAD OF SESSION: Assoc. Prof. Dr. Hüseyin ÖZDEN

AUTHORS	AFFILIATION	TOPIC TITLE
Burak ELMAS	Kızılcahamam Devlet Hastanesi, Türkiye	RENAL STONE IN A FUSED SUPERNUMERARY KIDNEY WITH ROTATIONAL ANOMALY: RETROGRADE INTRARENAL SURGERY
Assoc. Prof. Dr. Hüseyin ÖZDEN Maide Sena KILIÇ	Sivas Medicana Hospital, Türkiye Erciyes University, Türkiye	CHANGES AND SIGNIFICANCE OF MPV VALUES AFTER LAPAROSCOPIC SLEEVE GASTRECTOMY
Dr. Oguzhan AKPINAR Dr. Metin KILIC	University of Health Sciences, Bursa Yuksek Ihtisas Training and Research Hospital, Türkiye	SYNCHRONOUS TRIPLE HISTOLOGIC SUBTYPES OF RENAL CELL CARCINOMA IN A SINGLE KIDNEY: DIAGNOSTIC IMAGING CHALLENGES AND SURGICAL OUTCOMES
Assist. Prof. Dr. Mert Hamza Ozbilen	Usak University, Türkiye	EFFICACY AND SAFETY OF PERCUTANEOUS NEPHROLITHOTOMY IN HORSESHOE AND ROTATIONAL ANOMALIES OF KIDNEY
Dr. Onur ALTINKAYA	Erzurum City Hospital, Türkiye	THE C-REACTIVE PROTEIN–NEUTROPHIL–ALBUMIN RATIO AS AN INDEPENDENT PREDICTOR OF IN-HOSPİTAL MORTALITY IN PATIENTS WITH ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION
Bişar AMAÇ	Harran University, Türkiye	A NEW TECHNIQUE FOR CARDIOPLEGIA DELIVERY: CARDIOPLEGIA DELIVERY FROM HEART LUNG MACHINE
Dr. Mehmet Aslan	Alanya Education and Research Hospital, Türkiye	DEVELOPMENT AND VALIDATION OF A NOVEL MACHINE LEARNING-BASED PREDICTIVE MODEL (MAI SCORE) FOR EARLY MORTALITY AND MAJOR COMPLICATIONS IN CORONARY ARTERY BYPASS GRAFTING

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-ONLINE SESSION-

07.07.2026 / SESSION-3 / HALL-3

Kyrenia Local Time: 15 00 : 17 00 | Ankara Local Time: 15 00 : 17 00

HEAD OF SESSION: Res. Assist. Dr. Nilay ÇERKEZOĞLU

AUTHORS	AFFILIATION	TOPIC TITLE
Res. Assist. Dr. Nilay ÇERKEZOĞLU Assist. Prof. Dr. Handan ÖZDEMİR	Ege University, Türkiye Mehmet Burdur Mehmet Akif Ersoy University, Türkiye	FROM OBSERVATION TO PRACTICE: THE EFFECTS OF SIMULATOR- AND VIDEO-ASSISTED TEACHING ON NURSING STUDENTS' BLOOD PRESSURE MEASUREMENT SKILLS AND SELF-CONFIDENCE
Assist. Prof. Edanur TAR BOLACALI Assist. Prof. Bahar AKSOY	Kırşehir Ahi Evran University, Türkiye	HOLISTIC NURSING CARE BASED ON THE ACTIVITIES OF DAILY LIVING MODEL IN NEONATAL HYPERBILIRUBINEMIA: CASE REPORT
Assist. Prof. Edanur TAR BOLACALI	Kırşehir Ahi Evran University, Türkiye	EXAMINING THE RELATIONSHIP BETWEEN PEDIATRIC NURSING COMPETENCIES AND SELF-EFFICACY LEVELS REGARDING MEDICATION ADMINISTRATION IN CHILDREN AMONG STUDENTS TAKING A PEDIATRIC NURSING COURSE
Dr. Yasemin ÖZKAN Prof. Dr. Emine İYİGÜN	Gulhane Research and Training Hospital, Türkiye University of Health Sciences, Türkiye	EVALUATION OF CENTRAL JUGULAR VEIN CATHETER LUMEN HOLDER DESIGN AND ERGONOMIC USE
Ass. Prof. Sevinj Nasirova Sevinj Mehdiyeva	Scientific Research Institute of Pediatrics named after K.Y.Farajova, Azerbaijan	TREACHER COLLINS SYNDROME

Meeting ID: 833 1287 1999 / Passcode: 090909

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-ONLINE SESSION-

07.07.2026 / SESSION-3 / HALL-4

Kyrenia Local Time: 15 00 : 17 00 | Ankara Local Time: 15 00 : 17 00

HEAD OF SESSION: Dr. Cornelia RADA

AUTHORS	AFFILIATION	TOPIC TITLE
Marigonë Rizani - Shabani	University of Prishtina, Kosovo	PERCEPTION OF MALE NURSES AMONG NURSING STUDENTS AT THE UNIVERSITY OF PRISHTINA
Hatim BEN SEDDIK	Abdelmalek Essaâdi University, Morocco	IMPLICATIONS FOR LEARNING AND PERFORMANCE IN SPORT SCIENCES IN THE DIGITAL ERA
Samir Essafi	Hassan First University of Settat, Morocco	HEART RATE VARIABILITY IN ELITE FOOTBALL: AN INTEGRATED APPROACH TO MONITORING TRAINING LOAD, RECOVERY, AND COMPETITIVE READINESS
Dr. Cornelia RADA Dr. Andra-Luisa PREDA Dr. Suzana TURCU	Romanian Academy, Romania	FRAILTY TRIAD IN DEMENTIA: SLEEP, APPETITE AND PHYSICAL ACTIVITY FROM A HOME-CARE PERSPECTIVE
Halima DAIF Rekia BELAHSEN	University Chouaib DOUKKALI, Morocco	EFFECTS OF RAMADAN FASTING ON DIETARY INTAKE AND ANTHROPOMETRIC PARAMETERS AMONG SUB- SAHARAN IMMIGRANTS IN EL JADIDA, MOROCCO
Dr. Adina BACIU Dr. Cristina STAN Dr. Suzana TURCU Dr. Monica PETRESCU Dr. Cristiana GLAVCE Dr. Andrei KOZMA Drd. Eduard ŞOGOR Dr. Lăcrămioara PETRE	Romanian Academy, Romania Alessandrescu-Rusescu National Institute, Romania	PROBLEMATIC SCREEN USE, SLEEP DISTURBANCES AND DEPRESSION IN ADOLESCENTS: A LITERATURE REVIEW AND PREVENTION STRATEGIES
Ghazaleh Shekasteband	Islamic Azad University, Iran	THE MEDIATING ROLE OF PERSONALITY RESILIENCE IN MODERATING PERCEIVED STRESS AND SLEEP QUALITY IN WOMEN WITH CHRONIC DISEASES: A META-ANALYTIC STUDY
Dr. Amina TANI Asst. Prof. Sana EL-JAMAL	ISPITS, Morocco	FACTORS ASSOCIATED WITH HPV VACCINE HESITANCY AMONG PARENTS OF ADOLESCENT GIRLS

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-ONLINE SESSION-

07.07.2026 / SESSION-3 / HALL-5

Kyrenia Local Time: 15 00 : 17 00 | Ankara Local Time: 15 00 : 17 00

HEAD OF SESSION: Dr. Suzana TURCU

AUTHORS	AFFILIATION	TOPIC TITLE
Lacramioara PETRE Suzana TURCU	"Francisc I. Rainer" Institute of Anthropology, Romania	AI, TELEMEDICINE, AND ROBOTS: WHERE IS MEDICINE HEADING?
Dr. Suzana TURCU Dr. Lăcrămioara PETRE	Romanian Academy, Romania	ARTIFICIAL INTELLIGENCE AND TELEMEDICINE IN THE SERVICE OF HEALTH EQUITY
Khulood Alharbi Prof. Wafaa Faheem	King Abdulaziz University, Saudi Arabia	VIRTUAL MATERNAL HEALTH CARE TRENDS, BENEFITS AND LIMITATIONS FROM WOMEN'S PERSPECTIVE
Wejdan Salama	King Abdulaziz University, Saudi Arabia	EVALUATING THE EFFECTIVENESSS OF A CUSTOMIZED CHATGPT-BASED VIRTUAL ASSISTANT IN PROMOTING CONTRACEPTIVE AWARENESS
Lec. Ion PETRE Dr. Razvan BOBORA PhD Mihai LOICHITA Bogdan Chiu Assoc.Prof. Dr. Izabella PETRE	Victor Babes University, Romania	THE ROLE OF MACHINE LEARNING ALGORITHMS IN THE DETECTION AND CLASSIFICATION OF HPV INFECTIONS
Sayeb Mallik Amit Sasmal Rivu Mishra Abhigyan Ganguly	Brainware University, India	AUTISM PREDICTION USING MACHINE LEARNING: A COMPARATIVE STUDY OF SUPERVISED CLASSIFICATION MODELS FOR EARLY ASD SCREENING
Dr.J.Sudha B. Indira Devi	A.V.C.College of Engineering, India	EFViT-XAI: A MULTIMODAL EXPLAINABLE FEDERATED VISION TRANSFORMER FRAMEWORK FOR PRIVACY-PRESERVING PNEUMONIA SEVERITY ASSESSMENT IN SMART HEALTHCARE ENVIRONMENTS
Anik Biswas	Trine University, USA	AI-DRIVEN CYBERSECURITY FRAMEWORK FOR ENHANCING HEALTHCARE INFRASTRUCTURE SECURITY AND PATIENT DATA PROTECTION IN THE UNITED STATES
V.Ranjani Selva Kumar.R Dr.R.Devi Dr.R.Srinivasan	Bharath Institute of Higher Education and Research, India	GENERATIVE AI AND DRUG DISCOVERY IN DEVELOPING NATIONS: OPPORTUNITIES VS PRACTICAL BARRIERS

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07.07.2026 / SESSION-3 / HALL-6

Kyrenia Local Time: 15 00 : 17 00	Ankara Local Time: 15 00 : 17 00

HEAD OF SESSION: Assist. Prof. Dr. K. Uma maheswari

AUTHORS	AFFILIATION	TOPIC TITLE
Boucif BEDDAD Samiha MEZRAR Postaire Jack-Gerard	DJILLALI LIABES University of Sidi-Bel-Abbes, Algeria Higher School of Computer Science 08 May 1945 of Sidi-Bel-Abbes, Algeria University of Lille, France	A DEEP LEARNING-BASED CONVOLUTIONAL NEURAL NETWORK FOR ADVANCED MEDICAL IMAGE ANALYSIS
Assist. Prof. K.Uma maheswari	A.V.C. college of Engineering, mannampandal, India	MULTISCALE IMAGE SEGMENTATION USING WATERSHED METHOD FOR MEDICAL IMAGES
Alvi Islam Sifat Samiha Islam Borsha	Daffodil Institute of IT, Bangladesh	EARLY CANCER DETECTION AND CLASSIFICATION THROUGH DEEP LEARNING-BASED MULTI-MODAL DATA ANALYSIS
Lacramioara PETRE	"Francisc I. Rainer" Institute of Anthropology, Romania	ILF NEUROFEEDBACK: AN INNOVATIVE APPROACH TO BRAIN-BASED TREATMENT
Katerina SUTOTSKA Assist. Prof. Dr. Olga PODPALOVA	Taras Shevchenko National University of Kyiv, Ukraine	THE NATURE OF DREAMING: PHYSIOLOGICAL MECHANISMS OF VISUAL HALLUCINATIONS
Maria Batool	Kohat University of Science and Technology, Pakistan	A STAGE-STRUCTURED COMPARTMENTAL MODEL FOR HIV/AIDS TRANSMISSION AND CONTROL
Shafqat Ullah Nisar Ahmad	Institute of Numerical Science, Pakistan	MINIMAL GENERATING SET EXCHANGE PHENOMENA IN FINITE LEFT ALMOST GROUPS
Assist. Prof. Dr. K.Uma maheswari	A.V.C. college of Engineering, India	MULTISCALE WATERSHED-BASED IMAGE SEGMENTATION FOR ACCURATE MEDICAL IMAGE ANALYSIS

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-ONLINE SESSION-

08.07.2026 / SESSION-1 / HALL-1

Kyrenia Local Time: 10 00 : 12 00	Ankara Local Time: 10 00 : 12 00

HEAD OF SESSION: Assist. Prof. Dr. Gizem GİZLİ TAN

AUTHORS	AFFILIATION	TOPIC TITLE
Dr. Muhammet Esat DEMİREL	Bursa City Hospital, Türkiye	BONE CEMENT IMPLANTATION SYNDROME UNDER REGIONAL ANESTHESIA IN A HIGH-RISK PULMONARY PATIENT WITH HUNTINGTON'S CHOREA: A CASE REPORT
Dr. Mustafa SAVAŞ	Bursa City Hospital, Türkiye	ISOLATED PT-INR ELEVATION DUE TO ARONIA (ARONIA MELANOCARPA) JUICE CONSUMPTION: PERIOPERATIVE MANAGEMENT IN A PATIENT UNDERGOING LUNG RESECTION
Mesher ENSARİOĞLU	Ankara Gülhane Training and Research Hospital, Türkiye	IMPLANTATION OF A TOTALLY IMPLANTABLE VENOUS ACCESS DEVICE IN A PATIENT WITH COMMON VARIABLE IMMUNODEFICIENCY, DEXTROCARDIA, AND PREVIOUS RIGHT PNEUMONECTOMY: A CHALLENGING CASE
Prof. Dr. Dilek TOPRAK	İstanbul Atlas University, Türkiye	TIBBİ UYGULAMALARDA KÖTÜ HABER VERME

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08.07.2026 / SESSION-1 / HALL-2

Kyrenia Local Time: 10 00 : 12 00 | Ankara Local Time: 10 00 : 12 00

HEAD OF SESSION: Prof. Dr. Hamit USLU

AUTHORS	AFFILIATION	TOPIC TITLE
Prof. Dr. Esra PEHLIVAN Tuğba Ceren YAMAK Belinay TURHAN Nahla LABAD Assoc. Prof. Dr. Özge PASİN	University of Health Sciences, Türkiye	THE EFFECT OF DAILY COFFEE CONSUMPTION ON BALANCE
Prof. Dr. Hamit USLU Prof. Dr. Gözde ATİLA USLU	Erzincan Binali Yıldırım University, Türkiye	PHYSIOLOGICAL EFFECTS OF SCREEN TIME ON THE REWARD SYSTEM, SYNAPTIC PLASTICITY, AND NEUROADAPTATION
Res. Assist. Cahidenur KOÇAK ORUÇ Assoc. Prof. Dr. Seval KUTLUTÜRK YIKILMAZ	Istanbul Esenyurt University, Türkiye	THE EFFECTIVENESS OF MULTISENSORY STIMULATION INTERVENTIONS IN PREMATURE RETINOPATHY SCREENING: A SYSTEMATIC REVIEW
Res. Assist. Dr. Barış Tekbaran Assist. Prof. Dr. Adem YAĞAN	Van Yüzüncü Yıl University, Türkiye	EVALUATION OF QUIET QUITTING ATTITUDES AMONG HEALTHCARE WORKERS IN A TERTIARY UNIVERSITY HOSPITAL
Res. Assist. Dr. Ümit SOYLU Assist. Prof. Dr. Adem YAĞAN	Van Yüzüncü Yıl University, Türkiye	ASSESSMENT OF RESIDENT PHYSICIAN'S ATTITUDES TOWARD PATIENTS WITH CHRONIC PAIN AT A TERTIARY CARE UNIVERSITY HOSPİTAL

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-ONLINE SESSION-

08.07.2026 / SESSION-1 / HALL-3

Kyrenia Local Time: 10 00 : 12 00	Ankara Local Time: 10 00 : 12 00

HEAD OF SESSION: Assist. Prof. Dr. Veysel DELİBAŞ

AUTHORS	AFFILIATION	TOPIC TITLE
Assoc. Prof. Dr. Kadir AKAR Umut Can SEZER	Van Yüzüncü Yıl University, Türkiye	SIMULTANEOUS DETECTION OF Chlamydia spp., Brucella spp. AND Campylobacter spp. ASSOCIATED WITH ABORTION IN RUMINANTS USING THE MULTIPLEX PCR METHOD
Assist. Prof. Dr. Veysel DELİBAŞ	Van Yuzuncu Yil University, Türkiye	ANATOMICAL EVALUATION OF XENOTRANSPLANTATION (ANIMAL-TO-HUMAN ORGAN TRANSPLANTATION) FROM THE PERSPECTIVE OF VETERINARY ANATOMY
Assist. Prof. Dr. Veysel DELİBAŞ	Van Yuzuncu Yil University, Türkiye	THE VALUE OF E12 EPOXY PLASTINATION TECHNIQUE IN VETERINARY ANATOMY: EVALUATION OF TRANSPARENT-OPAQUE BODY SECTIONS IN MORPHOLOGICAL AND DIGITAL IMAGING EDUCATION
Assist. Prof. Dr. Muhammed ETYEMEZ	Kastamonu University, Türkiye	HAZARDOUS BISPHENOL ANALOGUE: BPAF

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08.07.2026 / SESSION-1 / HALL-4

Kyrenia Local Time: 10 00 : 12 00 | Ankara Local Time: 10 00 : 12 00

HEAD OF SESSION: Assist. Prof. Dr. Sapan K. Shah

AUTHORS	AFFILIATION	TOPIC TITLE
Moses Adeolu AGOI Akinyemi Edward AIYEGBUSI Olayemi Grace ABIMBOLA Yewande Adeyosola ODUNAYO	Lagos State University of Education, Nigeria	BIOINFORMATICS AND MACHINE LEARNING IN DRUG DISCOVERY: ACCELERATING THERAPEUTIC INNOVATION
S. Madhumitha G. Ramya B. Harini Z. Ameerah S. Deepak S. Kalaivanan K. Sandhya	Bharath Institute of Higher Education and Research, India	BUTTERFLY PEA FLOWER WITH MEDICINAL USES AND AI IN DRUG DEVELOPMENT
Ravi C. Palanisamy A. Deepak S. David G.	Bharath Institute of Higher Education and Research, India	CANCER CHEMOTHERAPY: RECENT ADVANCES
Imane OUMLIL Younes ZAID	Université Mohammed V de Rabat, Morocco	POTENTIAL ROLE OF THYROXINE (T4)-INTEGRIN αvβ3 SIGNALING IN PLATELET TRANSCRIPTOMIC REPROGRAMMING AND THYROID CANCER PROGRESSION
Elorchi Soukaina Abdoul-Hakim El alaoui el abdallaoui Habib Mimoun Belhadi Mohammed Chafi Mohammed Salah	Chouaïb Doukkali University, Morocco Hassan II University of Casablanca, Morocco	ISOQUINOLINE DERIVATIVES FROM 1,3-DIPOLAR CYCLOADDITIONS: A DFT AND DOCKING APPROACH TOWARD ALZHEIMER'S AND PARKINSON'S TREATMENT
Assist. Prof. Dr. Sapan K. Shah	Priyadarshini J. L. College of Pharmacy, India	EXPLORING NATURAL POLYPHENOLS AS SEROTONIN TRANSPORTER MODULATORS THROUGH IN SILICO APPROACHES
N. Kirthika R. Dhanush V. Santhosh Kumar S. Deepak S. Kalaivanan	Bharath Institute of Higher Education and Research, India	OSILODROSTAT-INDUCED ADRENAL VOLUME REDUCTION IN PATIENTS WITH ACTH-DEPENDENT CUSHING'S SYNDROME
M.Keerthana Logith.S Dr.R.Devi Dr.R.Srinivasan	Bharath Institute of Higher Education and Research, India	HYPERTENSION: CURRENT TRENDS IN MANAGEMENT AND THE ROLE OF PHARMACISTS IN PATIENT CARE

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08.07.2026 / SESSION-1 / HALL-5

Kyrenia Local Time: 10 00 : 12 00 | Ankara Local Time: 10 00 : 12 00

HEAD OF SESSION: Dr. R.Saravanan

AUTHORS	AFFILIATION	TOPIC TITLE
Rayyan Abdulrahman Flimban Bayan Abdulqader Eshmawi Majed Ali Alghamdi	King Abdulaziz University, Saudi Arabia	DEVELOPMENT AND EVALUATION OF NANOCARRIER-BASED TOPICAL DELIVERY SYSTEMS FOR OZENOXACIN TO IMPROVE THERAPEUTIC EFFECT
Dr. R.Saravanan Vanitha Sri.T. Sarukesh.K. Suresh.K Abinaya.S	Bharath Institute of Higher Education and Research, India	INNOVATIVE POLYMERIC MICRONEEDLES FOR TARGETED AND SUSTAINED DRUG DELIVERY
Ramya G. Swathi R. Meenatshi S. Hari Nandhini A.	Bharath Institute of Higher Education and Research, India	NANOTECHNOLOGY IN DRUG DELIVERY SYSTEM
M. K. Vijayalakshmi M. Dharshini S. Rubin Tara K. Lokesh	Bharath Institute of Higher Education and Research, India	NANOPARTICLE DRUG DELIVERY: THE MAGIC BULLET FOR CHRONIC PULMONARY DISEASES
S.R.Prathithasri Dr.R.Devi M.S.Mohamed Sathak Affan Dr.R.Srinivasan	Bharath Institute of Higher Education and Research, India	NANOTECHNOLOGY IN DRUG DELIVERY: CURRENT APPLICATIONS AND FUTURE PROSPECTS IN PHARMACY PRACTICE
Hamsini Eisha E S. Kamali S. Varsha Dr. R. Saravanan Dr. R. Srinivasan Dr. R. Devi N. Jayaramakani	Bharath Institute of Higher Education and Research, India	ARTIFICIAL INTELLIGENCE – DRIVEN PERSONALIZED DRUG DELIVERY SYSTEMS: REVOLUTIONIZING PRECISION MEDICINE
Ms. Roshani P. Sautkar	Priyadarshini J.L.Collge of Pharmacy, India	EVALUATION AND DEVELOPMENT OF TOPICAL FORMULATION MICROALGAE DERIVED COMPOUNDS FOR THE MANAGEMENT OF SKIN DISEASES
Varsha S kamali. S Hamsini eisha	Bharath Institute of Higher Education and Research, India	A REVIEW ON NANOPARTICLES: CHARACTERISTICS, SYNTHESIS, APPLICATIONS, AND CHALLENGES

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-ONLINE SESSION-

08.07.2026 / SESSION-1 / HALL-6

Kyrenia Local Time: 10 00 : 12 00 | Ankara Local Time: 10 00 : 12 00

HEAD OF SESSION: Suela Hoxha

AUTHORS	AFFILIATION	TOPIC TITLE
Hauwa'u Bello Abubakar Aisha Umar Hauwa Hussaini	Sokoto State University, Nigeria	COMPARATIVE PHENOTYPIC AND GENOTYPIC ANTIMICROBIAL RESISTANCE IN ENTEROBACTERIACEAE FROM WILD AND DOMESTICATED BIRDS
Aisha Umar Hauwa'u Bello Abubakar Hauwa Hussaini	Sokoto State University, Nigeria	ENVIRONMENTAL AND ECOLOGICAL IMPLICATIONS OF AVIAN RESERVOIRS OF ANTIMICROBIAL-RESISTANT ENTEROBACTERIACEAE
BELLIL Dassine GHAROUT-SAIT Alima DJOUDI Ferhat BELLIL Zahra MENDIL Ouidad MANSEUR Lyticia DIB-SAIT Sabrina	Université de Bejaia, Algeria	OPTIMIZING MYCOBACTERIUM ISOLATION: A COMPARATIVE ANALYSIS OF DECONTAMINATION PROTOCOLS ACROSS ANIMAL SPECIES
Yusuf Adamu Kausar Rabiu Yahaya Yunusa Riko	Umaru Musa Yar'adua University, Nigeria	PROSPECT OF MONOCLONAL ANTIBODIES IN COMBATING ANTI-MICROBIAL RESISTANCE
SWAPANA.S	Bharath Institute of Higher Education and Research, India	MICROBIOME RESEARCH AND HUMAN HEALTH
Marufa Yeasmin Bristy Fadila Abdari Tultul	Faridpur Medical College, Bangladesh	NIPAH VIRUS IN SOUTH ASIA: AN EMERGING PUBLIC HEALTH THREAT AND CHALLENGES FOR PREVENTION AND CONTROL
Alireza Ahmadi Samaneh Mahmood-Aghdam Mina Gholami Hedieh Rahmati Mehrnaz Izadpanah	Academic Center for Education, Culture, and Research (ACECR), Iran Tehran University of Medical Sciences, Iran	GENERATION OF EBV-TRANSFORMED LYMPHOBLASTOID CELL LINES FROM SEX-REVERSED PATIENTS: A RENEWABLE BIOBANK FOR GENOMIC AND SEX DETERMINATION STUDIES
Suela Hoxha Teuta Pustina-Krasniqi Fisnik Aliaj	University of Pristina, Kosovo	EVALUATING LIGHT INTERACTION AND CLINICAL RELEVANCE OF CAD/CAM CERAMIC MATERIALS AFTER HYDROTHERMAL DEGRADATION

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-ONLINE SESSION-

08.07.2026 / SESSION-2 / HALL-1

Kyrenia Local Time: 12 30 : 14 30 | Ankara Local Time: 12 30 : 14 30

HEAD OF SESSION: Assoc. Prof. Dr. Tülay YILDIRIM ÜŞENMEZ

AUTHORS	AFFILIATION	TOPIC TITLE
Lec. Elif Üner Asil Assoc. Prof. Dr. Özcan Aygün Alime Duman Nazlı Güngör	Muğla Sıtkı Koçman University, Türkiye	THE RELATIONSHIP BETWEEN PARENTS' HEALTH LITERACY AND PRIMARY SCHOOL STUDENTS' ANTHROPOMETRIC MEASUREMENTS AND GENERAL HEALTH STATUS
Assoc. Prof. Dr. Tülay YILDIRIM ÜŞENMEZ	Dicle University, Türkiye	THE EFFECTIVENESS OF COGNITIVE BEHAVIORAL THERAPY IN INDIVIDUALS DIAGNOSED WITH PANIC DISORDER: REFLECTIONS ON PSYCHIATRIC NURSING
Res. Assist. Büşra DEMİR Assoc. Prof. Dr. Gülay YAZICI	Ankara Yıldırım Beyazıt University, Türkiye	NURSING CARE ACCORDING TO GORDON'S FUNCTIONAL HEALTH PATTERNS MODEL IN AN INDIVIDUAL UNDERGOING TOTAL HIP ARTHROPLASTY: A CASE REPORT
Assoc. Prof. Dr. Gülay YAZICI Res. Assist. Büşra DEMİR	Ankara Yıldırım Beyazıt University, Türkiye	THE IMPACT OF DIGITAL HEALTH APPLICATIONS ON WOUND MANAGEMENT: FROM ACUTE TO CHRONIC
Lec. Beyza Nur KAHRAMAN KIZILCAOLUK	Kütahya Health Sciences University, Türkiye	PSYCHOSOCIAL PROBLEMS OBSERVED IN CANCER PATIENTS AND NURSING CARE
Lec. Beyza Nur KAHRAMAN KIZILCAOLUK	Kütahya Health Sciences University, Türkiye	SEXUAL PROBLEMS IN HEMODIALYSIS PATIENTS AND NURSING RECOMMENDATIONS
İmren BULUT Prof. Dr. Derya ATİK	Osmaniye Korkut Ata University, Türkiye	HERBAL THERAPIES USED IN THE MANAGEMENT OF HYPERTENSION: A REVIEW OF STUDIES CONDUCTED BETWEEN 2000 AND 2026
Zara İNAN Assist. Prof. Gülden ATAN	Van Yüzüncü Yıl University, Türkiye	EVALUATION OF THE RELATIONSHIP BETWEEN THE SEVERITY OF UREMIC PRURITUS AND LIFE SATISFACTION IN HEMODIALYSIS PATIENTS: A REVIEW IN LIGHT OF CURRENT LITERATURE

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-ONLINE SESSION-

08.07.2026 / SESSION-2 / HALL-2

Kyrenia Local Time: 12 30 : 14 30 | Ankara Local Time: 12 30 : 14 30

HEAD OF SESSION: Assist. Prof. Dr. Betül YALÇIN

AUTHORS	AFFILIATION	TOPIC TITLE
Assist Prof. Dr. Oya KORKMAZ Assoc. Prof. Dr. Seda KARABULUT	Malatya Turgut Özal University, Türkiye İstanbul Medipol University, Türkiye	EFFECTS OF AGING AND CRYOPRESERVATION ON PTEN EXPRESSION AND DNA INTEGRITY IN MOUSE TESTICULAR SPERM
Rumeysa Yeşim MANAP Gözde MASATCIOĞLU	Doğuş University, Türkiye	PRENATAL CANNABIS EXPOSURE AND PLACENTAL EFFECTS: A SYSTEMATIC LITERATURE REVIEW AND IN SILICO NETWORK ANALYSIS
Dr. Özge AYDIN Assist. Prof. Dr. Esma ÇINAR	Giresun Training and Research Hospital, Türkiye	SUBMANDIBULAR CANALICULAR ADENOMA: A RARE LOCALIZATION WITH DIAGNOSTIC CYTOLOGIC-HISTOLOGIC CORRELATION
AYŞE YURDAGÜL Prof. Dr. CANDAN ÖZTÜRK Assist. Prof. Dr. HAMİDE KAYA	Mersin University, Türkiye	COMPARISON OF TOXOPLASMA GONDII PREVALENCE IN PREGNANT AND NON-PREGNANT WOMEN AGED 18-49 WITH SEROLOGICAL AND MOLECULAR METHODS AND SAG1 GENE REGION ANALYSIS
Assist. Prof. Dr. Mehmet ERİNMEZ Dr. Mustafa SAĞLAM	Gaziantep University, Türkiye	MOLECULAR EPIDEMIOLOGY AND CLINICAL IMPACT OF VIRAL PATHOGENS IN RESPIRATORY TRACT INFECTIONS: A MULTIPLEX PCR-BASED STUDY
Assist. Prof. Dr. Betül YALÇIN	Adiyaman University, Türkiye	HISTOLOGICAL EVALUATION OF THE ROLE OF BORIC ACID ON CYCLOPHOSPHAMIDE-INDUCED CARDIAC DAMAGE IN AN EXPERIMENTAL RAT MODEL

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-ONLINE SESSION-

08.07.2026 / SESSION-2 / HALL-3

Kyrenia Local Time: 12 30 : 14 30 | Ankara Local Time: 12 30 : 14 30

HEAD OF SESSION: Prof. Dr. Evşen NAZİK & Res. Assist. Melike Nur SÖNMEZ

AUTHORS	AFFILIATION	TOPIC TITLE
Res. Assist. Melike Nur SÖNMEZ Prof. Dr. Evşen NAZİK	Tokat Gaziosmanpaşa University, Türkiye Çukurova University, Türkiye	STRESS IN PREGNANCY AND EVIDENCE-BASED NURSING APPROACHES
Res. Assist. Melike Nur SÖNMEZ Prof. Dr. Evşen NAZİK	Tokat Gaziosmanpaşa University, Türkiye Çukurova University, Türkiye	SLEEP DURING PREGNANCY AND EVIDENCE-BASED NURSING APPROACHES
Mevhibe ÇOBAN	Inönü University, Türkiye	MIDWIFERY CARE DURING DISASTER PERIODS
Mevhibe ÇOBAN	Inönü University, Türkiye	VAGINAL BIRTH AFTER CESAREAN SECTION
Gunay HAJIYEVA	"REAL HOSPİTAL", Azerbaijan	CLINICAL CLASSIFICATION OF VULVODYNIA
Elif EROL Prof. Dr. Emine GERÇEK ÖTER	Aydın Adnan Menderes University, Türkiye	THE EFFECT OF DIGITAL SUPPORT SYSTEMS IN BREASTFEEDING CONSULTANCY ON MATERNAL SELF-EFFICACY

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-ONLINE SESSION-

08.07.2026 / SESSION-2 / HALL-4

Kyrenia Local Time: 12 30 : 14 30 | Ankara Local Time: 12 30 : 14 30

HEAD OF SESSION: Naveed Munir

AUTHORS	AFFILIATION	TOPIC TITLE
Fatima-ezzahra Jaayefar Jamila Dahmani	Ibn Tofail University, Morocco	DATA CAPITALIZATION OF CENTAUREA PULLATA L.: PHYTOCHEMICAL COMPOSITION, ANTIOXIDANT, ANTIFUNGAL, AND CYTOTOXIC ACTIVITIES
Fatima-ezzahra Jaayefar Jamila Dahmani	Ibn Tofail University, Morocco	DATA CAPITALIZATION OF FERULA COMMUNIS L. SUBSP. COMMUNIS (GIANT FENNEL): CHEMOTYPES, PHYTOCHEMISTRY, PHARMACOLOGICAL PROPERTIES, AND TOXICITY
Ahlem MOKRANE Khoukha ALILECHE Amina KRIBECHE Fatima ARKAM	Mouloud Mammeri University of Tizi-Ouzou, Algeria Scientific and Technical Research Center for Physico-Chemical Analysis (CRAPC), Algeria M'Hamed Bougara University of Boumerdès, Algeria	EVALUATION OF THE HEPATOPROTECTIVE ACTIVITY OF SILYBUM MARIANUM METHANOLIC EXTRACT USING IN VITRO AND IN VIVO MODELS OF ACETAMINOPHEN-INDUCED LIVER INJURY
Ahlem MOKRANE Amina KRIBECHE Fatima ARKAM Khoukha ALILECHE	Mouloud Mammeri University of Tizi-Ouzou, Algeria (L3BS),University of Bejaia, Algeria M'Hamed Bougara University of Boumerdès, Algeria Scientific and Technical Research Center for Physico-Chemical Analysis (CRAPC), Algeria	PHYTOCHEMICAL CHARACTERIZATION, ANTIOXIDANT AND ANTI-INFLAMMATORY ACTIVITIES OF CATHARANTHUS ROSEUS METHANOLIC EXTRACT
Ouafi S. Harchaoui L. Meguellati H. Benabdelhafid Z. Hamdellou A.	University of Sciences and Technology Houari Boumediene, (USTHB), Algeria	MEDICINAL POTENTIAL OF PHLOMIS BOVEI: PHYTOCHEMICAL PROFILE AND PHARMACOLOGICAL ACTIVITIES
Hicham EL KISSANI Hamza EL KISSANY Abdelouahed HAJJAJI	Sultan Moulay Slimane University, Morocco	EUPHORBIA RESINIFERA IN MOROCCO: TRADITIONAL USES, PHARMACOLOGICAL ACTIVITIES, AND TOXICOLOGICAL ASPECTS
Naveed Munir	University of Management and Technology, Pakistan	UNLOCKING THE FERTILITY RESTORING POTENTIAL OF MEDICINAL HERBS; PRECLINICAL EVALUATION IN FEMALE ALBINO RATS
Soumaya Atouife Abdellah El Habazi Rekia Belahsen	Chouaib Doukkali University, Morocco	ETHNOBOTANICAL KNOWLEDGE OF WILD EDIBLE AND MEDICINAL PLANTS IN SOUTHERN MOROCCO: THE CASE OF GUELMIM PROVINCE
Lansine Diakité Abdeljalil Elmahdaoui Zineb Lachhab Zahra Sokar	Cadi Ayyad University, Morocco	PROTECTIVE EFFECTS OF ACACIA RADDIANA GUM AGAINST URETHANE-INDUCED PULMONARY CARCINOGENESIS IN RATS
Omaima BOUDAIA Zineb SEKKOUT Ba KA DIATA Amal EL HAMSAS EL YOUBI	Hassan II University of Casablanca, Morocco	TOXICOLOGICAL SCREENING OF SAPONIN EXTRACTS FROM TETRAENA GAETULA USING TETRAHYMENA THERMOPHILA

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-ONLINE SESSION-

08.07.2026 / SESSION-2 / HALL-5

Kyrenia Local Time: 12 30 : 14 30 | Ankara Local Time: 12 30 : 14 30

HEAD OF SESSION: Prof. Gabrijel ONDRASEK

AUTHORS	AFFILIATION	TOPIC TITLE
Rosa Aulia Ananda Safani Ranti Ekasari Lilis Widiastuty Fatmawaty Mallapiang	Universitas Islam Negeri Alauddin Makassar, Indonesia	ANALYSIS OF LEAD LEVELS IN AUTOMOTIVE PAINTING WORKERS IN MAKASSAR CITY
Prof. Gabrijel ONDRASEK Asst. Prof. Jelena HORVATINEC ISAKOVIĆ	University of Zagreb, Croatia	GLOBAL METAL CONTAMINATION: ENVIRONMENTAL PATHWAYS, HUMAN HEALTH RISKS, AND SUSTAINABLE REMEDIATION
Ahmed Osmane Khadija Zidan Moustapha Belmouden	Cadi Ayyad University, Morocco Agadir University Ibn Zohr, Morocco	HEALTH AND NUTRITIONAL IMPACTS OF WASTEWATER-IRRIGATED MILLET: A CASE STUDY OF TRICKLING FILTER EFFLUENT IN ARID NORTH AFRICA
Fatima Bouizzal Youssef EL Madhi Moulay laarbi Ouahidi	University Ibn Tofail, Morocco	EFFECTS OF LPS-INDUCED NEUROINFLAMMATION ON DEPRESSION-LIKE BEHAVIORS IN WISTAR RATS
Abubakar Abdulkadir	Umaru Musa Yar'adua University, Nigeria	THE IMAM AS A MENTAL HEALTH RESOURCE: ISLAMIC CHAPLAINCY AND THE POTENTIAL FOR FAITH-INTEGRATED POST-TRAUMATIC STRESS CARE AMONG NIGERIAN AIR FORCE PERSONNEL
Rareș Voroneanu	University of medicine and pharmacy Grigore T. Popa, Romania	BRIBERY AND BRIBE-TAKING IN THE HEALTHCARE SECTOR: LEGAL PERSPECTIVES
Zainab Bibi	Bahria University, Pakistan	FROM CHARM TO HARM: THE DARK TRIAD'S PATHWAY TO WORKPLACE INCIVILITY IN LEGAL PROFESSION
Prof. Wagida Wafik Hala Awad Ahmed Rawand Ahmed Alshehri	King Khalid University, Saudi Arabia	KNOWLEDGE AND ATTITUDES TOWARD GENETIC DISEASES AMONG ADULTS IN ABHA CITY, SAUDI ARABIA
Prof. Wagida Wafik Hala Awad Ahmed Rawand Ahmed Alshehri	King Khalid University, Saudi Arabia	ASSESSING KNOWLEDGE AND ATTITUDES TOWARD GENETIC DISEASES AMONG ADULTS IN ABHA CITY, SAUDI ARABIA: A CROSS-SECTIONAL STUDY
Birhanu Woldie Meshesha	Bahir Dar University, Ethiopia	EFFECT OF SOIL ACIDITY ON NUTRIENT AVAILABILITY AND PHYTOHORMONAL RESPONSES

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08.07.2026 / SESSION-3 / HALL-1

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HEAD OF SESSION: Dr. Umut Ulaş TOSUN

AUTHORS	AFFILIATION	TOPIC TITLE
Res. Assist. ZARİF ECE HAMMUDİOĞLU	Hatay Mustafa Kemal University, Türkiye	EVALUATION OF MANDIBULAR TRABECULAR BONE MICROSTRUCTURE IN HIV/AIDS PATIENTS USING FRACTAL ANALYSIS: A CASE-CONTROL STUDY
Res. Assist. Merve KUÇUK KURTGOZ Res. Assist. Elif ÇEÇEN EROL Assoc. Prof. Dr. Ceren AKTUNA BELGIN	Hatay Mustafa Kemal University, Türkiye	THE EFFECT OF DIABETES AND HYPERTENSION ON THE MANDIBLE: A FRACTAL ANALYSIS STUDY
Assist. Prof. Dr. Alperen KALYONCU Res. Assist. Medine ŞİMŞEK Assoc. Prof. Dr. Taha Emre KÖSE	Recep Tayyip Erdoğan University, Türkiye	ORAL AND MAXILLOFACIAL FINDINGS LEADING TO THE DIAGNOSIS OF GAUCHER DISEASE: A CASE REPORT
Dr. Umut Ulaş TOSUN	Marmara University, Türkiye	MANAGEMENT OF LOCALISED GINGIVAL OVERGROWTH WITH INITIAL PERIODONTAL TREATMENT: A CASE REPORT
Dr. Umut Ulaş TOSUN	Marmara University, Türkiye	GLOBAL RESEARCH TRENDS AND EMERGING THEMES IN HERBAL PRODUCTS IN DENTISTRY: A BIBLIOMETRIC ANALYSIS BASED ON THE WEB OF SCIENCE DATABASE
Assist. Prof. Dr. Serap Gülçin ÇETİN Assist. Prof. Dr. Güliz Rana TELLİOĞLU AVCI Assist. Prof. Dr. Abdurrahman YALÇIN	Batman University, Türkiye Dicle University, Türkiye	GLOBAL AND NATIONAL TRENDS IN PEDIATRIC DENTAL TRAUMA RESEARCH: A BIBLIOMETRIC ANALYSIS OF THE WEB OF SCIENCE DATABASE
Shahla YUSUBOVA Elmıra ALIYEVA Gasım BAYRAMOV	Azerbaijan Medical University, Azerbaijan	OPTIMIZATION OF PERIODONTAL TREATMENT IN PATIENTS WITH CHRONIC GENERALIZED PERIODONTITIS ASSOCIATED WITH OSTEOPOROSIS

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08.07.2026 / SESSION-3 / HALL-2

Kyrenia Local Time: 15 00 : 17 00 | Ankara Local Time: 15 00 : 17 00

HEAD OF SESSION: Assist. Prof. Dr. Sadet KARABULUT

AUTHORS	AFFILIATION	TOPIC TITLE
Assist. Prof. Dr. Sadet KARABULUT	Yalova University, Türkiye	NEW HOPE IN THE TREATMENT OF NEURODEGENERATIVE DISEASES: LECANEMAB
Beyzanur AKTAŞ Assoc. Prof. Muhammed İhsan HAN	Erciyes University, Türkiye	SYNTHESIS AND CHARACTERIZATION OF TETRACAINE-DERIVED THIOSEMICARBAZIDE COMPOUNDS
Rumeysa Zelal ALTEPE Assist. Prof. Dr. Sumeyye BASER	Erzincan Binali Yıldırım University, Türkiye	SKIN MICROBIOTA AND DERMATOLOGY: INFECTIONS, DYSBIOSIS, AND CURRENT TREATMENT APPROACHES
Assist. Prof. Dr. Cansu VATANSEVER	Altınbaş University, Türkiye	INVESTIGATION OF THE ANTIBACTERIAL ACTIVITIES OF COMBINATIONS OF SAGE ESSENTIAL OIL AND DIFFERENT ANTIBIOTICS ON VARIOUS BACTERIA
Assoc. Prof. Dr. Tuba UNVER Dr. Ismet GURHAN	Inonu University, Türkiye	INHIBITORY ABILITY OF Nasturtium officinale METHANOL EXTRACT ON Candida krusei AND Candida parapsilosis
Shirinova Lala Shirinova Nargiz	Institute of Medical Prevention named after V.Y. Akhundov, Azerbaijan Azerbaijan Medical University, Azerbaijan	THE CURRENT STATUS AND PROSPECTS OF THE PHARMACOLOGICAL POTENTIAL OF PLANT-DERIVED PREPARATIONS IN THE ETIOTROPIC TREATMENT OF LEISHMANIASIS IN AZERBAIJAN
Assoc. Prof. Dr. Yusif ISMAYILOV Assoc. Prof. Dr. Zulfiya ISKENDEROVA Assist. Prof. Gunay EMINOVA Assoc. Prof. Dr. Agil ALİYEV Assist. Prof. Gunel NASIROVA	Azerbaijan Medical University, Azerbaijan	THE ROLE OF MONOAMINES AND SOMATOSTATIN IN THE REGULATION OF THE NEUROHORMONAL AND IMMUNE SYSTEMS OF THE BODY
Assoc. Prof. Dr. Zulfiya ISKENDEROVA Assist. Prof. Gunay EMINOVA Assoc. Prof. Dr. Yusif ISMAYILOV Assoc. Prof. Dr. Agil ALİYEV Assist. Prof. Gunel NASIROVA	Azerbaijan Medical University, Azerbaijan	THE INFLUENCE OF TOXIC STRESS ON HEMATOLOGICAL MARKERS OF THE BODY

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HEAD OF SESSION: Umida MAVLYANOVA

AUTHORS	AFFILIATION	TOPIC TITLE
PhD Madalina Sorop Assist Prof. Dr. Bogdan Sorop Lect. Ion PETRE Assiat. Prof. Dr. Mircea Diaconu Maryam KRROSHEN Lect. Florina Buleu Assoc. Prof.Dr. Izabella PETRE	Victor Babes University of Medicine and Pharmacy Timisoara, Romania	THE ROLE OF INTERLEUKIN-6 IN PREECLAMPSIA: INSIGHTS FROM A RETROSPECTIVE COHORT STUDY
Lecturer Ion PETRE Assoc. Prof. Dr. Miruna Lucia NACHESCU PhD Mihai LOICHITA Tiberiu BULEU PhD Alexandru – Marius FURAU Dr. Razvan BOBORA Assoc. Prof. Dr. Izabella PETRE	Victor Babes University of Medicine and Pharmacy Timisoara, Romania West University of Timisoara, Romania 'Vasile Goldiş" Western University of Arad, Romania	MACHINE LEARNING-ASSISTED PREDICTION OF ABNORMAL CERVICAL CYTOLOGY OUTCOMES IN ROMANIA'S CERVICAL CANCER SCREENING PROGRAM (2012–2023)
Bogdan CHIU Assoc. Prof. Dr. Izabella PETRE Assoc. Prof. Dr. Miruna Lucia NACHESCU PhD Carina BOGDAN PhD Elena Ramona DRAGOMIR Alexandra VIENESCU Lecturer Ion PETRE	Victor Babes University of Medicine and Pharmacy Timisoara, Romania West University of Timisoara, Romania	CARDIOVASCULAR RISK AND CORONARY SYNDROMES IN POSTMENOPAUSAL WOMEN: CLINICAL CHARACTERISTICS AND OUTCOMES
PhD Mihai LOICHITA Lecturer Ion PETRE PhD Alexandru – Marius FURAU Dr. Razvan BOBORA Cezar PANTEA Assoc. Prof. Dr. Izabella PETRE	Victor Babes University of Medicine and Pharmacy Timisoara, Romania 'Vasile Goldiş" Western University of Arad, Romania	QUALITY ASSESSMENT AND CYTOLOGICAL CHARACTERISTICS OF CERVICAL SMEARS IN THE CERVICAL CANCER SCREENING PROGRAM: A 12-YEAR RETROSPECTIVE ANALYSIS
Adrian LOICHITA Assoc. Prof. Dr. Izabella PETRE Assoc. Prof. Dr. Miruna Lucia NACHESCU Bogdan CHIU Cezar PANTEA Lecturer Ion PETRE	Victor Babes University of Medicine and Pharmacy Timisoara, Romania West University of Timisoara, Romania	THE CLINICAL ROLE OF THROMBOPHILIA SCREENING IN PREGNANCY: CURRENT PERSPECTIVES AND CHALLENGES
CONSTANTINESCU Richard VORONEANU-POPA Rareş-Vasile	"Grigore T. Popa" University of Medicine and Pharmacy, Romania	SEARCHES OF MEDICAL OFFICES: LEGAL PERSPECTIVES
B.Sc. Thi My Tram TRAN B.Sc. Xuan Khanh DAO B.Sc. Thanh Hoa PHAN MSc. Thi Tho NGUYEN Assoc. Prof. Dr. Thi Mong Diep NGUYEN	Quy Nhon University, Vietnam	ISOLATION OF ANTIBIOTIC-RESISTANT BACTERIA FROM PIG FARM WASTE IN VIETNAM
Dr. Daniel Dr. Christopher Dr. Adiningsih Srilestari Dr. Ahmad Aulia	Universitas Indonesia, Indonesia	EFFECTIVENESS OF ACUPUNCTURE ON LOWER EXTREMITY PERFORMANCE FOR OVERALL HEALTH

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08.07.2026 / SESSION-3 / HALL-4

Kyrenia Local Time: 15 00 : 17 00 | Ankara Local Time: 15 00 : 17 00

HEAD OF SESSION:

AUTHORS	AFFILIATION	TOPIC TITLE
U. Katheeja Ramzia Dr. T. P. Anupama Dr. C.Vairavan	Academy of Maritime Education and Training Deemed to be University, India	TRAUMA, MEMORY, AND HEALING IN LOUISE ERDRICH'S THE SENTENCE: A MEDICAL HUMANITIES APPROACH
Saoussen Namouchi Cherni Imen Jendoubi Badiaa Esghaier	Université de Tunis El Manar, Tunisian	"SYNTHESIS, STRUCTURAL CHARACTERIZATION, AND BIOLOGICAL ACTIVITY OF A NEW COMPOUND: DIAQUATETRAKIS(PHOSPHORIC ACID)COBALT(II) CHLORIDE DIHYDRATE $[Co(H_3PO_4)_4(H_2O)_2]Cl_2 \cdot 2H_2O$"
Assoc. Prof. Svetla GATEVA Assoc. Prof. Gabriele JOVTCHEV Assist Prof. Tsvetelina GERASIMOVA Alexander STANKOV Elena CHAYLEVA Prof. Milka MILEVA Assoc. Prof. Ana DOBREVA	Bulgarian Academy of Sciences, Bulgaria	SUBCRITICAL WATER EXTRACT FROM ROSA DAMASCENA MILL. CAN DECREASE GENOTOXICITY OF DIRECT MUTAGEN MNNG IN HIGHER PLANTS AND HUMAN LYMPHOCYTES IN VITRO
Michael Kurniawan Kayadi Atikah Chalida Barasila Evania Beatrice	Universitas Indonesia, Indonesia	ELECTROACUPUNCTURE IN TRIGEMINAL NEURALGIA: A PROMISING ADJUNCTIVE APPROACH FOR PATIENTS WITH INADEQUATE RESPONSE TO PHARMACOTHERAPY
Dr. Natalia BOLOCAN Dr. Oxana SPINU Prof. Dr. Igor POVAR	Moldova State University, Republic of Moldova	CHEMICAL SYNERGISM IN PHARMACEUTICAL FORMULATIONS: A THERMODYNAMIC PERSPECTIVE ON NON-ADDITIVE DRUG SOLUBILIZATION AND STABILIZATION
Dr. Natasha Setiawan Dr. Agitha Melita Putri Dr. Kevin Supratman Dr. Wahyuningsih Djaali	Universitas Indonesia, Indonesia	THE ROLE OF ACUPUNCTURE IN WEANING FROM MECHANICAL VENTILATION: A NARRATIVE REVIEW
Radostina Vasileva Radostina Anastasova Elitza Djongova	Medical University Varna, Bulgaria	THE ROLE OF TACTILITY AND PERCEPTION IN THE TRAINING OF DENTAL TECHNOLOGY AND DENTAL MEDICINE STUDENTS
Anna Maria Sacco Veronica Romano Vittoria Acampora Sara Febbraio Francesca Carbone Antonio Menini Fabrizio Schonauer Daria Nurzynska Clotilde Castaldo Franca Di Meglio	University of Naples "Federico II", Italy	A TISSUE-ENGINEERING APPROACH TO VASCULAR GRAFT DEVELOPMENT USING HUMAN DECELLULARIZED BLOOD VESSELS AND ADIPOSE-DERIVED MESENCHYMAL STROMAL CELLS

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-ONLINE SESSION-

08.07.2026 / SESSION-3 / HALL-5

Kyrenia Local Time: 15 00 : 17 00 | Ankara Local Time: 15 00 : 17 00

HEAD OF SESSION: Dr. Feruza MUSTAFINA

AUTHORS	AFFILIATION	TOPIC TITLE
Mrs. Hanifabonu JURAEVA Dr. Feruza MUSTAFINA	Tashkent Botanical Garden, Uzbekistan	BIOTECHNOLOGICAL PRODUCTION OF ACETYLCHOLINESTERASE- INHIBITING ALKALOIDS FROM UNGERNIA VICTORIS AND PTELEA TRIFOLIATA TISSUE CULTURES
Mr. Abbos KHAZRATOV Dr. Feruza MUSTAFINA	Tashkent Botanical Garden, Uzbekistan	CALLUS CULTURES OF INTRODUCED CONIFER SPECIES AS A PROMISING SOURCE OF THE BIOACTIVE ANTIOXIDANT QUERCETIN
Dr. Feruza MUSTAFINA Mr. Sodikjon ABDINAZAROV	Tashkent Botanical Garden, Uzbekistan	IN VITRO BIOTECHNOLOGY AS A PLATFORM FOR THE CONSERVATION OF MEDICINAL PLANTS AND SUSTAINABLE PRODUCTION OF BIOACTIVE COMPOUNDS
Madina SHAYKHMETOVA	Republican Scientific Center for Emergency Medical Care, Uzbekistan	PHARMACEUTICAL MARKET TRENDS AND BIOTECHNOLOGICAL PRODUCTION OF GALANTHAMINE FOR ALZHEIMER'S DISEASE THERAPY
Veronica Romano Anna Maria Sacco Giulia Ricci Daria Nurzynska Antonio Menini Simone La Padula Fabrizio Schonauer Franca Di Meglio Clotilde Castaldo	Università di Napoli "Federico II", Italy	WHOLE-FACE DECELLULARIZATION FOR THE GENERATION OF VASCULARIZED EXTRACELLULAR MATRIX SCAFFOLDS
I.E. Yusubov	A. Aliyev Azerbaijan State Institute, Azerbaijan	APPLICATION AND CLINICAL SIGNIFICANCE OF ENDOSCOPIC AND MINIMALLY INVASIVE TECHNOLOGIES IN ABDOMINAL SURGERY
I.E. Yusubov	A. Aliyev Azerbaijan State Institute, Azerbaijan	MODERN POSSIBILITIES OF LAPAROSCOPIC APPROACHES IN THE DIAGNOSIS AND TREATMENT OF POSTOPERATIVE PERITONITIS
S.M. Yagubova T.S. Sultanova E.Ch. Akbarov A.A. Alakbarov T.N. Mirzayeva A.V. Ibishova	Azerbaijan Medical University, Azerbaijan	PATHOGENETIC ASPECTS OF THE JOINT IMPACT OF HYPOXIC AND INFECTIOUS FACTORS ON THE FUNCTION OF ENDOCRINE GLANDS

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ÇOCUKLARIN AMELİYAT ÖNCESİ HAZIRLIKLARINDA KUM OYUN TERAPİSİNİN ROLÜ: PEDİATRİK HEMŞİRELİK PERSPEKTİFİ

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Özet

Oyun, çocuk gelişiminin temel bir bileşenidir ve çocukların duygularını ifade etmelerini, stresle başa çıkmalarını ve özellikle hastanede kaldıkları süre boyunca deneyimlerini yorumlamalarını sağlar. Pediatrik hemşirelikte, terapötik oyun, özellikle ameliyat öncesi dönemde, tıbbi işlemlerle ilişkili kaygı, korku ve ağrıyı azaltmada etkili bir farmakolojik olmayan müdahale olarak yaygın olarak kabul edilmektedir. Kanıtlar, oyun temelli müdahalelerin çocukların hastane ortamına uyumunu artırdığını, iletişimi kolaylaştırdığını ve duygusal iyilik halini desteklediğini göstermektedir.

Bu yaklaşımlar arasında, kum oyun terapisi, çocukların içsel deneyimlerini sembolik temsil yoluyla ifade etmelerine olanak tanıyan, kendine özgü, sözel olmayan ve duyusal temelli bir yöntem olarak ortaya çıkmıştır. Güvenli ve yapılandırılmış bir ortam sağlayarak, kum oyun terapisi duygusal ifadeyi destekler, psikolojik sıkıntıyı azaltır ve başa çıkma mekanizmalarını güçlendirir. Mevcut literatür, terapötik oyunun ameliyat öncesi kaygıyı ve işlem ağrısını azaltmadaki etkinliğini gösterse de, özellikle cerrahi bağlamlarda kum oyun terapisini inceleyen çalışmalar sınırlıdır. Bununla birlikte, ortaya çıkan kanıtlar, kum oyun müdahalelerinin ameliyat geçiren çocuklarda hem kaygı hem de ağrı düzeylerinde azalmaya katkıda bulunabileceğini göstermektedir.

Sonuç olarak, terapötik oyun, pediatrik hemşirelik bakımının önemli bir bileşenini oluşturmaktadır ve kum oyun terapisi bu çerçevede umut vadeden bir yaklaşımdır. Ameliyat öncesi ortamlarda etkinliğini belirlemek ve klinik uygulamaya entegrasyonunu desteklemek için daha yüksek kaliteli çalışmalara ihtiyaç duyulmaktadır. Bu yaklaşım, çocukların psikolojik rahatlığını artırabilir ve genel ameliyat öncesi ve sonrası sonuçlarını iyileştirebilir.

Anahtar kelimeler: çocuk; pediatrik hemşirelik; ameliyat öncesi kaygı; terapötik oyun; kum oyun terapisi

THE ROLE OF SANDPLAY THERAPY IN PREOPERATIVE PREPARATION OF CHILDREN: A PEDIATRIC NURSING PERSPECTIVE

Abstract

Play is a fundamental component of child development, enabling children to express emotions, cope with stress, and interpret their experiences, particularly during hospitalization. In pediatric nursing, therapeutic play is widely recognized as an effective non-pharmacological intervention to reduce anxiety, fear, and pain associated with medical procedures, especially in the preoperative period. Evidence suggests that play-based interventions enhance children's adaptation to the hospital environment, facilitate communication, and promote emotional well-being.

Among these approaches, sandplay therapy has emerged as a distinctive, non-verbal, and sensory-based method that allows children to express internal experiences through symbolic representation. By

providing a safe and structured environment, sandplay therapy supports emotional expression, reduces psychological distress, and strengthens coping mechanisms. Although existing literature demonstrates the effectiveness of therapeutic play in reducing preoperative anxiety and procedural pain, studies specifically examining sandplay therapy in surgical contexts remain limited. Nevertheless, emerging evidence indicates that sandplay interventions may contribute to reductions in both anxiety and pain levels in children undergoing surgery.

In conclusion, therapeutic play constitutes a key component of pediatric nursing care, and sandplay therapy represents a promising approach within this framework. Further high-quality studies are needed to establish its effectiveness in preoperative settings and to support its integration into clinical practice. This approach may enhance children's psychological comfort and improve overall perioperative outcomes.

Key words: child; pediatric nursing; preoperative anxiety; therapeutic play; sandplay

FİBROMİYALJİDE TANISAL GECİKME VE AŞIRI TETKİK SORUNU: BİRİNCİ BASAMAK HEKİMLERİ NE YAPMALI?

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Özet

Amaç: Fibromiyalji (FM), yaygın kas-iskelet sistemi ağrısı, yorgunluk, uyku bozukluğu ve bilişsel semptomlarla seyreden kronik bir ağrı sendromudur. Tanıya özgü biyobelirteçlerin bulunmaması ve semptomların birçok hastalıkla örtüşmesi nedeniyle tanısal gecikmeler yaşanabilmekte, bu durum tekrarlayan başvurular ve gereksiz tetkiklere yol açabilmektedir. Bu sistematik derlemenin amacı, son beş yılda yayımlanan çalışmalar doğrultusunda fibromiyaljide tanısal gecikme ve aşırı tetkik kullanımının nedenlerini, sonuçlarını ve birinci basamakta uygulanabilecek çözüm önerilerini değerlendirmektir.

Yöntem: Bu derleme çalışmasında, Ocak 2021–Mayıs 2026 döneminde yayımlanan çalışmalar için PubMed/MEDLINE, Scopus, Web of Science, Google Scholar, TR Dizin ve DergiPark veri tabanlarında sistematik olmayan bir literatür taraması gerçekleştirilmiştir. İlgili anahtar kelimeler kullanılarak yapılan tarama sonucunda konu ile ilişkili çalışmalar derlemeye dahil edilmiştir.

Bulgular: İncelenen çalışmalar, fibromiyalji (FM) tanısında anlamlı bir gecikme olduğunu ve birçok hastada tanının semptom başlangıcından yıllar sonra konulduğunu göstermektedir. Bu gecikmenin temel nedenleri arasında hastalığın heterojen ve non-spesifik klinik sunumu, birinci basamakta tanı farkındalığının değişkenliği ve FM'nin çoğunlukla "dışlama tanısı" olarak ele alınması yer almaktadır. Literatür, özellikle primer bakımda organik patolojileri dışlama eğiliminin, düşük klinik özgüllüğe sahip geniş bir tetkik panelinin tekrar tekrar kullanılmasına yol açtığını ortaya koymaktadır. Çalışmalar, hastaların tanı öncesi dönemde sık laboratuvar incelemeleri, görüntüleme yöntemleri ve çoklu uzman başvurularına maruz kaldığını; bu durumun hem sağlık sistemi maliyetlerini artırdığını hem de "tanısal belirsizlik döngüsü" oluşturarak hasta anksiyetesini pekiştirdiğini bildirmektedir. Ayrıca gereksiz tetkiklerin klinik yönetimi anlamlı ölçüde değiştirmediği, ancak insidental bulgular nedeniyle ek tetkik ve yönlendirmelere neden olabildiği vurgulanmaktadır. Güncel kılavuzlar ve sistematik derlemeler, tipik klinik prezentasyon varlığında 2016 ACR tanı kriterlerinin birinci basamakta etkin kullanımının tanı süresini kısaltabileceğini ve gereksiz tetkik yükünü azaltabileceğini belirtmektedir. Ayrıca yapılandırılmış klinik yaklaşımın benimsenmesinin hem tanısal gecikmeyi hem de sağlık hizmeti kullanımını azaltmada kritik rol oynayabileceği bildirilmektedir.

Sonuç: Fibromiyaljide tanısal gecikme ve aşırı tetkik kullanımı önemli bir sağlık hizmeti yükü oluşturmaktadır. Birinci basamakta güncel tanı kriterlerinin etkin kullanımı, uygun ayırıcı tanı yaklaşımı ve gereksiz tetkiklerden kaçınılması tanı sürecini hızlandırabilir, maliyetleri azaltabilir ve hasta sonuçlarını iyileştirebilir. Sonuç olarak, "dışlama tanısı" yaklaşımından "tanıyı tanıma" yaklaşımına geçiş, fibromiyaljide hem tanısal gecikmeyi hem de gereksiz sağlık hizmeti kullanımını azaltmada en etkili adımı temsil edebilir.

Anahtar Kelimeler: Fibromiyalji, Tanısal Gecikme, Aşırı Tetkik, Birinci Basamak.

FIBROMYALGIA-RELATED DIAGNOSTIC DELAY AND EXCESSIVE TESTING: WHAT SHOULD PRIMARY CARE PHYSICIANS DO?

Abstract

Aim: Fibromyalgia (FM) is a chronic pain syndrome characterized by widespread musculoskeletal pain, fatigue, sleep disturbance, and cognitive symptoms. Due to the absence of specific biomarkers and symptom overlap with multiple other conditions, diagnostic delay is common and often accompanied by extensive and sometimes unnecessary investigations. This systematic review aims to evaluate the causes and consequences of diagnostic delay and excessive testing in fibromyalgia and to explore evidence-based strategies for primary care management based on studies published over the last five years.

Methods: In this review study, a non-systematic literature search was conducted in the PubMed/MEDLINE, Scopus, Web of Science, Google Scholar, TR Dizin, and DergiPark databases for studies published between January 2021 and May 2026. Studies related to the subject were included in the review based on the results of the search, which was conducted using relevant keywords.

Results: Recent evidence indicates that fibromyalgia (FM) is still associated with substantial diagnostic delay, with many patients receiving a diagnosis years after symptom onset. The main contributors to this delay include the heterogeneous and non-specific clinical presentation of FM, variable awareness and application of diagnostic criteria in primary care, and the persistent tendency to approach FM as a diagnosis of exclusion rather than recognition. Studies consistently report that patients undergo repeated laboratory investigations, imaging studies, and multiple specialist referrals before diagnosis is established. This pattern contributes to increased healthcare utilization and reinforces a cycle of diagnostic uncertainty. In addition, excessive testing rarely alters clinical management, but it may lead to incidental findings that further prolong the diagnostic process through additional investigations. Recent systematic reviews and clinical guidelines emphasize that appropriate use of the 2016 ACR diagnostic criteria in primary care can significantly reduce diagnostic delay. Evidence also suggests that a structured clinical approach improves diagnostic efficiency, reduces unnecessary testing, and may decrease both patient anxiety and healthcare system burden. Overall, the literature supports a shift toward earlier clinical recognition of FM to minimize diagnostic fragmentation and improve care pathways.

Conclusion: Diagnostic delay and excessive testing in fibromyalgia represent a significant burden on healthcare systems. Improved awareness and appropriate use of diagnostic criteria in primary care can reduce unnecessary investigations, shorten time to diagnosis, and improve patient outcomes. Ultimately, shifting from a “diagnosis of exclusion” mindset to a “diagnosis of recognition” approach may represent the most effective step in reducing both diagnostic delay and unnecessary healthcare utilization in fibromyalgia.

Keywords: Fibromyalgia, Diagnostic Delay, Overuse of Testing, Primary Care.

NURSING STUDENTS' SELF-COMPASSION, PROFESSIONAL VALUES, AND EMOTIONAL EMPATHY: A DESCRIPTIVE AND CORRELATIONAL STUDY

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Abstract

Providing compassionate and value-based care is one of the fundamental determinants of nursing care quality. In this context, incorporating self-compassion and self-care skills into nursing education—characterized by kindness toward oneself, a sense of common humanity, and mindful awareness of negative experiences—may be particularly effective in reducing burnout and compassion fatigue among nursing students and professionals. Determining nursing students' levels of self-compassion, professional values, and empathy may facilitate the development of targeted interventions aimed at strengthening these competencies in nursing education. The aim of this study is to examine the relationship between self-compassion, professional values, and emotional empathy skills in nursing students.

This study was designed as a descriptive and correlational type. The population of the study consisted of 480 first-, second-, third-, and fourth-year nursing students enrolled at a university during the fall semester of the 2025–2026 academic year. A total of 350 nursing students were included in the sample. Data were collected using the Personal Information Form, the Short Form of the Self-Compassion Scale, the Nurses Professional Values Scale, and the Multidimensional Emotional Empathy Scale. Ethical committee approval and institutional permission were obtained before the study was conducted. The data were collected between October 15 and November 15, 2025, through face-to-face interviews and self-administered forms and scales completed by the participants. Data collection took approximately 10 minutes.

The average age of the students in the study was 20.53±2.80 (18-47). It was determined that 77.4% of the students were female, 27.7% were third-year students, and 54.6% chose the nursing profession willingly. A positive and moderate correlation was found between the Nurses' Professional Values Scale and the Multidimensional Emotional Empathy Scale ($r=.466$, $p<0.001$). Gender ($\beta=.133$), choosing nursing as a profession willingly ($\beta=-.172$), perceived academic success ($\beta=-.119$), difficulty in communication ($\beta=.117$), and the presence of an event that would be evaluated negatively in the last six months ($\beta=.143$) were found to be predictors of self-compassion levels in nursing students. Emotional empathy skills ($\beta=.033$) were found to be the predictor of nurses' professional values.

The findings of this study demonstrate that the relationship between self-compassion, professional values, and emotional empathy skills in nursing students is critically important in terms of both educational programs and clinical practices.

Key words: Nursing student, Self-Compassion, Emotional Empathy, Professional Value

HEMŞİRELİK ÖĞRENCİLERİNİN ÖZ ŞEFKAT, MESLEKİ DEĞERLER VE DUYGUSAL EMPATİLERİ: TANIMLAYICI VE KORELASYONEL BİR ÇALIŞMA

Özet

Şefkatli ve değerlere dayalı bakım sunmak, hemşirelik bakımının kalitesini belirleyen temel unsurlardan biridir. Bu doğrultuda, kişinin kendisine karşı nazik olması, ortak insanlık duygusuna sahip olması ve olumsuz deneyimlerin farkında olarak bilinçli bir şekilde yaklaşmasını içeren öz-şefkat ve öz bakım becerilerinin hemşirelik eğitimine dahil edilmesi, hemşirelik öğrencileri ve profesyonellerinde tükenmişlik ve şefkat yorgunluğunu azaltmada özellikle etkili olabilir. Hemşirelik öğrencilerinin öz-şefkat, mesleki değerler ve empati düzeylerinin belirlenmesi, hemşirelik eğitiminde bu yeterlilikleri güçlendirmeye yönelik hedefe odaklı müdahalelerin geliştirilmesine olanak sağlayabilir. Bu çalışmanın amacı, hemşirelik öğrencilerinde öz-şefkat, mesleki değerler ve duygusal empati becerileri arasındaki ilişkiyi incelemektir.

Bu çalışma, tanımlayıcı ve korelasyonel tipte planlanmıştır. Araştırmanın evrenini, 2025–2026 akademik yılı güz döneminde bir üniversitede öğrenim gören birinci, ikinci, üçüncü ve dördüncü sınıf 480 hemşirelik öğrencisi oluşturmuştur. Araştırmanın örneklemine 350 hemşirelik öğrencisi alınmıştır. Veriler; Kişisel Bilgi Formu, Öz-Şefkat Ölçeği Kısa Formu, Hemşirelerin Mesleki Değerleri Ölçeği ve Çok Boyutlu Duygusal Empati Ölçeği kullanılarak toplanmıştır. Çalışmaya başlamadan önce etik kurul onayı ve kurum izni alınmıştır. Çalışma verileri, 15 Ekim ile 15 Kasım 2025 tarihleri arasında, yüz yüze görüşme yöntemiyle ve katılımcıların kendi tarafından doldurulan form ve ölçekler ile toplanmıştır. Verileri toplamak yaklaşık 10 dakika sürmüştür.

Araştırmaya katılan öğrencilerin yaş ortalaması 20,53±2,80 (18–47) olarak belirlenmiştir. Öğrencilerin %77,4'ünün kadın, %27,7'sinin üçüncü sınıf öğrencisi olduğu ve %54,6'sının hemşirelik mesleğini isteyerek seçtiği saptanmıştır. Hemşirelerin Mesleki Değerleri Ölçeği ile Çok Boyutlu Duygusal Empati Ölçeği arasında pozitif yönde ve orta düzeyde anlamlı bir ilişki bulunmuştur ($r=.466$, $p<0.001$). Cinsiyet ($\beta=.133$), hemşirelik mesleğini isteyerek seçme durumu ($\beta=-.172$), algılanan akademik başarı ($\beta=-.119$), iletişimde güçlük yaşama ($\beta=.117$) ve son altı ay içinde olumsuz olarak değerlendirilebilecek bir olay yaşama durumu ($\beta=.143$), hemşirelik öğrencilerinin öz-şefkat düzeylerinin yordayıcıları olarak belirlenmiştir. Duygusal empati becerilerinin ($\beta=.033$) ise hemşirelerin mesleki değerlerinin yordayıcısı olduğu bulunmuştur.

Bu çalışmanın bulguları, hemşirelik öğrencilerinde öz-şefkat, mesleki değerler ve duygusal empati becerileri arasındaki ilişkinin hem eğitim programları hem de klinik uygulamalar açısından kritik öneme sahip olduğunu göstermektedir.

Anahtar Kelimeler: Hemşirelik öğrencisi, Öz-şefkat, Duygusal empati, Mesleki değer

PRETERM YENİDOĞANLARDA ANNE SÜTÜNÜN SİRKADİYEN ÖZELLİKLERİNİN BEBEĞİN BÜYÜME PARAMETRELERİ VE BESİNLERİN EMİLİMİ ÜZERİNE ETKİSİ: TÜM SONUÇLAR*

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Özet

Bu araştırma, gece ve gündüz anne sütü içerik analizlerinde makro besin ve mikro besinlerin farklılığını gösteren çalışmalardan yola çıkarak; anne sütünün sağılarak verildiği durumlarda sirkadiyen ritme göre beslenmenin (kronobiyolojik besleme) bebeğin büyüme parametrelerine ve besinlerin bebek tarafından emilim düzeylerine etkisinin belirlenmesi hedeflenmiştir.

Araştırmanın evrenini Konya ilinde bir Tıp Fakültesi Hastanesi'nin Yenidoğan Yoğun Bakım Ünitesinde (YYBÜ) yatan 32-34 haftalık preterm bebeklerin tamamı, örneklemini ise araştırmanın dahil olma kriterlerine uygun olarak seçilen 22 kontrol, 22 çalışma (sirkadiyen ritim) grubu olmak üzere toplam 44

preterm bebek ve annesi oluşturmuştur. Çalışma grubundaki bebeklerin beslenmesi tarih ve gece/gündüz uygulaması dikkate alınarak, kontrol grubundaki bebeklerin beslenmesi, sağılan anne sütünün gece ve gündüz özellikleri dikkate alınmadan rutin uygulamada kullanılan "önce sağılan süt önce verilir" koşulu yerine getirilerek gerçekleştirilmiştir. Veriler, "Anne-Preterm Yenidoğan Tanıtıcı Bilgi Formu", "Anne Sütü ile Besleme Takip Formu", "Anne Sütü İçerik Parametreleri Takip Formu", "Preterm Yenidoğan İzlem Formu" ve "Preterm Yenidoğan Kan Numune Parametreleri Takip Formu' ile toplanmıştır. Veriler SPSS 21.0 paket programında tanımlayıcı istatistikler, verilerin normalliği analizi, ki-kare, bağımsız gruplarda t testi, Anova, tekrarlı ölçümlerde varyans analizi, gerekli durumlarda ileri analiz yöntemleri ile analiz edilmiştir.

Her iki grupta da pretermlerin vücut ağırlıklarında küçük değişimler olduğu 15. ölçümde 2000 gr' ın üzerine çıktığı görülmüştür. Baş çevresi ortalamalarının arttığı, 15. ölçümde sirkadiyen ritim grubunda ortalama 34,37±4,16 cm'ye, kontrol grubunda 31,83±2,71 cm' ye ulaştığı belirlenmiştir. Her iki grupta da boy uzunluğunda artışlar olduğu fakat gruplar arasında küçük farklar olduğu ve sirkadiyen ritim grubundaki pretermlerin boy uzunluğunun daha yüksek olduğu belirlenmiştir. Büyüme parametreleri ölçümlerinde istatistiksel olarak anlamlı bir fark görülmemiştir ($p>0.05$).

Araştırma sonuçlarına göre sirkadiyen beslemenin preterm yenidoğanların büyüme parametrelerine etkisinin kısa dönem sonuçları üzerine etkisi görülmez iken anne sütü içeriği ve besin emilimleri üzerinde de anlamlı değişimler olmadığı belirlenmiştir.

Anahtar Kelimeler: anne sütü, sirkadiyen ritm, pediatri hemşireliği, preterm

THE EFFECT OF CIRCADIAN CHARACTERISTICS OF BREAST MILK ON INFANT GROWTH PARAMETERS AND NUTRIENT ABSORPTION IN PRETERM INFANTS: ALL RESULTS*

**This study was supported by the Scientific and Technological Research Council of Türkiye (TÜBİTAK) under the 1001 - Scientific and Technological Research Projects Funding Program with project number 123S615.*

Abstract

Based on studies showing the differences in macronutrients and micronutrients in the content analyses of day and night breast milk, this study aimed to determine the effect of circadian rhythm-based feeding (chronobiological feeding) on the infant's growth parameters and nutrient absorption levels in cases where expressed breast milk is provided.

The population of the study consisted of all 32-34 week preterm infants hospitalized in the Neonatal Intensive Care Unit (NICU) of a Medical Faculty Hospital in Konya province. The sample consisted of a total of 44 preterm infants and their mothers, with 22 in the control group and 22 in the study (circadian rhythm) group, selected in accordance with the inclusion criteria. The feeding of the infants in the study group was carried out taking into account the date and day/night application, while the feeding of the infants in the control group was carried out according to the "first expressed, first given" rule used in routine practice, without considering the day and night characteristics of the expressed breast milk. Data were collected using the "Mother-Preterm Infant Introductory Information Form", "Breast Milk Feeding Follow-up Form", "Breast Milk Content Parameters Follow-up Form", "Preterm Infant Follow-up Form", and "Preterm Infant Blood Sample Parameters Follow-up Form". The data were analyzed using the SPSS 21.0 software package with descriptive statistics, data normality analysis, chi-square, independent samples t-test, ANOVA, repeated measures analysis of variance, and advanced analysis methods when necessary.

Small changes were observed in the body weights of the preterm infants in both groups, exceeding 2000 g at the 15th measurement. It was determined that the mean head circumference increased, reaching an average of 34.37±4.16 cm in the circadian rhythm group and 31.83±2.71 cm in the control group at the 15th measurement. Increases in body length were observed in both groups, but there were minor

differences between the groups, with the body length of preterm infants in the circadian rhythm group being higher. No statistically significant difference was observed in the growth parameter measurements ($p>0.05$).

According to the research results, while circadian feeding showed no effect on the short-term outcomes of the growth parameters of preterm newborns, it was also determined that there were no significant changes in breast milk content and nutrient absorption.

Keywords: breast milk, circadian rhythm, pediatric nursing, preterm

SAĞLIK EĞİTİMİNDE YAPAY ZEKA VE OYUNLAŞTIRMA

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Özet

Dijital teknolojilerin gelişimiyle birlikte, sağlık eğitimi ve sağlık hizmetleri sunumunda geleneksel yöntemlerin yerini yenilikçi öğrenme araçları. Bu değişimin en önemli iki bileşeni yapay zeka (YZ) ve oyunlaştırmadır. Yapay zeka; uyarlanabilir öğrenme sistemleri, doğal dil işleme tabanlı akıllı asistanlar ve sanal klinik simülasyonlar aracılığıyla sağlık profesyonelleri ile öğrencilere kişiselleştirilmiş eğitim deneyimleri sunmaktadır. Oyunlaştırma ise, oyun tasarım unsurlarının oyun dışı bağlamlara uyarlanmasıyla öğrenenlerin ve hastaların içsel motivasyonunu artıran, davranış değişikliğini teşvik eden bir yöntemdir. Yapay zeka ve oyunlaştırmanın birlikte kullanımı, kişiye özgü müdahalelerin önünü açmaktadır. Özellikle sağlık eğitimini pasif bilgi aktarımından çıkartıp, aktif, etkileşimli, bireyselleştirilmiş ve kanıta dayalı bir modele dönüştürmektedir. Sağlık alanında oyunlaştırma uygulamaları, hastaların postoperatif dönemde iyileşme süreçlerini hızlandırmada, çocuklarda tedavi kaygısını azaltmada ve fizyoterapi gibi uzun vadeli rehabilitasyon gerektiren durumlarda tedavi uyumunu artırmada başarılı sonuçlar vermektedir. Diğer yandan, sağlık profesyonellerinin eğitiminde sanal hastane simülasyonları ve rekabetçi ödül sistemleriyle klinik karar verme yetilerinin geliştirilmesi sağlanmaktadır. Özellikle sanal klinik senaryolar ve motive edici geri bildirim mekanizmaları sayesinde, öğrencilerin ve profesyonellerin hata korkusu olmadan karmaşık beceriler kazanması sağlanmaktadır. Öğrenciler, risk içermeyen bu ortamlarda karmaşık klinik senaryoları deneyimleyerek klinik karar verme, sorun çözme ve eleştirel düşünme gibi üst düzey becerilerini geliştirebilmektedirler. Bu teknolojilerin entegrasyonu büyük fırsatlar sunsa da; veri güvenliği, algoritmik önyargılar, dijital bağımlılık, akademik dürüstlük ve maliyet gibi sınırlılıklar ile etik sorunları da beraberinde getirmektedir. Bununla birlikte teknolojinin aşırı kullanımı, insani dokunuşun geri planda kalmasına neden olabilmektedir. Bu bildiride, yapay zeka ve oyunlaştırmanın sağlık eğitimindeki rolü, fırsatları ve etik boyutları mevcut alan yazın çerçevesinde incelenmektedir.

Anahtar Kelimeler: sağlık eğitimi, oyunlaştırma, yapay zeka

ARTIFICIAL INTELLIGENCE AND GAMIFICATION IN HEALTH EDUCATION

Abstract

With the development of digital technologies, innovative learning tools are replacing traditional methods in health education and healthcare delivery. The two most important components of this change are artificial intelligence (AI) and gamification. Artificial intelligence provides personalized educational experiences for healthcare professionals and students through adaptive learning systems, natural language processing-based smart assistants, and virtual clinical simulations. Gamification, on the other hand, is a method that increases the intrinsic motivation of learners and patients and encourages behavior change by adapting game design elements to non-game contexts. The combined use of artificial intelligence and gamification paves the way for individualized interventions. In particular, it transforms

health education from passive information transfer into an active, interactive, individualized, and evidence-based model.

Gamification applications in the healthcare field yield successful results in accelerating patients' recovery processes in the postoperative period, reducing treatment anxiety in children, and increasing treatment adherence in situations requiring long-term rehabilitation such as physiotherapy. On the other hand, in the education of healthcare professionals, the development of clinical decision-making skills is ensured through virtual hospital simulations and competitive reward systems. Especially through virtual clinical scenarios and motivating feedback mechanisms, students and professionals are enabled to gain complex skills without the fear of making mistakes. By experiencing complex clinical scenarios in these risk-free environments, students can develop higher-order skills such as clinical decision-making, problem-solving, and critical thinking.

Although the integration of these technologies offers great opportunities, it also brings about limitations and ethical problems such as data security, algorithmic biases, digital addiction, academic integrity, and cost. However, the excessive use of technology can cause the human touch to fall into the background. In this paper, the role, opportunities, and ethical dimensions of artificial intelligence and gamification in health education are examined within the framework of the current literature.

Keywords: health education, gamification, artificial intelligence

ERKEN ÇOCUKLUKTA RİSKLİ OYUN: SAĞLIK VE GELİŞİM PERSPEKTİFİNDEN BİR DERLEME

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Özet

Modern toplumların giderek artan güvenlik kaygıları ve şehirleşme dinamikleri, erken çocukluk döneminde oyun alanlarının büyük ölçüde yapılandırılmasına ve çocukların doğal risklerden arındırılmış, aşırı müdahaleye açık ortamlarda büyümesine neden olmaktadır. Literatürde aşırı korumacılık ve sıfır risk yaklaşımı olarak adlandırılan bu güncel paradigma, çocukların potansiyel tehlikelerden ve fiziksel yaralanmalardan korunmasını sağlasa da, kritik gelişimsel fırsatların kaçırılmasına ve çocukların kendi sınırlarını keşfetme becerilerinin körelmesine zemin hazırlamaktadır. Riskli oyun; çocukların belirsizlik içeren, fiziksel sınırlarını zorladıkları, doğası gereği düşme veya yaralanma ihtimali barındıran ancak aynı zamanda yoğun bir heyecan, özgürlük ve başarma duygusu sunan yapılandırılmamış oyun türleri olarak tanımlanmaktadır. Uluslararası düzeyde yayımlanan ve yüksekte oynama, yüksek hızda hareket etme, tehlikeli araçlar veya elementlerle oynama, fiziksel mücadele oyunları ile yetişkin gözetiminden uzaklaşma gibi temel riskli oyun kategorilerini ele alan araştırmalar, bu oyun biçiminin çocukların gelişiminde yeri doldurulamaz bir rol oynadığını göstermektedir. Tırmanma, atlama veya yüksek hız içeren dinamik aktiviteler, çocukların vestibüler sistemlerini uyararak denge, motor koordinasyon, mekânsal algı ve kaba motor becerilerini optimize etmektedir. Bununla birlikte, aktif ve efor gerektiren bu oyun biçimi, artan sedanter yaşam tarzının, teknoloji kullanımının ve çocukluk çağı obezitesinin önlenmesinde güçlü ve sürdürülebilir bir fiziksel aktivite alternatifi sunmaktadır. Sağlık perspektifinden bakıldığında, riskli oyunun ruh sağlığı, duygusal düzenleme ve bilişsel esneklik üzerindeki koruyucu etkisi de hayati bir boyuttur. Çocuklar, risk barındıran oyun ortamlarında tehlikeyi tanıma, potansiyel sonuçları hesaplama, anlık karar verme ve kendi sınırlarını doğru değerlendirme becerisi kazanırlar. Bu otonom deneyimler, çocukların korkularıyla kontrollü bir şekilde yüzleşmelerine, stres yönetimini içselleştirmelerine ve ileriki yaşlarda görülebilecek anksiyete düzeylerinin azalmasına doğrudan yardımcı olmaktadır. Sürekli bir yetişkin müdahalesinin olmadığı, yapılandırılmamış ve belirsizlik içeren bu oyunlar, problem çözme yeteneklerini geliştirerek çocuklarda psikolojik sağlamlığın ve özgüvenin inşasına temel oluşturur. Bu bağlamda; bu bildiride, erken çocukluk döneminde deneyimlenen riskli oyunların çocuk sağlığı ile gelişimi üzerindeki çok boyutlu etkileri güncel literatür ışığında analiz edilmekte; mevcut duruma ilişkin sonuçlar ve öneriler ele alınmaktadır.

Anahtar Kelimeler: Riskli Oyun, Erken Çocukluk, Gelişimsel Pediatri,

RISKY PLAY IN EARLY CHILDHOOD: A REVIEW FROM HEALTH AND DEVELOPMENT PERSPECTIVES

Abstract

The escalating safety concerns and urbanization dynamics of modern societies have led to the extensive structuring of early childhood play areas, causing children to grow up in over-supervised environments devoid of natural risks. Although this contemporary paradigm, referred to in the literature as

overprotection and the zero-risk approach, safeguards children from potential hazards and physical injuries, it concurrently sets the stage for the forfeiture of critical developmental opportunities and the stagnation of children's ability to explore their own boundaries. Risky play is defined as a form of unstructured play involving uncertainty, wherein children push their physical limits; while it inherently entails a probability of falling or injury, it simultaneously provides profound sensations of excitement, freedom, and achievement. Internationally published research addressing fundamental categories of risky play—such as playing at heights, moving at high speeds, playing with dangerous tools or elements, rough-and-tumble play, and disappearing from adult supervision—demonstrates that this form of play assumes an irreplaceable role in children's development. Dynamic activities involving climbing, jumping, or high speeds stimulate children's vestibular systems, thereby optimizing their balance, motor coordination, spatial perception, and gross motor skills. Furthermore, this active and exertion-demanding form of play presents a robust and sustainable physical activity alternative for preventing the rise in sedentary lifestyles, excessive technology use, and childhood obesity. From a health perspective, the protective impact of risky play on mental health, emotional regulation, and cognitive flexibility constitutes a crucial dimension. In risk-laden play environments, children acquire the ability to recognize hazards, calculate potential outcomes, make instantaneous decisions, and accurately evaluate their own limitations. These autonomous experiences directly facilitate children in confronting their fears in a controlled manner, internalizing stress management, and consequently mitigating anxiety levels that may emerge in later life. Devoid of constant adult intervention, these unstructured and uncertainty-infused play forms foster problem-solving abilities, thereby laying the groundwork for the cultivation of resilience and self-confidence in children. In this context, this paper analyzes the multidimensional impacts of risky play experienced during early childhood on child health and development in the light of current literature, and discusses conclusions and recommendations pertaining to the current situation.

Keywords: Risky Play, Early Childhood, Developmental Pediatrics,

EBEVEYN PHUBBİNG (TEKNO-İHLAL) DAVRANİŞİNİN GELİŞİMSEL BAKİŞ AÇİSİ İLE İNCELENMESİ

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Özet

İnsan yavrusunun sağlıklı nörobiyolojik, bilişsel ve psikolojik gelişimi, bakımvereni ile kurduğu kesintisiz, duyarlı ve karşılıklı etkileşime sıkı sıkıya bağlıdır. Ancak teknolojinin ve ekranların insan hayatını hızla dönüştürdüğü modern toplum yapısında yeni nesil, en temel gelişimsel ve duygusal ihtiyaçlarını karşılarken ebeveynlerinin dikkatini akıllı cihazlarla paylaşmak zorunda kalmaktadır. Literatürde "ebeveyn phubbing'i" veya "tekno-ihlal" (technoference) olarak adlandırılan bu olgu; ebeveynin veya bakımverenin çocukla girdiği sosyal etkileşim sırasında ekran kullanımı nedeniyle dikkatinin bölünmesi, göz temasının kesilmesi, sözel ve sözel olmayan iletişimin aniden sekteye uğraması olarak tanımlanmaktadır. Tekno-ihlal, çocuğun nörobilişsel inşasında kritik bir rol oynayan "hizmet et ve geri dön" (serve and return) etkileşim döngüsünü bozarak gelişimsel süreçleri derinden ve olumsuz yönde etkilemektedir. Uluslararası alanda yapılan güncel klinik ve gözlemsel çalışmalar, ebeveynin fiziksel olarak ortamda bulunmasına rağmen bilişsel ve duygusal olarak ekran karşısında yokluğunun, çocukta bir tür görünmez ihmal hissi yarattığını göstermektedir. Bu mikroskobik ihmal anları biriktiğinde, çocuğun ebeveynle ortak dikkat kuramaması nedeniyle erken dönem dil ediniminde gecikmelere, kelime dağarcığının kısıtlı kalmasına ve ifade edici dil becerilerinde aksamalara yol açmaktadır. Aynı zamanda çocuğun duygu düzenleme (öz-düzenleme) kapasitesini zayıflatarak dışsallaştırma sorunlarına, artmış ağlama veya öfke nöbetlerine, ayrılık anksiyetesine ve hayal kırıklığı toleransında belirgin bir azalmaya zemin hazırlamaktadır. Bilişsel esneklik, güvenli bağlanma örüntüleri ve sosyal beceri inşası, bakımverenin anlık, sıcak ve tutarlı geri bildirimlerine doğrudan ihtiyaç duyarken, ekran aracılı anlık kesintiler bu gelişimsel kilometre taşlarında yapısal ve telafisi zor sapmalara neden olabilmektedir. Ebeveynin ekran karşısında geçirdiği sürenin kalitesi ve bölünmüş dikkatin sıklığı, çocuğun sadece bugünkü ruh halini değil, gelecekteki psikolojik sağlamlığını da şekillendirmektedir. Bu bağlamda; bu bildiride, erken çocukluk döneminde kronik olarak maruz kalınan ebeveyn phubbing (tekno-ihlal) davranışının çocukların sosyo-duygusal, bilişsel ve dil gelişimi üzerindeki çok boyutlu etkileri güncel literatür ışığında gelişimsel bir bakış açısıyla analiz edilmekte; yeni nesil ebeveynlik paradigmaları çerçevesinde dijital sınırların belirlenmesi, bilinçli ekran stratejilerinin geliştirilmesi ve bütüncül çocuk sağlığının korunması adına alana özgü klinik ve pratik öneriler ele alınmaktadır.

Anahtar Kelimeler: Ebeveyn Phubbing, Tekno-İhlal, Yeni Nesil Ebeveynlik, Çocuk Gelişimi

AN EXAMINATION OF PARENTAL PHUBBING (TECHNOFERENCE) BEHAVIOR FROM A DEVELOPMENTAL PERSPECTIVE

Abstract

The healthy neurobiological, cognitive, and psychological development of a child is strictly dependent on the continuous, responsive, and reciprocal interaction established with the caregiver. However, in the modern societal structure where technology and screens are rapidly transforming human life, the new generation is forced to share their parents' attention with smart devices while fulfilling their most fundamental developmental and emotional needs. This phenomenon, referred to in the literature as "parental phubbing" or "technoference," is defined as the fragmentation of a parent's or caregiver's attention due to screen use during social interaction with the child, resulting in the severance of eye

contact and the abrupt interruption of verbal and non-verbal communication. Technoference profoundly and adversely affects developmental processes by disrupting the "serve and return" interaction cycle, which plays a critical role in the child's neurocognitive development. Recent international clinical and observational studies indicate that a parent's cognitive and emotional absence due to screen engagement, despite their physical presence, engenders a sense of invisible neglect in the child. The accumulation of these microscopic moments of neglect impedes the child's ability to establish joint attention with the parent, consequently leading to delays in early language acquisition, a restricted vocabulary, and impairments in expressive language skills. Simultaneously, by undermining the child's emotion regulation (self-regulation) capacity, it predisposes the child to externalizing problems, increased crying or temper tantrums, separation anxiety, and a marked reduction in frustration tolerance. While cognitive flexibility, secure attachment patterns, and the cultivation of social skills directly necessitate immediate, warm, and consistent feedback from the caregiver, screen-mediated momentary interruptions can precipitate structural and largely irreversible deviations in these developmental milestones. The nature of the time parents spend engaged with screens and the frequency of their divided attention shape not only the child's current emotional state but also their future psychological resilience. In this context, this paper analyzes the multidimensional impacts of chronic exposure to parental phubbing (technoference) during early childhood on children's socio-emotional, cognitive, and language development from a developmental perspective, in the light of current literature. Furthermore, it discusses domain-specific clinical and practical recommendations aimed at establishing digital boundaries within the framework of new-generation parenting paradigms, developing mindful screen strategies, and safeguarding holistic child health.

Keywords: Parental Phubbing, Technoference, New Generation Parenting, Child Development

KLİNİK İZLEM ÇALIŞMALARINDA BAĞIMLI GRUPLARIN İSTATİSTİKSEL ANALİZİ: PARAMETRİK, NON PARAMETRİK VE KATEGORİK VERİ ANALİZLERİ

Nurhan DOĞAN

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Özet

Klinik araştırmalarda hastaların tedavi öncesi ve sonrası ölçümlerinin karşılaştırılması veya zaman içinde boylamsal (longitudinal) olarak izlenmesi, bireyler arası biyolojik varyasyonu kontrol eden ve kanıt düzeyi yüksek olan araştırma tasarımlarından biridir. Ancak bu tasarımlardan elde edilen verilerin bağımlı yapısı, tıp literatüründe en sık karşılaşılan metodolojik ve editöryal hata kaynaklarındandır. Bu çalışmada, klinisyenlerin günlük pratiklerinde sıkça karşılaştıkları farklı veri türleri (sürekli, sıralı ve nominal) için uygun bağımlı grup istatistiksel testlerinin sistematik bir yaklaşımla sunulması, p-değeri avcılığından kaynaklanan hatalara dikkat çekilmesi ve sık yapılan istatistiksel hatalardan kaçınmaya yönelik pratik önerilerin paylaşılması amaçlanmaktadır. Klinik izlem verileri, matematiksel özelliklerine göre üç temel analitik boyutta ve iki zamanlı ile üç veya daha fazla zamanlı ölçümler şeklinde simetrik bir yaklaşımla ele alınmaktadır. Parametrik boyutta, sürekli ölçümlerde zaman içindeki değişimin değerlendirilmesinde Bağımlı İki Örneklem t-Testi ve Tekrarlı Ölçümlerde Varyans Analizi yöntemleri açıklanmaktadır. Non-parametrik boyutta, VAS ağrı skorları veya klinik evreleme skorları gibi sıralı verilerin analizi için Wilcoxon İşaretli Sıralar Testi ve Friedman Testi'nin medyan tabanlı yaklaşımı tartışılmaktadır. Kategorik boyutta ise komplikasyon veya iyileşme durumu (Var/Yok) gibi bağımlı oranların boylamsal değerlendirilmesinde kullanılan McNemar ve Cochran'ın Q testlerinin analiz mantığı, bireylerin durumlarındaki zamana bağlı değişimler üzerinden örneklerle ortaya konulmaktadır. Çoklu karşılaştırmalarda Tip-I hata payının artışını kontrol etmek amacıyla kullanılan Bonferroni düzeltmesine ilişkin ilke ele alınmaktadır. Sonuç olarak, yalnızca istatistiksel anlamlılığa ($p<0.05$) odaklanan bir yaklaşım yerine, etki büyüklüğü ve klinik anlamlılığı merkeze alan pratik bir metodolojik kılavuzun araştırmacılara sunulması hedeflenmektedir.

Anahtar kelimeler: Bağımlı Örneklemler, Tekrarlı Ölçümler, Klinik izlem Çalışmaları

STATISTICAL ANALYSIS OF DEPENDENT GROUPS IN CLINICAL FOLLOW UP STUDIES: PARAMETRIC, NONPARAMETRIC, AND CATEGORICAL DATA ANALYSES

Abstract

Comparing pre- and post-treatment measurements of patients in clinical research or monitoring them longitudinally over time is one of the research designs that controls inter-individual biological variation and provides a high level of evidence. However, the dependent nature of the data obtained from these designs is one of the most common methodological and editorial errors in medical literature. It is aimed to present, in a systematic approach, appropriate dependent group statistical tests for different data types (continuous, ordinal, and nominal) that clinicians frequently encounter in their daily practice, to draw attention to errors stemming from p-value hunting, and to share practical suggestions for avoiding common statistical errors. Clinical follow-up data are analyzed in three basic analytical dimensions according to their mathematical properties, and in a symmetrical approach with two-time and three or more-time measurements. In the parametric dimension, the Paired t-Test and Repeated Measures Analysis of Variance methods are explained for evaluating the change over time in continuous measurements. In the non-parametric dimension, the Wilcoxon Signed-Rank Test and the median-based approach of the Friedman Test are discussed for the analysis of ordinal data such as VAS pain scores or clinical staging scores. In the categorical dimension, the analysis logic of McNemar and Cochran's Q

tests, used in the longitudinal evaluation of dependent proportions such as complication or recovery status (Yes/No), is demonstrated with examples, based on the changes in individuals' status over time. The principle related to Bonferroni correction, used to control the increase in Type-I error rate in multiple comparisons, is discussed. In conclusion, it is aimed to provide researchers with a practical methodological guide that focuses on effect size and clinical significance, rather than focusing solely on statistical significance ($p<0.05$).

Keywords: Dependent Samples, Repeated Measures, Clinical Follow-up Studies

NDIR TABANLI UZAKTAN İZLENEBİLİR KAPNOMETRE CİHAZI TASARIMI, SİNYAL İŞLEME OPTİMİZASYONU VE ÖZGÜN SOLUNUM SİMÜLASYON PLATFORMU İLE LABORATUVAR DOĞRULANMASI

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Özet

Kapnografi cihazları, solunum gazındaki karbondioksit (CO_2) konsantrasyonunu izleyerek ventilasyon kalitesini takip eden kritik medikal sistemlerdir. Bu çalışmanın amacı; TS EN ISO 80601-2-55/A1 standartlarına uygun, uzaktan veri takibi yapabilen NDIR tabanlı bir kapnometre prototipi geliştirmek, sinyal kararlılığını artıracak dijital filtre mimarilerini optimize etmek ve sistemi laboratuvarda özgün bir solunum simülasyon platformu ile doğrulamaktır.

Proje kapsamında, aktif ve referans kanallı termopil dedektör ile infrared ışık kaynağı barındıran kablolu/kablosuz kapnometre donanımı üretilmiştir. Taban çizgisi kaymalarını engellemek amacıyla mikrodenetleyiciye Direct Form II (DF-II) IIR filtre mimarisi gömülmüştür. Sinyaller modifiye edilmiş Beer-Lambert yasasına göre modellenerek non-lineer eğri uydurma katsayıları hesaplanmıştır. Sistemin laboratuvar doğrulaması için; Python tabanlı, kütle akış kontrolörleri içeren ve solunum parametrelerini sigmoid fonksiyonlarıyla modelleyen özgün bir solunum simülatörüyle KOAH, astım ve normal solunum paternleri yapay olarak üretilmiştir. Prototip, referans hastabaşı monitörleri ile %0-%20 CO_2 aralığında karşılaştırmalı test edilmiştir.

Gömülü DF-II IIR filtre mimarisi gürültüyü bastırarak sinyal taban çizgisi kararlılığını artırmıştır. Kalibrasyon modellemesi sonucunda, sistemin kalibrasyon aralığında R2=0,9986 regresyon katsayısına ulaştığı tespit edilmiştir. Karşılaştırmalı testlerde prototip referans cihazlarla yüksek uyum göstermiş; akış altyapısına bağlı olarak uç konsantrasyonlarda küçük sistematik sapmalar gözlenmiştir. Anlık veriler ve dalga formları, tasarlanan kapnografi ekranı ve hasta kayıt arayüzüne gerçek zamanlı olarak aktarılmıştır.

Geliştirilen uzaktan izlenebilir kapnometre prototipi; analog front-end katmanları, esnek dijital filtre yapısı ve yazılımıyla kararlı bir izleme altyapısı sunmaktadır. Geliştirilen düşük maliyetli solunum

simülatörü ve kompanzasyon stratejileri test süreçlerini başarıyla optimize etmiştir. Proje çıktılarının, yerli solunum gaz monitörü teknolojilerine zemin hazırlayacağı öngörülmektedir.

Anahtar Kelimeler: Kapnometri, NDIR Sensör, Direct Form II, Dijital Filtreleme, Solunum Simülatörü.

DESIGN, SIGNAL PROCESSING OPTIMIZATION, AND LABORATORY VALIDATION OF AN NDIR-BASED REMOTE-MONITORED CAPNOMETER VIA A NOVEL RESPIRATORY SIMULATION PLATFORM

Abstract

Capnography devices are critical medical systems that monitor ventilation quality by tracking carbon dioxide (CO_2)) concentration in respiratory gases. This study aims to develop an NDIR-based capnometer prototype with remote data monitoring capabilities compliant with TS EN ISO 80601-2-55/A1 standards, optimize digital filtering architectures to increase signal stability, and validate the system under laboratory conditions using a novel respiratory simulation platform.

Within the scope of the project, wired and wireless capnometer hardware integrated with an IR source and a dual-element thermopile detector comprising active and reference channels was manufactured. A Direct Form II (DF-II) IIR filter architecture was embedded into the microcontroller to prevent baseline drift. Raw voltage signals were mathematically modeled via a modified Beer-Lambert law to resolve non-linear curve-fitting coefficients. For laboratory verification, a customizable, Python-based respiratory simulator equipped with mass flow controllers was built to synthesize artificial COPD, asthma, and normal breathing profiles using sigmoid functions. The prototype accuracy was evaluated against commercial bedside reference monitors over a 0-20% CO_2 concentration range.

The firmware-embedded DF-II IIR filter architecture effectively suppressed noise, enhancing signal baseline stability under dynamic flow testing conditions. Nonlinear mathematical calibration modeling achieved an outstanding dataset fitness with a regression coefficient of R^2=0.9986. Comparative benchmarking validated high alignment with reference systems, though minor systematic deviations occurred at extreme concentration thresholds due to gas flow dynamics and the open-system architecture. Real-time measurement profiles and respiratory waveforms were successfully transmitted to the designed capnography display and patient registration software interface.

The developed remote-monitored capnometer prototype guarantees dependable respiratory tracking driven by hardware analog front-end layers, flexible digital filtering execution, and tailored software. The implementation of the low-cost respiratory simulator and target compensation strategies successfully optimized device verification procedures within laboratory configurations. The deliverables of this project are expected to serve as a baseline for next-generation indigenous respiratory gas monitors.

Keywords: Capnometry, NDIR Sensor, Direct Form II, Digital Filtering, Respiratory Simulator.

MONOKORYONİK DİAMNİOTİK İKİZ GEBELİKTE UYGUNSUZ RETİNOİK ASİT KULLANIMI SONRASI SAPTANAN FETAL MUSKÜLER VENTRİKÜLER SEPTAL DEFEKT: OLGU SUNUMU

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Özet

Giriş: Ekzojen akneiform döküntüler genellikle komedojenik kozmetik ürünler ve uygunsuz topikal tedavilerle ilişkilendirilir. Sistemik retinoidlerin teratojenik etkileri iyi bilinmektedir; ancak topikal kullanım etkisi hâlâ belirsizdir. Ayrıca monokoryonisitenın de topluma kıyasla fetal kardiak teratojenitiye daha yüksek predispozisyon yarattığı bilinmektedir.

Olgu: Düşük kaliteli kozmetik ürünlerin uzun süreli kullanımı ve uygunsuz topikal izotretinoin uygulaması sonrasında yüzünde inflamatuar lezyonlar gelişen monokoryonik diamniotık ikiz gebeliği olan 28 yaşında kadın hasta (G3P2) vakasında dermatolojik değerlendirme, ikincil bakteriyel kolonizasyon ile birlikte ekzojen akneiform döküntü ortaya konuldu. Mikrobiyolojik incelemede, akne ile ilişkili flora ile uyumlu bakteriyel üreme gösterildi. Fetal değerlendirme de ise, her iki fetusda da muskuler ventriküler septal defekt (VSD) saptandı.

Sonuç Bu vaka, monokoryonisiteye sekonder artmış fetal kardiyak anomali yüküyle birlikte uygunsuz topikal retinoid kullanımının da fetal muskuler ventriküler septal defekt (VSD) gibi kardiyak anomaliler üzerindeki birleşik etkilerini vurgulamaktadır. Sistemik izotretinoin bilinen bir teratojen olmasına rağmen, topikal yanlış kullanım ile fetal kardiyak anomaliler arasındaki ilişki belirsizliğini korumakta ve daha fazla araştırma gerektirmektedir.

Anahtar Kelimeler: Akne, İzotretinoin, Monokaryonik diamniotik ikiz gebelik, Topikal retinoid, Ventriküler Septal Defekt (VSD)

FETAL MUSCULAR VENTRICULAR SEPTAL DEFECT DETECTED AFTER INAPPROPRIATE RETINOIC ACID USE IN MONOCHORIONIC DIAMNIOTIC TWIN PREGNANCY: CASE REPORT

Abstract

Introduction: Exogenous acneiform eruptions are generally associated with comedogenic cosmetic products and inappropriate topical treatments. The teratogenic effects of systemic retinoids are well known; however, the effects of topical use remain unclear. In addition, monochorionicity is known to confer a higher predisposition to fetal cardiac teratogenicity compared with the general population.

Case: A 28-year-old pregnant woman (G3P2) with a monochorionic diamniotic twin pregnancy developed inflammatory facial lesions following prolonged use of low-quality cosmetic products and

inappropriate topical isotretinoin application. Dermatological evaluation revealed an exogenous acneiform eruption accompanied by secondary bacterial colonization. Microbiological examination demonstrated bacterial growth consistent with acne-associated flora. Fetal evaluation identified muscular ventricular septal defect (VSD) in both fetuses.

Conclusion: This case highlights the combined effects of inappropriate topical retinoid use together with the increased fetal cardiac anomaly burden secondary to monochorionicity, particularly regarding cardiac anomalies such as fetal muscular ventricular septal defect (VSD). Although systemic isotretinoin is a well-known teratogen, the association between inappropriate topical use and fetal cardiac anomalies remains uncertain and requires further investigation.

Keywords: Acne, Isotretinoin, Monochorionic Diamniotic Twin Pregnancy, Topical Retinoid, Ventricular Septal Defect (VSD)

KANSER HÜCRELERİNDE METABOLİK STRESE BAĞLI LİPİD DROPLET YENİDEN ŞEKİLLENMESİ: ADAPTİF SİNYAL AĞLARINA İLİŞKİN BULGULAR

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Özet

Kanser hücreleri, tümör mikroçevresinde karşılaştıkları hipoksi ve besin yetersizliği gibi metabolik stres koşullarına uyum sağlayabilmek için kapsamlı metabolik yeniden programlanma süreçleri geliştirmektedir. Son yıllarda lipid dropletlerin yalnızca enerji depolama organelleri olmadığı, aynı zamanda hücresel homeostazın sürdürülmesi, stres yanıtlarının düzenlenmesi ve tümör progresyonunun desteklenmesinde aktif rol oynadığı ortaya konulmuştur. Bu çalışmada, metabolik stres koşullarının kanser hücrelerinde lipid droplet dinamikleri ve bunlarla ilişkili sinyal mekanizmaları üzerindeki etkilerinin değerlendirilmesi amaçlanmıştır. Hipoksik ve açlık koşulları altında kültüre edilen kanser hücrelerinde lipid droplet oluşumu Oil Red O ve lipid droplet hedefli floresan boyamalar kullanılarak incelenmiştir. Ayrıca lipid metabolizması, hücresel büyüme ve otofajik yanıtlarla ilişkili sinyal yolaklarında meydana gelen değişiklikler immünfloresan analizlerle değerlendirilmiştir. Elde edilen bulgular, metabolik stres koşullarının hücrelerde lipid droplet birikimini belirgin şekilde artırdığını göstermiştir. Bununla birlikte, uygulanan stres tipine bağlı olarak lipid sentezi, enerji metabolizması ve hücresel adaptasyon süreçlerinde görev alan çeşitli sinyal yolaklarında farklı düzeylerde modülasyonlar gözlenmiştir. Bu değişikliklerin, hücrelerin enerji gereksinimlerini karşılamalarına, metabolik esneklik kazanmalarına ve olumsuz mikroçevre koşullarında yaşamlarını sürdürmelerine katkı sağlayan adaptif mekanizmalarla ilişkili olduğu düşünülmektedir. Sonuç olarak, metabolik stres koşullarının kanser hücrelerinde lipid metabolizmasını yeniden şekillendirdiği ve lipid dropletlerin bu süreçte merkezi bir düzenleyici rol üstlendiği gösterilmiştir. Bulgular, lipid metabolizması ile ilişkili sinyal ağlarının tümör hücrelerinin stres adaptasyonundaki önemini ortaya koymakta ve bu mekanizmaların gelecekte potansiyel terapötik hedefler olarak değerlendirilmesine katkı sağlamaktadır.

Anahtar Kelimeler: Kanser, Lipid Droplet, Metabolik Stres

METABOLIC STRESS-DRIVEN LIPID DROPLET REMODELING IN CANCER CELLS: INSIGHTS INTO ADAPTIVE SIGNALING NETWORKS

Abstract

Cancer cells develop extensive metabolic reprogramming mechanisms to adapt to metabolic stress conditions such as hypoxia and nutrient deprivation within the tumor microenvironment. Recent studies have demonstrated that lipid droplets are not merely inert energy storage organelles but actively participate in the maintenance of cellular homeostasis, regulation of stress responses, and promotion of tumor progression. The present study aimed to investigate the effects of metabolic stress on lipid droplet dynamics and associated signaling mechanisms in cancer cells. Cancer cells were exposed to hypoxic and starvation conditions to mimic metabolic stress within the tumor microenvironment. Lipid droplet accumulation was evaluated using Oil Red O staining and lipid droplet-targeted fluorescent probes. In addition, alterations in signaling pathways associated with lipid metabolism, cellular growth, and autophagic responses were examined through immunofluorescence analyses. The findings demonstrated that metabolic stress conditions markedly increased lipid droplet accumulation in cancer cells. Furthermore, stress-specific alterations were observed in signaling pathways involved in lipid biosynthesis, energy metabolism, and cellular adaptation. These molecular changes suggest that cancer cells employ coordinated adaptive mechanisms to maintain energy homeostasis, enhance metabolic

flexibility, and survive under unfavorable microenvironmental conditions. The observed remodeling of lipid metabolism appears to be closely associated with the regulation of signaling networks governing cellular stress responses. In conclusion, metabolic stress induces substantial reorganization of lipid metabolism in cancer cells, with lipid droplets emerging as central regulators of adaptive cellular responses. The findings highlight the critical role of lipid metabolism-associated signaling networks in cancer cell adaptation to stress and provide further insight into the potential therapeutic value of targeting lipid metabolic pathways in cancer treatment.

Keywords: Cancer, Lipid Droplets, Metabolic Stress

YOĞUN BAKIMDA FARKLI TANILAR İLE YATAN HASTALARDA "HALP SKORU'NUN " MORTALİTEYİ ÖNGÖRMEDE ETKİSİNİN İRDELENMESİ

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Özet

Son yıllarda hemoglobin, albümin, lenfosit ve trombosit (HALP) skoru, immünolojik ve beslenme durumunun potansiyel bir belirteci olarak ortaya çıkmıştır. Başlangıçta HALP skoru mide kanseri tanısı konmuş bireylerde prediktiv değer açısından araştırılmıştır. HALP skoru ayrıca skuamöz hücreli karsinom , endometriyal kanser ve meme kanseri gibi çeşitli kanserlerde prognostik öneme sahip olduğunu göstermiştir. Özellikle HALP Skoru ile mortalite arasındaki ilişkiyi inceleyen çalışmalar sınırlıdır. Bir çalışmada sepsisli hastalarda HALP Skoru ile mortalite arasındaki ilişki incelendi. Çalışma sonucunda HALP skorunda bir puanlık artış, 28 günlük mortalitede %2'lik bir azalma ile ilişkilendirilmiştir. Bu çalışmada yoğun bakıma çeşitli tanılarla yatışı yapılan hastalardan, ölen hastalarla ve sağ kalan hastalar arasındaki HALP skoru incelenmesi amaçlandı. Çalışma retrospektif olarak planlandı. İki grup çalışmaya alındı.. İlk grup yoğun bakıma çeşitli tanılarla yatan ve ölen olan hastalar. İkinci grup ise birinci grup ile aynı zamanda yoğun bakıma yatan ve sağ kalan hastalardan oluştu. Her iki grubtaki hastaların yaşları, cinsiyetleri, Hb, albumin, lenfosit ve trombosit değerleri kayıt edildi. Daha sonra her hastanın HALP skoru **(hemoglobin(g/dl) x albumin(g/l) x lenfosit / trombosit)** hesaplandı. Bu hesaplamalardan sonra her iki grup istatiksel olarak karşılaştırıldı. Araştırma 199 katılımcıdan oluşmaktadır (N=199). Bu katılımcıların yaşı 17 ile 100 arasında değişmektedir ve yaşların aritmetik ortalaması 71.04'tür. Katılımcıların 95'i erkek (%47.7), 104'ü kadındır (%52.3). Klinik sonuçları açısından 99 katılımcı ölen (%49.7) , 100 katılımcı ise sağ/taburcu edilen grupta yer almaktadır (%50.3). Katılımcıların klinik sonuçları ile cinsiyetleri arasında bir ilişki bulunmamaktadır. Klinik sonuçlarına göre ölüm gelişen gruptaki katılımcıların yaş ortalamasının (74.85), taburcu olan gruptaki katılımcıların yaş ortalamasından (67.26) daha yüksek olduğu ve bu farkın istatistiksel olarak anlamlı olduğu görülmektedir. Katılımcıların klinik sonuçları ile yaşları arasında bir ilişki bulunmaktadır; yaş arttıkça, klinikte ölümün de arttığı söylenebilir(Tablo 1). Tablo 2'e bakıldığında katılımcıların klinik sonuçlarına göre lenfosit değerleri istatistiksel açıdan anlamlı bir şekilde farklılaşmaktadır. Bu fark sağ gruptaki katılımcıların lehine gerçekleşmektedir. Katılımcıların HALP değerlerinde gruplar arasında istatistiksel açıdan anlamlı bir farklılaşma vardır. Sağ kalan grupta yer alan katılımcıların HALP skoru daha yüksekti (Tablo 2).

Sonuç olarak çalışmamız, HALP skorunun yoğun bakım hastalarında mortaliteyi öngörmede etkili olacağını göstermektedir. Bu nedenle, hastaların durumunu HALP skoru ile değerlendirmek ve

zamanında müdahalede bulunmak, yoğun bakım hastalarının prognozunun iyileştirilmesine katkıda bulunabilir.

Anahtar Kelimeler: HALP Skoru, Yoğun Bakım Ünitesi, Mortalite, Öngörme

THE EFFICACY OF THE HALP SCORE IN PREDICTING MORTALITY AMONG INTENSIVE CARE PATIENTS with DIFFERENT DIAGNOSES

Abstract

In recent years, the HALP score, which includes hemoglobin, albumin, lymphocyte, and platelet counts, has been considered a potential marker of immunological and nutritional status. Originally, the HALP score was studied in individuals diagnosed with stomach cancer for its predictive value. It has also demonstrated prognostic significance in various cancers, such as squamous cell carcinoma, endometrial cancer, and breast cancer. However, studies on the correlation between the HALP score and mortality are limited. One study examined the relationship between the HALP score and mortality in sepsis patients, reporting that a 1-point increase in the score was associated with a 2% decrease in 28-day mortality.This retrospective study aimed to compare the HALP scores of deceased and surviving patients admitted to intensive care with different diagnoses. The study involved two groups: the first consisted of ICU patients with various diagnoses who died, and the second included ICU patients matched by admission time who survived. Data collected included age, gender, hemoglobin, albumin, lymphocyte, and platelet counts for all patients. Each patient's HALP score (hemoglobin (g/dl) × albumin (g/l) × lymphocyte/platelet) was then calculated, and the results were compared statistically. The study included 199 participants (N = 199), with ages ranging from 17 to 100 years and a mean of 71.04 years. Of these, 95 were male (47.7%) and 104 were female (52.3%). Ninety-nine patients had deceased (49.7%), while 100 survived and were discharged (50.3%).No correlation was found between clinical findings and patient gender. The data showed that the mean age of patients who died (74.85) was higher than that of discharged patients (67.26), and this difference was statistically significant. There was a significant correlation between clinical outcomes and age, suggesting that as age increases, the likelihood of mortality also increases (see Table 1). Lymphocyte values differed significantly based on clinical outcomes, with higher values observed in survivors. Additionally, there was a statistically significant difference in HALP scores between the groups, with survivors exhibiting higher scores (see Table 2).

In conclusion, our study shows that the HALP score effectively predicts mortality in intensive care patients. Therefore, evaluating patients' condition with the HALP score may improve the prognosis of intensive care patients.

Keywords: HALP Score, Intensive Care Unit, Mortality, Prediction

Tablo 1.

Katılımcıların Klinik Sonuçlarına Göre Yaş, HBve Albümin Değerlerine İlişkin Bağımsız Örneklem T Testi Sonuçları

Değişken	Klinik Sonuç Grubu	N	Aritmetik Ortalama	Standart Sapma	sd	t	p
Yaş	Ölü	99	74.85	15.58	197	3.20	.002
	Sağ	100	67.26	17.77			
HB	Ölü	99	11.64	2.56	197	-1.81	.071
	Sağ	100	12.28	2.37			
Albümin	Ölü	99	32.36	6.20	197	-4.72	.000
	Sağ	100	36.90	7.31			

Tablo 2.

Katılımcıların Klinik Sonuçlarına Göre Lenfosit, Trombosit ve HALPDeğerlerine İlişkin Mann Whitney U Testi Sonuçları

Değişken	Klinik Sonuç Grubu	N	Sıra Ortalaması	Sıralar Toplamı	U	z	p
Lenfosit	Ölü	99	83.54	8270.00	3320.00	-4.01	.000
	Sağ	100	116.30	11630.00			
Trombosit	Ölü	99	94.70	9375.00	4425.00	-1.29	.196
	Sağ	100	105.25	10525.00			
HALP	Ölü	99	86.55	8568.00	3618.00	-3.27	.001
	Sağ	100	113.32	11332.00			

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HEREDİTER SPASTİK PARAPLEJİDE BİR *SPAST* VARYANTININ VE YENİ BİR *CYP7B1* VARYANTININ MOLEKÜLER VE KLİNİK ÖZELLİKLERİNİN İNCELENMESİ

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Özet

Giriş: Herediter spastik parapleji (HSP), ilerleyici alt ekstremite spastisitesi ve güçsüzlüğü ile karakterize, heterojen bir nörodejeneratif hastalık grubunu kapsamaktadır. Tahmini prevalansı 100.000 kişide 1 ila 10 arasında değişmektedir. Klinik prezentasyona göre HSP, saf ve komplike formlar olarak sınıflandırılmaktadır. Hastalık otozomal dominant, otozomal resesif, X'e bağlı ve nadiren mitokondriyal kalıtım paternleri gösterebilmektedir. Otozomal resesif formlar, akraba evliliklerinin sık görüldüğü toplumlarda daha yaygın olarak izlenmektedir. Günümüze kadar HSP ile ilişkili 80'den fazla gen tanımlanmıştır. Semptomların başlangıcı genellikle 30 yaşından sonra olmakla birlikte, çocukluk çağında başlayan olgular da bildirilmiştir. Moleküler genetik testler, hastalığa neden olan varyantın saptanması yoluyla kesin tanı konulmasını sağlamaktadır. Günümüzde küratif bir tedavi bulunmamakla birlikte, semptomatik tedavi farmakolojik yaklaşımlar ve fiziksel rehabilitasyonu içermektedir.

Metod: Genetik analizler için her iki hastadan da yazılı bilgilendirilmiş onam alınmıştır. Tüm ekzom dizilemesi (Whole-Exome Sequencing, WES) ile tanı alan iki hasta değerlendirilmiştir. Nadir genetik varyantlar analiz edilmiş, genotip-fenotip korelasyonları değerlendirilmiş ve saptanan varyantların klinik önemi araştırılmıştır.

Bulgular: İlk hastada, *CYP7B1* geninde homozigot c.226C>T (p.Gln76*) varyantı saptanmıştır. Bu varyant ClinVar veritabanında daha önce bildirilmemiş olup, ACMG kriterlerine göre olası patojenik (likely pathogenic) olarak sınıflandırılmıştır. İkinci hastada ise SPAST geninde heterozigot c.1495C>T (p.Arg499Cys) varyantı tespit edilmiştir. Bu varyant, ClinVar veritabanında daha önce patojenik/olası patojenik olarak bildirilmiş olup, ACMG kılavuzlarına göre patojenik olarak değerlendirilmiştir.

Tartışma: *CYP7B1* genindeki bialelik patojenik veya olası patojenik varyantlar, otozomal resesif kalıtılan Spastik Parapleji Tip 5A (SPG5A; OMIM #270800) ile ilişkilidir. *CYP7B1* geni, kolesterol ve nörosteroid metabolizmasında önemli rol oynayan oksisterol 7α-hidroksilaz enzimini kodlamaktadır. Bu enzimin fonksiyon kaybı, nörotoksik metabolitlerin birikimine yol açarak spinal motor nöron dejenerasyonuna neden olmaktadır. Buna karşılık, *SPAST* genindeki monoallelik patojenik varyantlar, HSP'nin en yaygın formu olan otozomal dominant Spastik Parapleji Tip 4'e (SPG4) neden olmaktadır. Bu çalışmada, HSP fenotipi ile ilişkili bir yeni aday varyant bildirilmekte ve klinik özellikleri sunulmaktadır.

Anahtar Kelimeler: Herediter spastik parapleji, patojenik varyant, tüm ekzom dizileme

MOLECULAR AND CLINICAL CHARACTERIZATION OF A *SPAST* VARIANT AND A NOVEL *CYP7B1* VARIANT IN HEREDITARY SPASTIC PARAPLEGIA

Abstract

Introduction: Hereditary spastic paraplegia (HSP) comprises a heterogeneous group of neurodegenerative disorders characterized by progressive lower-limb spasticity and weakness. The estimated prevalence ranges from 1 to 10 per 100,000 individuals. Based on clinical presentation, HSP is classified into pure and complicated forms. It exhibits autosomal dominant, autosomal recessive, X-linked, and, rarely, mitochondrial inheritance patterns. Autosomal recessive forms are more frequently observed in populations with a high rate of consanguineous marriages. To date, more than 80 genes have been implicated in HSP. Although symptom onset typically occurs after 30 years of age, childhood presentations have also been reported. Molecular genetic testing enables definitive diagnosis through identification of the causative variant. While no curative treatment is currently available, symptomatic management includes pharmacological therapies and physical rehabilitation.

Methods: Written informed consents were obtained from both patients for genetic analyes. Two patients diagnosed through whole-exome sequencing (WES) were evaluated. Rare genetic variants were analyzed, genotype–phenotype correlations were assessed, and the clinical significance of the identified variants was investigated.

Results: In the first patient, a homozygous c.226C>T (p.Gln76*) variant was identified in the *CYP7B1* gene. This variant has not been reported in the ClinVar database and was classified as likely pathogenic according to ACMG criteria. In the second patient, a heterozygous c.1495C>T (p.Arg499Cys) variant was detected in the *SPAST* gene. This variant has been previously reported as pathogenic/likely pathogenic in ClinVar and was classified as pathogenic based on ACMG guidelines.

Discussion: Biallelic pathogenic or likely pathogenic variants in *CYP7B1* are associated with autosomal recessive spastic paraplegia type 5A (SPG5A; OMIM #270800). The *CYP7B1* gene encodes oxysterol 7α-hydroxylase, a key enzyme in cholesterol and neurosteroid metabolism. Loss of enzyme function results in the accumulation of neurotoxic metabolites, leading to spinal motor neuron degeneration. In contrast, monoallelic pathogenic variants in *SPAST* cause autosomal dominant spastic paraplegia type 4 (SPG4), the most common form of HSP. We report one novel candidate variant along with the hsp phenotype in this study.

Keywords: Hereditary spastic paraplegia, pathogenic variant, whole exome sequencing

IMPACT OF DIFFERENT MOG35-55 PEPTIDE PREPARATIONS ON CLINICAL AND HISTOPATHOLOGICAL OUTCOMES IN THE EXPERIMENTAL AUTOIMMUNE ENCEPHALOMYELITIS MODEL

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Abstract

Experimental autoimmune encephalomyelitis (EAE) induced by MOG35-55 peptide in C57BL/6 mice is one of the most widely used animal models for multiple sclerosis (MS) research. However, variability in disease induction across laboratories remains a significant methodological challenge, and the role of peptide source in this variability is not well defined. This study aimed to compare the clinical and histopathological outcomes of EAE induced by three different MOG35-55 peptide preparations in C57BL/6 mice.

C57BL/6 mice were immunized with three different MOG35-55 peptide preparations emulsified in complete Freund's adjuvant, followed by pertussis toxin administration at 0 and 48 hours. Clinical signs were monitored daily using a 0-10 scoring scale. At the endpoint, spinal cord and brain tissues were collected for histopathological evaluation including H&E staining to assess demyelination, perivascular infiltration, and meningeal inflammation.

Significant differences were observed among the three MOG35-55 preparations in terms of disease onset, maximum clinical scores, cumulative disease index, and incidence rates. Histopathological analysis of spinal cord and brain tissues revealed variable degrees of demyelination, inflammatory infiltration, and meningeal involvement across groups, consistent with the clinical findings.

These findings demonstrate that MOG35-55 peptide source critically influences EAE disease phenotype, both clinically and neuropathologically, in both spinal cord and brain. Peptide preparation should be considered as a key methodological variable in EAE-based MS research to ensure reproducibility across studies.

Keywords: EAE, MOG35-55, multiple sclerosis, demyelination, animal model

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BİRİNCİ BASAMAKTA GAİTADA GİZLİ KAN TESTİNİN ÖNEMİ: HASTADA KOLOREKTAL POLİP SAPTANMASI İLE SONUÇLANAN BİR OLGU

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Özet

Giriş: Ailesel adenomatöz polipozis (FAP), kolorektal kanser gelişimi açısından yüksek risk taşıyan, çok sayıda kolorektal adenomatöz polip ile karakterize kalıtsal bir sendromdur. Erken tanı ve uygun cerrahi yaklaşım, malign dönüşümün önlenmesinde kritik öneme sahiptir. Tarama programları sırasında saptanan yaygın kolonik polipozis olguları, eşlik eden kolorektal malignitelerin erken evrede tanınmasına olanak sağlayabilmektedir.

Olgu: Elli beş yaşında erkek hasta, Kanser Erken Teşhis, Tarama ve Eğitim Merkezi (KETEM) tarafından yapılan gaitada gizli kan testi (GGK) pozitifliği ve aralıklı kabızlık şikâyeti nedeniyle kolonoskopik değerlendirmeye alındı. Kolonoskopide rektumun 6. cm'sinden başlayarak çekuma kadar tüm kolon boyunca yaygın polipoid lezyonlar izlendi. Ayrıca hepatik fleksura düzeyinde lümeni ileri derecede daraltan tıkayıcı kitlesel lezyon saptandı. Bulgular doğrultusunda hastaya total proktokolektomi ve uç ileostomi açılması işlemi uygulandı. Postoperatif dönemde herhangi bir komplikasyon gelişmeyen hasta, ameliyat sonrası 5. günde taburcu edildi. Hastanın eşlik eden komorbiditeleri nedeniyle ilk aşamada restoratif cerrahi uygulanmayarak end ileostomi tercih edildi. Postoperatif 6. ayda ileal J-poş ile ileoanal anastomoz yapılması ve ileostominin kapatılması planlandı.

Sonuç: Yaygın kolonik polipozis ile birlikte obstrüktif kolonik kitle saptanan olgularda FAP ve ilişkili kolorektal malignite olasılığı akılda tutulmalıdır. Tarama programları sayesinde asemptomatik veya minimal semptomlu hastalarda ileri evre hastalıkların erken tanınması mümkün olabilmektedir. Cerrahi tedavi planı, hastanın klinik durumu ve eşlik eden komorbiditeleri göz önünde bulundurularak bireyselleştirilmelidir.

Anahtar Kelimeler: Ailesel adenomatöz polipozis, kolorektal kanser, total proktokolektomi, ileostomi, gaitada gizli kan testi

GENÇ KIZ VOLEYBOLCULARDA AYAK BİLEĞİ YARALANMALARI SONRASI KİNEZYOFOBİ VE PERFORMANS ALGISI İLİŞKİSİ: BİR ÖN İNCELEME

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Özet

Amaç: Ayak bileği burkulması; voleybolda ani yön değiştirme, dikey sıçrama ve blok aktivitelerinin yoğunluğu nedeniyle en sık rastlanan akut alt ekstremite yaralanmalarındandır. Bu çalışmanın amacı; ayak bileği burkulması öyküsü olan genç kız voleybolcularda, yaralanma sonrası gelişen yeniden yaralanma korkusunun (kinezyofobi), sporcuların öznel sportif performans algıları üzerindeki etkisini ve bu iki dinamik arasındaki ilişkiyi öncül düzeyde incelemektir.

Yöntem: Araştırmaya, voleybol altyapı liglerinde (yıldız ve genç) aktif oynayan, son bir yıl içinde en az bir kez ayak bileği burkulması yaşamış, rehabilitasyon sürecini tamamlayarak sahaya dönmüş kadın voleybolcular dahil edilmiştir. Katılımcıların demografik özellikleri, spor yaşları ve yaralanma geçmişleri yapılandırılmış formla kaydedilmiştir. Kinezyofobi düzeyleri Tampa Kinezyofobi Ölçeği (TKÖ) ile, öznel sportif performans algıları ise standart sportif performans algısı ölçek bataryasıyla ölçülmüştür. Verilerin normallik dağılımı test edildikten sonra, değişkenler arasındaki ilişkinin yönü ve şiddeti uygun parametrik veya parametrik olmayan istatistiksel analiz yöntemleri kullanılarak bilgisayar ortamında test edilmiştir.

Bulgular / Tartışma: Çalışmanın ön değerlendirmelerine göre; sporcularda işlevsel ve mekanik iyileşme optimal düzeyde sağlansa dahi, psikolojik bir bariyer olan yeniden sakatlanma korkusunun özellikle blok ve smaç sonrası yere iniş aktivitelerinde yoğun şekilde devam ettiği görülmektedir. Bu kognitif durumun, sporcuların sahada kendilerine olan güvenlerini zedeleyerek öznel performans algılarını baskıladığı ve hareket paternlerinde sakınmaya yol açtığı öngörülmektedir. Yaralanma korkusunun yüksek olmasının, sportif performans algısını negatif yönde ve doğrusal olarak etkileyeceği hipotez edilmektedir.

Sonuç: Bu çalışma, genç kız voleybolcuların sakatlık sonrası performans optimizasyonunda ve sahaya güvenli dönüş süreçlerinde sadece fiziksel rehabilitasyonun değil, psikolojik faktörlerin ve kinezyofobi yönetiminin de multidisipliner yaklaşımla ele alınması gerektiğini vurgulamaktadır. Sonuçların; antrenörler, spor psikologları ve fizyoterapistler için sahaya dönüş protokollerinin ve antrenman programlarının revize edilmesinde yol gösterici olacağı düşünülmektedir.

Anahtar Kelimeler: Voleybol, Ayak Bileği İnstabilitesi, Yaralanma Korkusu, Performans, Kinezyofobi.

THE RELATIONSHIP BETWEEN KINESIOPHOBIA AND PERFORMANCE PERCEPTION FOLLOWING ANKLE INJURIES IN YOUNG FEMALE VOLLEYBALL PLAYERS: A PRELIMINARY STUDY

Abstract

Aim: Ankle sprain is one of the most common acute lower extremity injuries in volleyball due to the high intensity of sudden directional changes, jumping, and blocking activities. This study primary aims to preliminary investigate the impact of post-injury re-injury fear (kinesiophobia) on self-rated athletic performance perception and the dynamic relationship between these two variables among young female volleyball players with a history of acute or chronic ankle sprains.

Method: The study includes active female volleyball players from youth infrastructure leagues (star and youth categories) who sustained at least one ankle sprain within the last year, completed their medical/sportive rehabilitation, and returned to play. After recording demographic characteristics, sports age, and injury history via a structured form, kinesiophobia levels were measured using the Tampa Scale for Kinesiophobia (TSK), the gold standard in this field. Subjective athletic performance perceptions were evaluated using validated and reliable standard athletic performance perception scale batteries. Following normality distribution analyses, the direction and severity of the relationship between variables were tested using appropriate parametric or non-parametric statistical methods in a computer environment.

Results / Discussion: Preliminary evaluations and literature indicators suggest that even when functional and mechanical recovery (range of motion, strength, and proprioception) is optimally achieved, the psychological barrier of re-injury fear persists significantly, particularly during landing activities after blocking and spiking. This cognitive state is anticipated to undermine on-court self-confidence, suppress subjective performance perception, and induce protective movement alterations. It is hypothesized that higher injury fear negatively and linearly affects athletic performance perception.

Conclusion: This study possesses clinical significance, emphasizing that post-injury performance optimization and safe return-to-play processes for young female volleyball players require a multidisciplinary approach addressing psychological factors and kinesiophobia management alongside physical rehabilitation. These findings are expected to guide coaches, sports psychologists, and physiotherapists in revising return-to-play protocols and training programs.

Keywords: Volleyball, Ankle Instability, Fear of Injury, Performance, Kinesiophobia.

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SPOR BİLİMLERİ ÖĞRENCİLERİNİN FİZİKSEL AKTİVİTE, BEDEN VE SAĞLIK ALGISI DÜZEYLERİ ARASINDAKİ İLİŞKİNİN İNCELEMESİ: BİR PİLOT ÇALIŞMA

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Özet

Fiziksel aktivite, beden ve sağlık algısı alt boyutu olan beslenme algısı üçlü bir döngü olarak genç yetişkinlerin nitelikli yaşam ve yaş alma süreçlerinin önemli dinamikleridir. *Amaç:* Bu araştırma, Spor Bilimleri Fakültelerinin (SBF) farklı bölümlerinde okuyan öğrencilerin, Fiziksel Aktivite Düzeyleri (FAD), Beden Algısı (BA) ve Beslenme Algısı arasındaki ilişkiyi incelemeyi amaçlamıştır. *Yöntem:* Katılımcılara kolayda örnekleme yöntemiyle ulaşıldı ve araştırmaya 173 öğrenci gönüllü olarak katıldı (20.85 yaş, sd=1.78; VKI=23,5, sd=2.49). Katılımcılar, Beden Eğitimi Öğretmenliği (BEÖ, n=44), Antrenörlük Eğitimi (ANT, n=42), Spor Yöneticiliği (SYB, n=42) ve Rekreasyon (REK, n=45) olmak üzere dört gruba ayrıldı. Veriler, BA ölçeği, Beslenme Okuryazarlığı Ölçeği Kısa Formu ve Fiziksel Aktivite Anketi Kısa Formu (IPAQ-SF) ile toplandı. Verilerin dağılımı Kolmogorov-Smirnov testiyle sınandı. Gruplar arası farklılıklar Kruskall-Wallis-H testiyle değerlendirildi ve sonuçlar Bonferroni düzeltmesi dikkate alınarak incelendi. Fark varsa, hangi gruplar arasında olduğunu belirlemek için Dunn-Bonferroni post-hoc testi yapıldı. BA, Beslenme Okuryazarlığı ve FAD arasındaki ilişki Spearman's Sıra Korelasyon analiziyle, ilişkinin yönü ve düzeyi Cohen's d dikkate alınarak incelendi. *Bulgular:* BA ve toplam FAD değişkenleri bakımından gruplar arasında sırasıyla istatistiksel olarak anlamlı bir fark bulunmuştur ($H_{(3)} = 25.288$, $p<.001$; $H_{(3)}= 2.151$, $P<.001$). Beslenme Algısı bakımından gruplar arasında istatistiksel olarak anlamlı bir fark bulunmamıştır ($p> .05$). BA değişkeninde BEÖ-SYB, ANT-SYB ve BEÖ-REK gruplarının sıra ortalamaları bakımından istatistiksel olarak anlamlı bir fark olduğu görülmüştür ($z=50.597$, $p<.002$; $z=39.214$, $p<.001$; $z=29.483$, $p<.032$). FAD değişkeninde ise BEÖ-REK, ANT-REK, BEÖ-SYB ve ANT-SYB grupları arasında sıra ortalamaları bakımından istatistiksel olarak anlamlı bir fark olduğu görülmüştür ($z=44.203$, $p<.001$; $z=44.041$, $p<.001$; $z=37.387$, $p<.003$; $z=37.226$, $p<.004$). Ayrıca, ANT ve BEÖ gruplarının FAD_1(MET<8) düzeylerinin REK ve SYB gruplarına göre sırasıyla istatistiksel olarak daha yüksek olduğu görülmüştür ($p<.004$, $p<.003$). Beslenme Algısı ile BA arasında pozitif yönlü ve orta düzeyde anlamlı bir ilişki vardır ($r_{(s)} = .492$, $p < .001$). Beslenme Algısı ile FAD ve BA ile FAD arasında sırasıyla pozitif yönlü düşük düzeyde anlamlı bir ilişki bulunmuştur ($r_{(s)} = .157$, $p = .039$; $r_{(s)} = .158$, $p = .038$). *Sonuçlar:* Sıra ortalamaları dikkate alındığında BEÖ ve ANT gruplarının BA düzeylerinin SYB ve REK grubundan daha yüksek düzeye sahip olduğu söylenebilir. Bu sonuçlar, değişkenler arasındaki ilişkilerin aynı yönde olduğunu göstermektedir; ancak korelasyon sonuçlarının nedensel etkilerinin dikkatle bir şekilde yorumlanması gerektiği düşünülmektedir.

Anahtar Kelimeler: Fiziksel aktivite, Beden algısı, Beslenme algısı, Genç yetişkinler, Yaşam doyumu

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AN EXAMINATION OF THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND THE PERCEPTION OF BODY AND HEALTH AMONG SPORTS SCIENCE STUDENTS: A PILOT STUDY

Abstract

Physical activity, body image and nutrition perception—a subdimension of health perception form a triadic cycle that constitutes key dynamics in young adults' quality of life and aging processes. *Objective:* This study aimed to examine the relationship among Physical Activity Levels (PAL), Perception of Body (BP) and Perception of Nutrition (NP) among students enrolled in various departments of the Faculties of Sports Sciences (FSS). *Method:* Participants were recruited using convenience sampling. A total of 173 students voluntarily participated in the study (mean age 20.85, SD=1.78; BMI=23.5, SD=2.49). The participants were divided into four groups: Physical Education Teaching (PET, n=44), Coaching Education (CE, n=42), Sports Management (SM, n=42), and Recreation (REC, n=45). Data were collected using the BP scale, the Short Form of the Nutrition Perception Scale, and the Short Form of the International Physical Activity Questionnaire (IPAQ-SF). Data distribution was tested using the Kolmogorov-Smirnov test. Differences between groups were evaluated using the Kruskal-Wallis H test. In the analyses, a significance level of $p<.05$ was evaluated using the Bonferroni correction. If a difference was found, the Dunn-Bonferroni post-hoc test was performed to determine which groups differed. The relationship between BP, NP and FAD was examined using Spearman's Rank Correlation analysis, with the direction and magnitude of the relationship assessed using Cohen's d. *Results:* Statistically significant differences were found between the groups in terms of the BP and total FAL variables, respectively ($H(3) = 25.288$, $p < .001$; $H(3) = 2.151$, $p < .001$). No statistically significant difference was found between the groups in terms of Perceived Nutrition ($p > .05$). For the BP variable, a statistically significant difference was observed in the rank averages among the PET-SM, CE-SM, and PET-REC groups ($z=50.597$, $p<.002$; $z=39.214$, $p<.001$; $z=29.483$, $p<.032$). For the FAL variable, statistically significant differences in rank sums were observed among the PET-REC, CE-REC, PET-SM and CE-SM groups ($z = 44.203$, $p < .001$; $z = 44.041$, $p < .001$; $z = 37.387$, $p < .003$; $z = 37.226$, $p < .004$). In addition, FAL-1 (MET<8) levels in the CE and PET groups were found to be statistically significantly higher than those in the REC and SM groups, respectively ($p<.004$, $p<.003$). There is a positive and moderately significant relationship between NP and BP ($r_{(s)} = .492$, $p < .001$). A positive, low-level significant relationship was found between nutrition literacy and physical activity level ($r_{(s)} = .157$, $p = .039$). A low-level, positive, and statistically significant relationship was also observed between body literacy and physical activity level ($r_{(s)} = .158$, $p = .038$). *Conclusion:* Considering the rank averages, it can be stated that the body literacy levels of the PET and CE groups were higher than those of the SM and REC groups. These results indicate that the relationships between the variables are in the same direction; however, it is considered necessary to interpret the causal implications of the correlation results with caution.

Keywords: Physical activity, Body perception, Nutrition Perception, Adult student, Life satisfaction

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EFFECTIVENESS OF REFORMER PILATES COMBINED WITH PELVIC FLOOR MUSCLE TRAINING IN WOMEN WITH POSTPARTUM URINARY INCONTINENCE: A RANDOMIZED CONTROLLED STUDY

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Abstract

Postpartum urinary incontinence is a common condition that negatively affects pelvic floor function, quality of life, and overall well-being in women after childbirth. The aim of this randomized controlled study was to investigate the effectiveness of Reformer Pilates combined with pelvic floor muscle training on urinary incontinence symptoms, pelvic floor muscle strength, sleep quality, and quality of life in women with postpartum urinary incontinence. A total of 30 women diagnosed with postpartum urinary incontinence were randomly assigned to either an intervention group (n=15) or a control group (n=15). The intervention group participated in Reformer Pilates sessions three times per week for 45 minutes in addition to pelvic floor muscle training for three months, whereas the control group received only pelvic floor muscle training during the same period. Pelvic floor muscle strength was assessed using a vaginal pressure manometer as the primary outcome measure. Secondary outcomes included the King's Health Questionnaire, SF-36 Quality of Life Questionnaire, and Pittsburgh Sleep Quality Index. Following the intervention period, participants in the combined Reformer Pilates and pelvic floor muscle training group demonstrated greater improvements in pelvic floor muscle strength, urinary incontinence-related quality of life, general quality of life, and sleep quality compared with those receiving pelvic floor muscle training alone. These findings suggest that integrating Reformer Pilates into conventional pelvic floor rehabilitation programs may provide additional benefits for women with postpartum urinary incontinence. Further studies with larger sample sizes and longer follow-up periods are recommended to confirm these results and evaluate long-term effectiveness.

Keywords: Postpartum urinary incontinence, Reformer Pilates, pelvic floor muscle training, quality of life, sleep quality

YOĞUN BAKIM HEMŞIRELERININ HASTA TESLIMI İLE İLGILI GÖRÜŞLERI VE UYGULAMALARI: TANIMLAYICI ÇALIŞMA

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Özet

Arka Plan ve Amaç: Bu araştırmanın amacı yoğun bakım ünitesinde çalışan hemşirelerin hasta teslimine yönelik görüşlerini ve uygulamalarını belirlemektir.

Yöntem: Tanımlayıcı tipte yürütülen bu çalışmanın örneklemini Orta ve Doğu Karadenizde bulunan iki ildeki dört hastanenin erişkin yoğun bakım ünitelerinde çalışan 270 hemşire oluşturmuştur. Veriler Kişisel Bilgi Formu ve Hemşirelerin Hasta Teslim Sürecine İlişkin Görüşleri Formu kullanılarak 1 Ocak 2024 ve 1 Mayıs 2024 tarihleri arasında yüz yüze görüşme tekniği kullanılarak toplanmıştır. Araştırma için etik kurul izni, kurum izinleri ve hemşirelerden aydınlatılmış onam alınmıştır. Verilerin analizinde tanımlayıcı analizler ve ki-kare istatistiği kullanılmıştır.

Bulgular: Araştırmada yoğun bakım hemşirelerinin hasta teslimi konusunda bilgi alma durumu ile hasta teslimine katılma durumu arasında istatistiksel olarak anlamlı fark saptanmıştır (p>.004). Hemşirelerin yoğun bakım ünitesi yatak başı teslim sürecine ilişkin görüşlerine yönelik kesinlikle katıldıkları maddenin %80 oranında 'Hastanın durumundaki değişikliklerin teslimi önemlidir' %76.3 oranında 'Hasta tesliminde varsa hastaya uygulanan izolasyon teslimi önemlidir' olduğu saptanmıştır. Hemşirelerin hasta tesliminde çok rahatsız oldukları durumlar %78.1 '*Yargılayıcı Teslim Alma,* %76.7 '*Teslim esnasında ilgisiz tavır ve tutumlar'*, %73.7 '*Teslim esnasında gereksiz konuşma'* olarak belirlenmiştir.

Sonuç: Yoğun bakım hemşireleri hasta tesliminin önemi ve gerekliliğinin farkındadır. Çalışmaya katılan hemşirelerin neredeyse yarısı hasta teslimi için bir form kullandıklarını belirtmiş, ancak bu formun standart bir form olmadığı belirlenmiştir. Hemşireler teslim sırasındaki yargılayıcı tutum, ilgisiz tavır ve tutumlar ve teslimin zaman alıcı olmasından rahatsızlık duyduklarını belirtmişlerdir. Bu sonuç doğrultusunda ayrıca hasta teslimini kolaylaştırıcı ve olumsuz etkenleri en aza indirebilecek standart teslim formu oluşturulmasına yönelik çalışmalar yürütülmesi önerilmektedir.

Anahtar Kelimeler: hasta teslimi, yoğun bakım ünitesi, hemşirelik bakımı

INTENSIVE CARE NURSES' OPINIONS AND PRACTICES REGARDING PATIENT HANDOVER: A DESCRIPTIVE STUDY

Abstract

Backgound and Aim: The aim of this study was to determine the opinions and practices of nurses working in the intensive care unit regarding patient handover.

Material and Methods: The sample of the crossectional study recruited 270 nurses who accepted participation. Data were collected between 1 January 2024 and 1 May 2024 with a questionnaire form and Nurses' Opinions Form on the Patient Handover Process. Data were collected via face-to-face method.

Results: In the study, a statistically significant difference was found between the status of intensive care nurses receiving information about patient handover and their participation in patient handover ($p>0.04$). Regarding the nurses' views on the intensive care unit bedside handover process, it was determined that the item they strongly agreed with was 80% of the time, "Acknowledgement of changes in the patient's condition is important" and 76.3% of the time, "The isolation applied to the patient, if any, is important" at the rate of 76.3%. Situations where nurses were very uncomfortable during patient handover were determined as 78.1% 'Judgmental Receiving, 76.7% 'Disinterested attitudes and attitudes during handover', 73.7% 'Useless talking during handover'.

Conclusion: Intensive care nurses are aware of the importance and necessity of patient handover. Almost half of the nurses participating in the study stated that they used a form for patient handover, but it was determined that this form was not a standard form.

Relevance to clinical practice: The patient handover process should be included in the nursing education process in detail, and it is recommended that nurses receive in-service training to update their knowledge on this subject and understand the importance of this process. Special forms for patient handover must be prepared and made available for use in clinics.

Keywords: patients handover, intensive care unit, nursing care

HEMŞİRELİK ÖĞRENCİLERİNİN ÖĞRENME DENEYİMLERİNDE BİLİŞSEL YAKLAŞIMLARIN ROLÜ: YARI DENEYSEL BİR ÇALIŞMA

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Özet

Amaç: Bu çalışma, hemşirelik öğrencilerine yönelik bütünleşik bir bilişsel öğrenme programının problem çözme, eleştirel düşünme, akran desteği, öz-yönelimli öğrenmeye hazır oluş ve kontrol odağı üzerindeki etkisini incelemek amacıyla gerçekleştirilmiştir. Hemşirelik eğitiminde bilişsel öğrenme yaklaşımları; öğrencilerin analitik düşünme, karar verme, öğrenme sorumluluğu geliştirme ve profesyonel gelişim süreçlerini destekleyen önemli eğitim stratejileri arasında yer almaktadır.

Yöntem: Araştırma, ön test-son test kontrol gruplu yarı deneysel tasarımda yürütülmüştür. Çalışmaya İstanbul'da bulunan iki vakıf üniversitesinin hemşirelik bölümlerinde öğrenim gören toplam 114 birinci sınıf öğrencisi katılmıştır. Deney grubunda 69, kontrol grubunda 45 öğrenci yer almıştır. Müdahale programı, beş hafta boyunca haftada bir oturum şeklinde çevrim içi olarak yürütülmüş ve her biri 120 dakika süren beş eğitim oturumundan oluşmuştur. Oturumlarda problem çözme, eleştirel düşünme, akran desteği, öz-yönelimli öğrenme ve kontrol odağı konuları ele alınmıştır. Veriler Problem Çözme Envanteri, Marmara Eleştirel Düşünme Eğilimi Ölçeği, Akran Desteği Ölçeği, Kendi Kendine Öğrenmeye Hazır Oluş Ölçeği ve Kontrol Odağı Ölçeği ile toplanmıştır.

Bulgular: Araştırma sonuçları, müdahalenin özellikle öz-yönelimli öğrenmeye hazır oluş üzerinde olumlu etkiler oluşturduğunu göstermiştir. Deney grubunda öz-yönelimli öğrenmeye hazır oluş puanları anlamlı düzeyde artmış ve başlangıç puanları kontrol edildiğinde kontrol grubuna göre daha yüksek bulunmuştur ($p<0,001$). Eleştirel düşünme puanlarında deney grubu lehine bir eğilim gözlenmesine rağmen düzeltilmiş analizlerde anlamlı fark saptanmamıştır. Problem çözme puanlarında değişim görülmüş olmakla birlikte kullanılan ölçeğin puanlama özellikleri nedeniyle sonuçların dikkatli

yorumlanması gerektiği değerlendirilmiştir. Akran desteği ve kontrol odağı değişkenlerinde ise istatistiksel olarak anlamlı bir iyileşme belirlenmemiştir.

Sonuç: Bulgular, kısa süreli bilişsel öğrenme temelli eğitim programlarının hemşirelik öğrencilerinin özellikle öz-yönelimli öğrenmeye hazır oluş düzeylerini geliştirebileceğini göstermektedir. Bununla birlikte eleştirel düşünme, problem çözme, akran desteği ve kontrol odağı gibi alanlarda daha uzun süreli ve uygulama ağırlıklı eğitim girişimlerine ihtiyaç olduğu düşünülmektedir. Çalışma, hemşirelik eğitiminde bilişsel öğrenme yaklaşımlarının farklı öğrenme alanları üzerindeki etkilerine ilişkin önemli ön bulgular sunmaktadır.

Anahtar Kelimeler: Hemşirelik eğitimi, bilişsel öğrenme, öz-yönelimli öğrenme, eleştirel düşünme, problem çözme

THE ROLE OF COGNITIVE APPROACHES IN NURSING STUDENTS' LEARNING EXPERIENCES: A QUASI-EXPERIMENTAL STUDY

Abstract

Purpose: This study aimed to examine the effects of an integrated cognitive learning programme on problem solving, critical thinking, peer support, self-directed learning readiness, and locus of control among nursing students. Cognitive learning approaches are considered important educational strategies in nursing education because they support analytical thinking, decision-making, learning responsibility, and professional development.

Methods: A quasi-experimental pre-test/post-test design with a control group was used. The study included 114 first-year nursing students enrolled in two foundation universities in Istanbul, Türkiye. The experimental group consisted of 69 students, while 45 students were assigned to the control group. The intervention was delivered online over five consecutive weeks and consisted of five 120-minute educational sessions. The sessions focused on problem solving, critical thinking, peer support, self-directed learning, and locus of control. Data were collected using the Problem-Solving Inventory, Marmara Critical Thinking Disposition Scale, Peer Support Scale, Self-Directed Learning Readiness Scale, and Locus of Control Scale.

Results: The findings demonstrated that the intervention had the strongest effect on self-directed learning readiness. Students in the experimental group showed a significant increase in self-directed learning readiness scores, and adjusted analyses indicated significantly higher post-test scores compared with the control group ($p<0.001$). Although critical thinking scores showed a tendency in favour of the experimental group, the adjusted analyses did not reveal a statistically significant difference. Changes were observed in problem-solving scores; however, these findings should be interpreted cautiously because of the scoring characteristics of the instrument. No significant improvements were identified in peer support or locus of control.

Conclusion: The findings suggest that short-term cognitive learning interventions may be particularly effective in enhancing self-directed learning readiness among nursing students. However, longer-term and practice-oriented educational strategies may be required to achieve meaningful improvements in critical thinking, problem solving, peer support, and locus of control. This study provides preliminary evidence regarding the potential contribution of cognitive learning approaches to different domains of nursing education.

Keywords: Nursing education, cognitive learning, self-directed learning, critical thinking, problem solving

THE IMPORTANCE OF EXERCISE IN DUCHENNE MUSCULAR DYSTROPHY

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Abstract

Introduction: Duchenne muscular dystrophy (DMD) is a progressive pediatric neuromuscular disorder characterized by X-linked recessive inheritance, caused by mutations in the dystrophin gene. It is characterized by early clinical manifestations such as delayed gross motor development, frequent falls, gait abnormalities, and difficulty rising from the floor. These impairments progressively reduce physical activity levels and ultimately lead to early loss of ambulation. As there is currently no definitive curative treatment, rehabilitation approaches, particularly exercise interventions, play a critical role in improving functional outcomes, prolonging ambulation, and enhancing quality of life in individuals with DMD.

Method: This study is a literature review evaluating current national and international studies investigating exercise interventions in individuals with DMD. A systematic search of the literature was conducted using electronic databases including PubMed, Scopus, Web of Science, and Google Scholar. The effects of aerobic exercise, submaximal resistance training, stretching exercises, respiratory exercises, motor imagery training, yoga, home-based exercise programs, and aquatic exercise interventions were analyzed.

Conclusion: Exercise interventions help slow the progression of symptoms and improve muscle strength in individuals with DMD when appropriately prescribed. The findings emphasize that exercise programs should be individualized and carefully tailored to the patient's functional status. Rather than high-intensity resistance training, low-to-moderate intensity and sustainable exercise programs appear to be more beneficial and safer for this population. However, further studies are needed to determine optimal exercise dosage and long-term effects.

Key words: Duchenne muscular dystrophy, exercise, physiotherapy and rehabilitation, quality of life

KIBRIS'TA SATIŞA SUNULAN BİTKİSEL SÜTLER VE İNEK SÜTLERİNİN BESİN ÖĞESİ KARŞILAŞTIRMASI

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Özet

Son yıllarda bitkisel süt tüketimi; sağlık kaygıları, laktoz intoleransı, hayvan refahı ve çevresel sürdürülebilirlik gibi nedenlerle önemli ölçüde artış göstermiştir. Bu artan eğilim, Kıbrıs'ta bitkisel süt (PBM) ürünlerinin hızla çoğalmasına ve tüketicilere inek sütüne (RCM) alternatif geniş bir ürün yelpazesi sunulmasına yol açmıştır. Bu çalışma, Kıbrıs süpermarketlerinde satışa sunulan bitkisel süt alternatiflerinin besin bileşimi ve beslenme beyanlarını inek sütü ile karşılaştırmayı amaçlamaktadır.

Toplam 134 bitkisel süt ürünü ve 32 inek sütü örneği (tam yağlı, yarım yağlı, light ve şekerli çeşitler dahil) Kıbrıs'taki çevrim içi ve perakende kaynaklardan elde edilmiştir. Enerji, toplam yağ, doymuş yağ, karbonhidrat, şeker, lif, protein ve tuz içerikleri ile ambalaj üzerindeki beslenme beyanları değerlendirilmiştir. Veriler tanımlayıcı istatistiklerle özetlenmiş, gruplar arası farklılıklar ANOVA ve post hoc testleri ile analiz edilmiştir.

Bulgular, badem ve hindistancevizi sütlerinin inek sütü ve diğer bitkisel alternatiflere kıyasla anlamlı derecede daha düşük enerji içeriğine sahip olduğunu göstermiştir ($p<0.05$). Toplam yağ içeriği açısından gruplar arasında anlamlı farklılıklar bulunmuş, ancak fındık sütü bu durumun dışında kalmıştır. Badem sütü düşük doymuş yağ içeriği ile öne çıkarken, hindistancevizi sütü bitkisel sütler arasında en yüksek doymuş yağ içeriğine sahip olup inek sütüne benzer düzeyler göstermiştir ($p<0.05$). Pirinç sütü en yüksek karbonhidrat ve şeker içeriğine sahip ürün grubu olarak belirlenmiştir. Buna karşılık hindistancevizi sütü en düşük şeker içeriğini göstermiş ve inek sütünden anlamlı derecede düşük bulunmuştur ($p<0.05$). Soya sütü hariç olmak üzere bitkisel sütlerin protein içeriği inek sütünden daha düşük bulunmuştur ($p<0.05$). Ayrıca "ilave şeker içermez" beyanı bulunan 43 ürün tespit edilmiş, ancak bu ürünlerin ortalama şeker içeriğinin inek sütünden daha yüksek olduğu belirlenmiştir.

Sonuç olarak bitkisel süt alternatifleri besin içeriği açısından önemli bir değişkenlik göstermekte olup, tüketicilerin beslenme ihtiyaçlarına göre farklı seçenekler sunmaktadır. Ancak protein, şeker ve enerji içeriklerindeki farklılıklar, etiket bilgilerinin ve sağlık beyanlarının dikkatle değerlendirilmesi gerektiğini ortaya koymaktadır. Bazı bitkisel sütler daha düşük protein içerirken daha yüksek şeker veya enerji içeriğine sahip olabilmektedir ve bu durum beslenme planlamasında dikkate alınmalıdır.

Anahtar Kelimeler: Bitkisel süt; İnek sütü; Besin bileşimi; Beslenme beyanları

A COMPARATIVE STUDY OF PLANT-BASED AND COW'S MILK PRODUCTS AVAILABLE IN CYPRUS

Abstract

In recent years, the consumption of plant-based milks has increased substantially due to health concerns, lactose intolerance, animal welfare considerations, and environmental sustainability. This growing trend has contributed to a rapid expansion of plant-based milk (PBM) products in Cyprus, offering consumers a wide range of alternatives to regular cow's milk (RCM). This study aims to compare the nutritional

composition and nutrition claims of plant-based milk alternatives available in Cypriot supermarkets with those of cow's milk.

A total of 134 plant-based milk products and 32 cow's milk samples, including regular, skimmed, semi-skimmed, and sweetened varieties, were collected from both online and retail sources in Cyprus. Nutritional information on energy, total fat, saturated fat, carbohydrates, sugars, fiber, protein, and salt was analyzed, along with nutrition-related claims on product packaging. Descriptive statistics were used to summarize the data, and differences between groups were assessed using ANOVA followed by post hoc tests.

The results showed that almond and coconut milks had significantly lower energy content compared with cow's milk and other plant-based alternatives ($p<0.05$). Significant differences were observed in total fat content between PBM and RCM, except for hazelnut milk. Almond milk had markedly lower saturated fat levels, whereas coconut milk showed the highest saturated fat content among plant-based options, reaching levels comparable to cow's milk ($p<0.05$). Rice milk contained the highest carbohydrate and sugar levels among PBMs. In contrast, coconut milk had the lowest sugar content, significantly lower than cow's milk ($p<0.05$). With the exception of soy milk, protein content in plant-based alternatives was significantly lower than in cow's milk ($p<0.05$). In addition, 43 products carried a "no added sugar" claim, including one sweetened product; however, these products exhibited higher mean sugar content than cow's milk.

In conclusion, plant-based milk alternatives demonstrate considerable variability in nutritional composition, providing consumers with diverse options depending on dietary needs and preferences. However, differences in protein, sugar, and energy content highlight the importance of careful evaluation of nutrition labels and health claims. Some plant-based alternatives may be lower in protein while containing higher sugar or energy levels, which should be considered in dietary planning.

Keywords: Plant-based milk; Regular cow's milk; Nutritional composition; Nutrition claims

STRENGTHENING SCHOOL-FOOD SYSTEM CONNECTIONS TO IMPROVE CHILDREN'S DIETS: INSIGHTS FROM PROJECT DAIRE

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Abstract

Schools provide a valuable setting for promoting healthy dietary behaviours, offering equitable access to children across diverse socioeconomic backgrounds. Through whole-school approaches that integrate food education with supportive food environments and community partnerships, schools can contribute to public health and sustainability objectives. Strengthening connections between schools and local agricultural sectors may encourage healthier eating patterns while supporting local food systems.

Project Daire, a six-month randomised controlled factorial-design cluster trial conducted across primary schools in Northern Ireland, demonstrates the potential of this approach. Schools were allocated to environmental ('Nourish'), educational ('Engage'), combined ('Nourish' and 'Engage'), or control interventions. Nourish modified the school food environment and increased children's exposure to local foods, food producers, and food-related experiences, while Engage delivered educational activities on nutrition, food, and agriculture. Dietary outcomes among children aged 6–7 (n=445) and 10–11 years (n=458) were assessed using diet diversity and diet quality scores (DDS/DQS).

Results showed that Nourish significantly increased dietary diversity among older children, with higher school DDS (mean difference=2.79, 95% CI: 1.44–4.14; $p<0.001$) and total DDS (mean difference=1.55, 95% CI: 0.65–2.44; $p=0.001$) compared with children who did not receive this intervention. Secondary analyses also demonstrated increased diet quality among older children attending schools in more deprived areas, with higher school DQS (mean difference=2.4, 95% CI 0.31-4.4; $p=0.02$) and total DQS (mean difference=1.8, 95% CI 0.19-3.4; $p=0.03$) in the Nourish group.

These findings highlight the potential of school-based initiatives that strengthen children's engagement with local food systems. Such approaches may be particularly relevant in Cyprus, where Mediterranean dietary traditions, local agricultural production, and community food networks provide opportunities to foster collaboration between schools and food producers. Adapting similar interventions in Cyprus could promote healthier dietary behaviours, address socioeconomic disparities in diet, and support broader public health and sustainable food system goals.

Keywords: School-based interventions; Food environment; Dietary behaviours; Child nutrition; Local food systems

COMPARISON OF FACIAL PROFILE ATTRACTIVENESS PERCEPTION AMONG INDIVIDUALS WITH SKELETAL CLASS I, II, AND III MALOCCLUSIONS

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Abstract

The aim of this study was to compare the perception of attractiveness of standardised profile photographs representing skeletal Class I, II, and III patterns, and to investigate the effects of professional education and sociodemographic variables on facial profile evaluations. A total of 509 participants were included in this cross-sectional descriptive study, consisting of orthodontists, orthodontic PhD students, general dentists, dental specialists from other fields, first- and fifth-year dental students, and laypersons. Seven standardised profiles (S1-S7), digitally generated from a standard profile photograph, were evaluated using a seven-point visual analogue scale. Participants were also asked to select the profile photograph (S8) they would ideally prefer. Comparisons between groups were performed using non-parametric statistical tests.

The straight profile (S3) was rated as both the most attractive and the most frequently preferred across all evaluator groups; 58.74% of participants classified it in the high-attractiveness category. This finding demonstrated that the straight profile (S3) represents the dominant aesthetic reference. In contrast, retrusive profiles-particularly bimaxillary retrusion (S2)-were classified as the “least attractive” by 50.69% of participants. Similarly, mandibular retrusion (S5) was classified as the “least attractive” by 55.01% of participants, while maxillary retrusion (S6) was classified as the “least attractive” by 68.17% of participants.

Statistically significant differences in aesthetic perceptions were identified according to professional group, gender, educational status, age, nationality, place of birth, marital status, occupational position, total monthly income, professional specialisation groups, university attended, university where the dental doctorate was obtained, university where dental speciality/doctoral education was completed, and year of graduation from dental school. As the level of orthodontic education increased, evaluations of protrusive and convex profiles became markedly more critical. In contrast, individuals in the general population showed more tolerant attitudes toward facial aesthetics.

Keywords: Facial Profile; Aesthetics; Attractiveness; Malocclusion; Soft Tissue Profile Analysis; Sagittal Facial Harmony

MİGREN VE KAFEİN İLİŞKİSİ: TETİKLEYİCİ Mİ, KORUYUCU MU? GÜNCEL KANITLARIN DERLENMESİ

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Özet

Migren dünya genelinde bir milyardan fazla kişiyi etkileyen yaygın ve yaşam kalitesini önemli ölçüde azaltan nörolojik bir hastalıktır. Kafein ise migren ile en sık ilişkilendirilen diyet bileşenlerinden biri olup hem migren ataklarını tetikleyebilen hem de tedavide yararlanılabilen bir ajan olarak değerlendirilmektedir. Bu derlemenin amacı, kafein tüketimi ile migren arasındaki ilişkiye yönelik güncel kanıtları bütüncül olarak değerlendirmektir.

Bu çalışma, kafein ve migren ilişkisini inceleyen güncel derleme, sistematik derleme ve epidemiyolojik araştırmaların değerlendirilmesine dayanmaktadır. İncelenen çalışmalar arasında geniş örneklemli gözlemsel araştırmalar, kohort çalışmaları ve literatür derlemeleri yer almaktadır.

Kafeinin migren üzerindeki etkileri çift yönlüdür. Kafein, adenozin reseptör antagonizması yoluyla serebral vazokonstriksiyon oluşturarak akut migren tedavisinde analjeziklerin etkinliğini artırabilmektedir. Özellikle asetaminofen, aspirin ve bazı nonsteroid antiinflamatuvar ilaçlarla birlikte kullanıldığında ağrı kontrolünü iyileştirdiği bildirilmiştir. Bununla birlikte yüksek miktarda veya düzensiz kafein tüketiminin migren ve şiddetli baş ağrıları için risk oluşturabileceği gösterilmiştir. NHANES verileri kullanılarak gerçekleştirilen geniş kapsamlı bir çalışmada günlük kafein alımındaki her 100 mg artışın şiddetli baş ağrısı veya migren görülme olasılığını %5 artırdığı, günde 400 mg ve üzeri kafein tüketen bireylerde ise riskin düşük tüketenlere göre %42 daha yüksek olduğu bildirilmiştir.

Bunun yanında uzun süreli yüksek kafein tüketiminin adenozin reseptörlerinde duyarlılık artışına neden olarak kortikal hiperuyarılabilirliği artırdığı, bunun da primer baş ağrılarının kronikleşmesine katkıda bulunabileceği belirtilmektedir. Ayrıca ani kafein kesilmesi sonucunda gelişen yoksunluk sendromu da migren ataklarını tetikleyebilmektedir.

Buna karşın en güncel sistematik derlemeler, yaşam boyu daha yüksek kahve veya kafein tüketimine genetik yatkınlığın migren riskinde azalma ile ilişkili olabileceğini göstermektedir. Özellikle auralı migren alt tipinde koruyucu etkinin daha belirgin olduğu bildirilmektedir. Ancak akut aşırı tüketim veya alışılmış tüketim düzenindeki ani değişikliklerin duyarlı bireylerde atakları tetikleyebildiği vurgulanmaktadır.

Mevcut kanıtlar, kafeinin migren üzerindeki etkisinin bireysel duyarlılık, tüketim miktarı ve tüketim düzenine bağlı olarak değiştiğini göstermektedir. Düzenli ve orta düzeyde tüketim bazı bireylerde koruyucu veya tedaviye yardımcı etki gösterebilirken, yüksek miktarda tüketim ve ani yoksunluk migren ataklarını artırabilmektedir.

Migrenli bireylerde yalnızca toplam kafein alım miktarı değil, tüketim düzeni de önem taşımaktadır. Mevcut kanıtlar, günlük kafein alımının yaklaşık 200 mg düzeyinde tutulmasının ve tüketimde ani artış ya da kesintilerden kaçınılmasının migren ataklarının önlenmesine katkı sağlayabileceğini göstermektedir. Bununla birlikte bireysel duyarlılık farklılıkları nedeniyle optimal tüketim miktarı kişiden kişiye değişebilmektedir. Bu nedenle migrenli bireylerde kafein alımının kişiye özgü değerlendirilmesi ve düzenli izlenmesi önerilmektedir. Bununla birlikte günlük diyette kümülatif kafein tüketimi ve kafeinin diğer besinsel kaynaklarının tüketim miktarı mutlaka gözönünde bulundurulmalıdır. Kafein, başta kahve olmak üzere çay, enerji içecekleri, kola tipi gazlı içecekler, kakao ve çikolata gibi

besinlerde doğal veya eklenmiş formda bulunabilmektedir. Özellikle kahve ve enerji içecekleri günlük kafein alımına en yüksek katkıyı sağlayan kaynaklar arasında yer almaktadır. Ayrıca migren yönetiminde kafein tüketiminin tek başına değerlendirilmesi yeterli olmayıp, toplam diyet kalitesi, öğün düzeni, sıvı tüketimi ve uyku alışkanlıkları ile birlikte ele alınması gerekmektedir.

Gelecekte yapılacak prospektif çalışmalar, kafeinin migren patofizyolojisindeki rolünü daha net ortaya koyacaktır.

Anahtar Kelimeler: Adenozin Reseptörleri, Kafein Tüketimi, Migren.

RELATIONSHIP BETWEEN MIGRAINE and CAFFEINE: TRIGGER or PROTECTIVE FACTOR? A REVIEW of CURRENT EVIDENCE

Abstract

Migraine is a common neurological disorder affecting more than one billion people worldwide and significantly impairing quality of life. Caffeine is one of the dietary components most frequently associated with migraine and is considered both a potential trigger of migraine attacks and a therapeutic agent. The aim of this review is to comprehensively evaluate current evidence regarding the relationship between caffeine consumption and migraine.

This review is based on the evaluation of recent narrative reviews, systematic reviews, and epidemiological studies investigating the association between caffeine and migraine. The reviewed literature includes large-scale observational studies, cohort studies, and comprehensive literature reviews.

The effects of caffeine on migraine appear to be bidirectional. Through antagonism of adenosine receptors, caffeine induces cerebral vasoconstriction and may enhance the efficacy of analgesics in the acute treatment of migraine. In particular, it has been reported to improve pain control when combined with acetaminophen, aspirin, and certain nonsteroidal anti-inflammatory drugs. However, excessive or irregular caffeine consumption has been shown to increase the risk of migraine and severe headaches. A large-scale study utilizing NHANES data reported that each additional 100 mg/day of caffeine intake was associated with a 5% increase in the likelihood of severe headache or migraine, while individuals consuming 400 mg/day or more had a 42% higher risk compared with those with lower caffeine intake.

Long-term high caffeine consumption may increase sensitivity of adenosine receptors, thereby enhancing cortical hyperexcitability and potentially contributing to the chronification of primary headache disorders. Furthermore, caffeine withdrawal syndrome resulting from abrupt cessation of caffeine intake may also trigger migraine attacks.

Conversely, the most recent systematic reviews suggest that a genetic predisposition to higher lifetime coffee or caffeine consumption may be associated with a reduced risk of migraine. This protective effect appears to be more pronounced in individuals with migraine with aura. Nevertheless, acute excessive intake or sudden changes in habitual caffeine consumption patterns may precipitate attacks in susceptible individuals.

In individuals with migraine, not only the total amount of caffeine consumed but also the pattern and consistency of consumption are important. Current evidence suggests that maintaining caffeine intake at approximately 200 mg per day and avoiding abrupt increases or sudden cessation may help reduce the risk of migraine attacks. However, due to interindividual differences in sensitivity, the optimal level of caffeine intake may vary from person to person. Therefore, individualized assessment and regular monitoring of caffeine consumption are recommended for patients with migraine.

In addition, cumulative daily caffeine intake and the consumption of caffeine from various dietary sources should be carefully considered. Caffeine may be naturally present or added to a variety of foods and beverages, including coffee, tea, energy drinks, cola-type soft drinks, cocoa, and chocolate. Among these, coffee and energy drinks are considered major contributors to total daily caffeine intake.

Furthermore, evaluating caffeine consumption alone is insufficient in migraine management. It should be considered alongside overall dietary quality, meal regularity, hydration status, and sleep habits. Future prospective studies are needed to further elucidate the role of caffeine in migraine pathophysiology.

Keywords: Adenosine Receptors, Caffeine Consumption, Migraine.

KÜRESEL BİR BAKIŞ AÇISIYLA DÜNYADA SAĞLIK HİZMETLERİ KOOPERATİFÇİLİĞİ

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Özet

İnsanlık için en önemli ve elzem konulardan birisi de sağlıklı yaşama isteği ve becerisidir. Bu durum, temel insan haklarından birisi olup ihlal edilemeyeceği gibi bu hizmetten adil ve eşit bir şekilde yararlanmada herkesin temel bir hakkı olarak görülmektedir. İlk çağlardan günümüze kadar insanlık, çeşitli sağlık problemlerini Covid-19 örneğinde olduğu gibi küresel ölçekli olarak yaşamış ve bu sorunlar kimi zaman bir pandemi haline gelerek insanlık için derin kayıplara neden olmuştur. Ülkelerin ve toplumların sağlık harcamalarına ayırdıkları pay her geçen gün artmakta, ekonomik ve sosyal politikalarını derinden etkilemektedir. Dünya genelinde toplam sağlık harcamaları küresel olarak GSYH'nin yaklaşık %9'unu temsil etmekte, bu oran gelişmiş ülkelerde %20'lere kadar çıkmaktadır. Bu harcamaların ise yaklaşık olarak %60'ı kamu, %30'u özel sektör ve kalan kısmı ise kooperatif benzeri yapılar eliyle harcanmaktadır. Dünyada sağlık hizmetlerine küresel ölçekte bakıldığında bu hizmetlerin kamusal alanda hizmet kalitesi ve bütçe dengeleri yönünden ciddi sorunlara neden olurken, özel sektörün sunmuş olduğu sağlık hizmetlerinde ise istismar, ayrıcalık ve kişisel gelirin yetersizliği ile kalitesiz bir sağlık hizmeti sorunu oluşmaktadır. Konuya bu açıyla bakıldığında küresel ölçekli sağlık hizmetlerinin sunulmasında, özellikle Japonya, Brezilya ve Kanada'da yaygın olan, Uluslararası Sağlık Hizmetleri Kooperatifleri Örgütü (IHCO) gibi bir küresel çatı örgütü ile kamu ve özel sektörün alternatifi olarak, bu hizmetlerin kooperatifler yoluyla sunulması tartışılmaktadır. Bu bilgiler doğrultusunda çalışmada, dünyada sağlık hizmetleri kooperatifçiliğine küresel bir bakış açısı geliştirilmesi amaçlanmıştır. Çalışmada, yerli ve yabancı literatür taranarak, çalışmanın amacı doğrultusunda konunun incelenmesi ve yeni verilerin ve çıkarımların elde edilmesi, çalışmanın beklenen hedefleri arasında yer almaktadır.

Anahtar Kelimeler: Kooperatif, Sağlık, Sağlık Hizmetleri Kooperatifçiliği

SAVAŞ GÖÇÜ VE PSİKOLOJİK FAKTÖRLERİN BESİN GÜVENCESİ ÜZERİNE ETKİSİ

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Özet

Bu çalışma, savaş ve zorunlu göç deneyimi yaşayan Suriyeli bireylerde, besin güvencesizliğinin saptanması ve besin güvencesizliği ile ilişkili sosyodemografik, psikolojik ve beslenme davranışlarına ilişkin faktörlerin değerlendirilmesi amacıyla gerçekleştirilmiştir. Kesitsel tipte yürütülen bu araştırmaya 230 yetişkin Süriyeli göçmen katılmıştır. Katılımcılara sosyodemografik özellikler, savaş ve göç deneyimleri, psikolojik durum, beslenme alışkanlıkları ve besin güvencesizliğine ilişkin soruları içeren yapılandırılmış veri toplama formu uygulanmıştır. Gıda güvencesi durumu FIES (Food Insecurity Experience Scale) ile değerlendirilmiş ve katılımcıların besin güvencesizliği, hafif, orta ve şiddetli besin güvencesizliği olarak sınıflandırılmıştır. Katılımcıların %75,2'si kadın, %24,8'i erkektir. Katılımcıların büyük çoğunluğu Suriye dışında yaşamakta olup %52,6'sı evlidir. Eğitim düzeyi açısından üniversite mezunları önemli bir paya sahipken (%70,9), katılımcıların çoğunluğu düşük ve orta gelir grubunda (sırasıyla %26,1 ve %72,2) yer almaktadır. Eğitim ve gelir düzeyi bakımından cinsiyetler arasında anlamlı farklılık bulunurken ($p<0,05$), medeni durum ve kronik hastalık varlığı açısından anlamlı fark saptanmamıştır ($p>0,05$). Katılımcıların %82,2'si savaşın günlük yaşamlarını orta veya önemli düzeyde etkilemiş olduğunu bildirirken, %56,5'i besine erişimde zorluk yaşadığını ifade etmiştir. Sürekli veya zaman zaman stres/kaygı yaşayan bireylerin oranı %91,3 olup, katılımcıların %75,2'si psikolojik durumunu orta, %7,0'ı ise kötü olarak değerlendirmiştir. Beslenme alışkanlıkları incelendiğinde, katılımcıların %69,6'sının günde iki öğün, %18,3'ünün ise üç öğün tükettiği belirlenmiştir. Öğün atlama davranışı oldukça yaygın olup katılımcıların %87,0'ı öğün atladığını bildirmiştir. En sık atlanan öğün kahvaltı olarak ifade edilmiştir (%43,5). Ayrıca katılımcıların %73,5'i savaş sonrasında beslenme alışkanlıklarının değiştiğini ifade etmiştir. FIES değerlendirmesine göre gelir düzeyi ile besin güvencesizliği arasında anlamlı ilişki bulunmuştur ($p<0,05$). Buna göre katılımcıların sadece %25,6'si besin güvencesine sahipken, %35,7'si hafif, %29,6'sı orta ve %9,1'i şiddetli düzeyde besin güvencesizliği yaşamaktadır. Gelir düzeyi ile besin güvencesizliği arasında istatistiksel olarak anlamlı ilişki bulunmuştur ($p<0,05$). Düşük gelir grubunda yer alan bireylerin %36,7'sinde orta, %20,0'sinde ise şiddetli düzey besin güvencesizliği saptanırken, orta gelir grubunda bu oranlar sırasıyla %25,9 ve %5,4 olarak belirlenmiştir. Ayrıca savaşın günlük yaşam üzerindeki etkisi ($p<0,05$), besin erişimde yaşanan zorluklar ($p<0,001$), sürekli stres veya kaygı varlığı ($p<0,05$), psikolojik durumun kötü olarak değerlendirilmesi ($p<0,05$) ve göçün psikolojik etkilerinin şiddeti ($p<0,05$) ile besin güvencesizliği arasında anlamlı ilişkiler belirlenmiştir. Besine erişimde sürekli zorluk yaşayan, savaşın günlük yaşamını önemli ölçüde etkilediğini bildiren ve psikolojik durumunu kötü olarak değerlendiren bireylerde orta ve şiddetli düzey besin güvencesizliği oranları daha yüksek bulunmuştur. Savaş ve zorunlu göç deneyimi yaşayan bireylerde besin güvensizliği yalnızca ekonomik koşullarla değil, aynı zamanda psikolojik durum ve beslenme davranışları ile de yakından ilişkilidir. Özellikle düşük gelirli, besine erişimde güçlük yaşayan ve yüksek düzeyde stres veya kaygı bildiren bireylerde besin güvencesizliği daha yaygındır. Bu bulgular, savaş ve göçten etkilenen toplumlarda besin güvencesini artırmaya yönelik müdahalelerin ekonomik desteklerin yanı sıra psikososyal destek ve beslenme programlarını da içermesi gerektiğini göstermektedir.

Anahtar Kelimeler: Besin güvencesizliği, FIES, savaş, göç, psikolojik durum, Suriyeli göçmenler

THE IMPACT OF WAR, MIGRATION, AND PSYCHOLOGICAL FACTORS ON FOOD SECURITY

Abstract

This study was conducted to determine food insecurity and to evaluate the sociodemographic, psychological, and dietary behavior-related factors associated with food insecurity among Syrian individuals who had experienced war and forced migration. This cross-sectional study included 230 adult Syrian migrants. Data were collected using a structured questionnaire covering sociodemographic characteristics, war and migration experiences, psychological status, dietary habits, and food insecurity. Food security status was assessed using the Food Insecurity Experience Scale (FIES), and participants were classified into four categories: food secure, mildly food insecure, moderately food insecure, and severely food insecure.

Of the participants, 75.2% were female and 24.8% were male. The majority lived outside Syria, and 52.6% were married. University graduates constituted a considerable proportion of the sample (70.9%), while most participants belonged to low- and middle-income groups (26.1% and 72.2%, respectively). Significant gender differences were observed in education and income levels ($p<0.05$), whereas no significant differences were found regarding marital status or the presence of chronic diseases ($p>0.05$).

A total of 82.2% of participants reported that the war had affected their daily lives at a moderate or substantial level, while 56.5% experienced difficulties accessing food. The prevalence of individuals reporting persistent or occasional stress/anxiety was 91.3%. Furthermore, 75.2% of participants rated their psychological status as moderate and 7.0% as poor. Regarding dietary habits, 69.6% reported consuming two meals per day, whereas 18.3% consumed three meals per day. Meal skipping was highly prevalent, with 87.0% of participants reporting that they skipped meals. Breakfast was identified as the most frequently skipped meal (43.5%). Additionally, 73.5% of participants reported changes in their dietary habits following the war.

According to the FIES assessment, a significant association was found between income level and food insecurity ($p<0.05$). Only 25.6% of participants were food secure, whereas 35.7%, 29.6%, and 9.1% experienced mild, moderate, and severe food insecurity, respectively. Among individuals in the low-income group, 36.7% experienced moderate and 20.0% experienced severe food insecurity, while the corresponding rates in the middle-income group were 25.9% and 5.4%, respectively. Significant associations were also identified between food insecurity and the impact of war on daily life ($p<0.05$), difficulties in food access ($p<0.001$), persistent stress or anxiety ($p<0.05$), poor psychological status ($p<0.05$), and the severity of migration-related psychological effects ($p<0.05$). Higher rates of moderate and severe food insecurity were observed among individuals who reported persistent difficulties accessing food, substantial disruption of daily life due to war, and poor psychological well-being.

Food insecurity among individuals exposed to war and forced migration is associated not only with economic conditions but also with psychological status and dietary behaviors. Food insecurity was particularly prevalent among low-income individuals, those experiencing difficulties accessing food, and those reporting high levels of stress or anxiety. These findings suggest that interventions aimed at improving food security in war- and migration-affected populations should incorporate psychosocial support and nutrition programs in addition to economic assistance.

Keywords: Food insecurity, FIES, war, migration, psychological status, Syrian migrants.

AMELİYAT ÖNCESİ MANDALA BOYAMANIN ANKSİYETE VE STRES DÜZEYLERİ ÜZERİNE ETKİSİ

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Özet

Bu araştırmada, kolesistektomi ameliyatı öncesi mandala boyama aktivitesinin kaygı, stres ve fizyolojik parametreler üzerine etkisinin değerlendirilmesi amaçlandı. Randomize kontrollü çalışma Eylül 2025-Kasım 2025 tarihleri arasında İstanbul ilindeki bir eğitim araştırma hastanesinin genel cerrahi kliniğinde kolesistektomi ameliyatı geçiren ve araştırmaya dahil edilme kriterlerini karşılayan 60 hasta ile yürütüldü. Mandala grubundaki hastalara (n=30) ameliyat günü uygulama yapılırken, kontrol grubundaki hastalara (n=30) rutin bakım dışında herhangi bir girişim uygulanmadı. Araştırma verileri Tanıtıcı Özellikler Formu, Durumluk Kaygı Ölçeği (STAI), Algılanan Stres Ölçeği (PSS) ve Fizyolojik Parametreler Formu ile toplandı. Araştırmaya katılan hastaların yaş ortalaması kontrol grubunda 59,10 ± 15,49 yıl, mandala grubunda ise 52,87 ± 16,01 yıl olarak belirlendi. Kontrol grubundaki hastaların %50'si kadın ve %50'si erkek iken, mandala grubundaki hastaların %60'ı kadın, %40'ı erkekti. Katılımcıların tamamının daha önce mandala boyama ya da benzer sanat temelli terapötik uygulamalara yönelik herhangi bir deneyimi bulunmamaktadır. Mandala boyama uygulanan hastalarda, kontrol grubuna kıyasla ameliyat öncesi kaygı ve stres düzeylerinin anlamlı düzeyde azaldığı belirlendi ($p < .001$). Kontrol grubunda kaygı ve stres puanlarında ön test–son test arasında anlamlı bir değişim saptanmazken ($p > .05$), mandala grubunda her iki değişkende de son test puanlarının ön testlere göre anlamlı biçimde azaldığı görüldü. Ayrıca mandala grubundaki hastaların fizyolojik parametrelerinde kontrol grubuna kıyasla anlamlı iyileşmeler saptandı ($p < .05$). Bu çalışmanın bulguları, kolesistektomi ameliyatı öncesinde uygulanan mandala boyama aktivitesinin hastaların kaygı ve stres düzeylerini anlamlı biçimde azalttığı ve fizyolojik parametreler üzerinde olumlu etkiler sağladığı görülmektedir. Farmakolojik olmayan, düşük maliyetli ve uygulanması kolay bir girişim olan mandala boyama, cerrahi girişim öncesi dönemde hastaların psikolojik ve fizyolojik iyilik halini destekleyen etkili bir tamamlayıcı bakım uygulaması olarak değerlendirilebilir.

Anahtar Kelimeler: Ameliyat öncesi bakım, kaygı, stres.

THE EFFECT OF PREOPERATİVE MANDALA COLORING ON ANXIETY AND STRESS LEVELS

Abstract

The aim of this study was to evaluate the effect of mandala coloring activities on anxiety, stress, and physiological parameters prior to cholecystectomy surgery. The randomized controlled trial was conducted between September 2025 and November 2025 at the general surgery clinic of a teaching and research hospital in Istanbul, involving 60 patients who underwent cholecystectomy and met the inclusion criteria for the study. Patients in the mandala group (n=30) received the intervention on the day of surgery, while patients in the control group (n=30) received no intervention other than routine care. Research data were collected using the Demographic Information Form, the State-Trait Anxiety

Inventory (STAI), the Perceived Stress Scale (PSS), and the Physiological Parameters Form. The mean age of the patients participating in the study was 59.10 ± 15.49 years in the control group and 52.87 ± 16.01 years in the mandala group. While 50% of the patients in the control group were female and 50% were male, 60% of the patients in the mandala group were female and 40% were male. None of the participants had any prior experience with mandala coloring or similar art-based therapeutic interventions. It was found that preoperative anxiety and stress levels were significantly reduced in patients who participated in the mandala coloring intervention compared to the control group ($p < .001$). While no significant change was observed in anxiety and stress scores between the pre-test and post-test in the control group ($p > .05$), in the mandala group, post-test scores for both variables were found to have decreased significantly compared to pre-test scores. Additionally, significant improvements in physiological parameters were observed in patients in the mandala group compared to the control group ($p < .05$). The findings of this study indicate that mandala coloring activities administered prior to cholecystectomy surgery significantly reduce patients' anxiety and stress levels and have positive effects on physiological parameters. As a non-pharmacological, low-cost, and easy-to-implement intervention, mandala coloring can be considered an effective complementary care practice that supports patients' psychological and physiological well-being during the preoperative period.

Keywords: Anxiety, preoperative care, stress.

PRİMER DİSMENORELİ BİREYLERDE AĞRI ŞİDDETİ İLE SOLUNUM FONKSİYONLARI VE STRES DÜZEYİ ARASINDAKİ İLİŞKİNİN İNCELENMESİ

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Özet

Giriş: Primer dismenore (PD), altta yatan herhangi bir pelvik patoloji olmaksızın ortaya çıkan ağrılı menstrüasyon olarak tanımlanmaktadır. Genellikle menarştan sonraki ilk 6–12 ay içerisinde başlamaktadır ve en sık ergenlik ile genç erişkinlik dönemindeki kadınlarda görülmektedir. Tipik olarak alt abdominal bölgede hissedilen, keskin ve kramp tarzında karakterize edilen ağrı; bel, kasık ve uyluk bölgelerine yayılım gösterebilmektedir. Ağrıya sıklıkla bulantı, kusma, baş ağrısı, yorgunluk, diyare ve uyku bozuklukları gibi fiziksel semptomlar ile anksiyete, irritabilite ve duygu durum değişiklikleri gibi psikolojik belirtiler eşlik etmektedir. Bu semptomlar kadınların günlük yaşam aktivitelerini, akademik ve mesleki performanslarını, sosyal katılımlarını ve yaşam kalitelerini olumsuz etkileyebilmektedir.

Amaç: Bu çalışmanın amacı PD'li bireylerde ağrı şiddeti ile solunum fonksiyonları ve stres düzeyi arasındaki ilişkinin incelenmesidir.

Yöntem: Çalışmaya 48 PD'li birey (yaş:21,77±4,53 yıl, vücut kitle indeksi: 21,98±4,06 kg/m^2) dahil edildi. Bireylerin ağrı şiddetini değerlendirmek için McGill Ağrı Anketi-Kısa Formu'nun "Ağrı Şiddeti" alt boyutu kullanıldı. Bireylerin solunum fonksiyonları spirometre cihazı ile, stres düzeyi ise "Algılanan Stres" ve "Algılanan Baş Etme" olmak üzere iki alt boyuttan oluşan "Algılanan Stres Ölçeği" ile değerlendirildi. Analiz için Spearman korelasyon testi kullanıldı.

Bulgular: Elde edilen bulgular sonucunda PD'li bireylerde ağrı şiddeti ile solunum fonksiyonları (FEV_1, FEV_1/FVC, PEF) arasında anlamlı ilişki olmadığı görüldü ($p>0.05$). Ağrı şiddeti ile algılanan stres boyutu ($r=0.488, p<0.001$) ve algılanan stres ölçeği toplam skoru ($r=0.447, p=0.001$) arasında orta düzeyde pozitif ilişki bulundu. Ağrı şiddeti ile algılanan baş etme boyutu arasında ise zayıf düzeyde pozitif ilişki tespit edildi ($r=0.326, p=0.024$).

Sonuç ve öneriler: Çalışmamızın sonucunda, PD'li bireylerde hissedilen ağrı şiddetinin solunum fonksiyonlarını etkilemediği bulundu. Ancak ağrı şiddeti arttıkça algılanan stres düzeyinin de arttığı görüldü. Bu bulgular doğrultusunda, primer dismenoreli bireylerin değerlendirilmesinde yalnızca ağrı şiddetinin değil, stres düzeyinin de dikkate alınması gerektiği düşünülmektedir. Bu nedenle, PD'li bireylerde tedavi planlamasında multidisipliner bir yaklaşımın benimsenmesi önemli olabilir. Stres düzeyinin azaltılmasına yönelik solunum egzersizleri, aerobik egzersizler, yoga ve pilates gibi uygulamalar tedavi programlarına dahil edilebilir. Bununla birlikte, örneklem sayısının artırıldığı

çalışmalarla ağrı ve stres arasındaki ilişkinin zamansal değişiminin ve neden-sonuç ilişkisinin daha ayrıntılı olarak ortaya konulması mümkün olabilir. Ayrıca, bu çalışmada ağrı şiddeti ile temel solunum fonksiyonları arasında anlamlı bir ilişki saptanmamış olsa da gelecekte yapılacak araştırmalarda solunum paternleri ve disfonksiyonel solunum gibi daha ayrıntılı solunum parametrelerinin incelenmesi yararlı olacaktır.

Anahtar kelimeler: Ağrı, Primer Dismenore, Solunum Fonksiyon Testi, Stres

AN INVESTIGATION OF THE RELATIONSHIP BETWEEN PAIN INTENSITY, RESPIRATORY FUNCTION, AND STRESS LEVELS IN INDIVIDUALS WITH PRIMARY DYSMENORRHEA

Abstract

Introduction: Primary dysmenorrhea (PD) is defined as painful menstruation occurring without any underlying pelvic pathology. It typically begins within the first 6–12 months after menarche and is most seen in women during adolescence and young adulthood. The pain, typically felt in the lower abdomen and characterized by sharp, cramping sensations, may radiate to the lower back, groin, and thighs. Pain is often accompanied by physical symptoms such as nausea, vomiting, headache, fatigue, diarrhea, and sleep disturbances, as well as psychological symptoms such as anxiety, irritability, and mood swings. These symptoms can negatively impact women's daily activities, academic and professional performance, social participation, and quality of life.

Objective: The objective of this study is to examine the relationship between pain intensity, respiratory function, and stress levels in individuals with PD.

Method: A total of 48 individuals with PD (age: 21.77 ± 4.53 years; body mass index: 21.98 ± 4.06 kg/m^2) were included in the study. Pain severity was assessed using the "Pain Severity" subscale of the McGill Pain Questionnaire–Short Form. Pulmonary function was evaluated using a spirometer, while stress levels were assessed with the Perceived Stress Scale, which consists of two subscales: "Perceived Stress" and "Perceived Coping." Spearman correlation analysis was used for statistical evaluation.

Results: The findings revealed no significant association between pain severity and pulmonary function parameters (FEV1, FEV1/FVC, and PEF) in individuals with PD ($p > 0.05$). A moderate positive correlation was found between pain severity and the Perceived Stress subscale ($r = 0.488$, $p < 0.001$), as well as the total Perceived Stress Scale score ($r = 0.447$, $p = 0.001$). Additionally, a weak positive correlation was identified between pain severity and the Perceived Coping subscale ($r = 0.326$, $p = 0.024$).

Conclusion and Recommendations: The results of this study demonstrated that pain severity did not affect pulmonary function in individuals with PD. However, higher pain severity was associated with increased perceived stress levels. These findings suggest that the assessment of individuals with PD should consider not only pain severity but also stress levels. Therefore, adopting a multidisciplinary approach in the management of primary dysmenorrhea may be beneficial. Interventions aimed at reducing stress, such as breathing exercises, aerobic exercise, yoga, and Pilates, may be incorporated into treatment programs. Furthermore, studies with larger sample sizes may provide a clearer understanding of the temporal changes and potential causal relationship between pain and stress. Although no significant association was found between pain severity and basic pulmonary function parameters in the present study, future research should investigate more detailed respiratory parameters, including breathing patterns and dysfunctional breathing.

Keywords: Pain, Primary Dysmenorrhea, Pulmonary Function Test, Stress

AKNE VULGARİS'Lİ KADIN HASTALARDA GPER-1 DÜZEYLERİ

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Özet

Akne vulgaris kronik inflamatuvar bir deri hastalığı olup küresel prevalansının %9,4 olduğu edilmekte ve dünya çapında en yaygın 8. hastalık olarak sıralanmaktadır. Akne patogenezi multifaktöriyal olup, androjenlerin rolü bilinmesine karşın östrojen ve reseptörlerinin rolü henüz netleştirilmemiştir. G protein-bağlı östrojen reseptör-1 (GPER-1), yeni keşfedilen bir östrojen reseptörüdür ve proinflamatuar mekanizmaların işlevlerini düzenlemede kritik bir role sahip olabileceğine dair veriler mevcuttur. Akne vulgaris her iki cinste de sık görülen bir deri hastalığı olmasına rağmen, bugüne kadar akne patofizyolojisinde GPER-1 ile ilgili bir çalışma yapılmamıştır. İlk kez yapılan bu çalışmada, Akne vulgaris'li kadın olgularda GPER-1 düzeylerinin akne oluşumuna etkisinin değerlendirilmesi amaçlanmıştır. Çalışmamızın örneklemini; KSÜ Dermatoloji polikliniğine başvuran, klinik olarak yeni Akne Vulgaris tanısı almış ancak henüz tedaviye başlanmamış 13-31 yaş aralığındaki gönüllü kadın hastalar (n=55) ile sağlıklı kontrol grubu (n=55) olmak üzere toplam 110 olgu oluşturmaktadır. Katılımcıların antropometrik ölçümleri kaydedilerek vücut kitle indeksleri (VKİ [kg/m²]) hesaplanmıştır. Olguların testosteron, estradiol, prolaktin, lütienleştirici hormon (LH), folikül-uyarıcı hormon (FSH) ve GPER-1 serum düzeyleri, ticari kitler kullanılarak ELISA yöntemiyle ölçülmüştür. Bulgularımıza göre, çalışma ve kontrol grupları arasındaki VKİ değerleri yönünden fark istatistiksel olarak anlamlı bulunmamıştır ($p = 0,059$). Her iki grup arasında testosteron, estradiol, prolaktin, FSH ve LH serum düzeylerinin ise anlamlı derecede farklı olduğu gözlenmiştir ($p<0,05$). İlaveten, GPER-1 düzeylerinin, özellikle klinik açıdan şiddetli seyreden akneli hastalarda belirgin şekilde yüksek olduğu saptanmıştır ($p<0,05$). Artmış GPER-1 düzeyleri, sebosit aktivitesini çeşitli hücresel yollarla etkileyerek akne patogenezinde rol oynamış olabilir. Bu durum, yakın gelecekte akne tedavisinde GPER-1 antagonistlerinin yeni bir terapötik hedef olarak kullanılabileceğine işaret etmektedir.

Anahtar Kelimeler: GPER-1, Akne Vulgaris, Estradiol.

GPER-1 LEVELS IN FEMALE PATIENTS WITH ACNE VULGARIS

Abstract

Acne vulgaris is a chronic inflammatory skin disease with an estimated global prevalence of 9.4%, ranking among the eight most common diseases worldwide. While the role of androgens in acne pathogenesis is well established, the contribution of estrogens and their receptors remains incompletely defined. G protein-coupled estrogen receptor-1 (GPER-1) is a more recently characterized estrogen receptor; accumulating evidence suggests it may critically regulate pro-inflammatory pathways. Although acne vulgaris commonly affects both sexes, to our knowledge no study has evaluated the

potential role of GPER-1 in acne pathophysiology. This first-of-its-kind study aimed to assess whether circulating GPER-1 levels are associated with acne development in female patients with acne vulgaris. We enrolled 110 participants: treatment-naïve female patients aged 13–31 years with a new clinical diagnosis of acne vulgaris (n = 55) and age-matched healthy controls (n = 55) presenting to the Dermatology Outpatient Clinic of Kahramanmaraş Sütçü İmam University. Anthropometrics were recorded and body mass index (BMI, kg/m²) calculated. Serum testosterone, estradiol, prolactin, luteinizing hormone (LH), follicle-stimulating hormone (FSH), and GPER-1 were measured using commercially available ELISA kits. BMI did not differ significantly between groups ($p = 0.059$). In contrast, serum testosterone, estradiol, prolactin, FSH, and LH levels differed significantly between the acne and control groups (all $p < 0.05$). Notably, GPER-1 concentrations were markedly elevated, particularly in patients with clinically severe acne ($p < 0.05$). Elevated GPER-1 may contribute to acne pathogenesis by modulating sebocyte activity through downstream signaling pathways. These findings suggest that GPER-1 antagonism could represent a potential therapeutic strategy for acne management pending confirmatory studies.

Key words: GPER-1, Acne vulgaris, Estradiol.

TIP ÖĞRENCİLERİNDE YAPAY ZEKÂ ENTEGRELİ ANATOMİ ÖĞRENİMİ ANKETİNİN GELİŞTİRİLMESİ VE ÖN DEĞERLENDİRİLMESİ

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Özet

Amaç: Yapay zekâ (YZ) araçları tıp öğrencileri tarafından güç kavramları açıklamak, ders içeriğini özetlemek, soru çözmek ve sınavlara hazırlanmak amacıyla giderek daha sık kullanılmaktadır. Bu araçlar anatomi öğrenimini destekleyebilse de doğrulukları ve eğitimde uygun biçimde kullanılmaları konusunda bazı kaygılar bulunmaktadır. Bu çalışmada, Yapay Zekâ Entegreli Anatomi Öğrenimi Anketi'nin (AI-AALQ) geliştirilmesi ve ilk uygulamadan elde edilen ön bulguların sunulması amaçlandı.

Yöntem: Kesitsel nitelikteki bu anket çalışmasına 122 tıp öğrencisi katıldı. AI-AALQ, beşli Likert ölçeğiyle değerlendirilen 20 maddeden oluştu ve Anlama, Verimlilik, Kalıcılık, Kaygılar ve Entegrasyon olmak üzere önerilen beş alanı kapsadı. Ek sorularla katılımcıların YZ araçlarına aşinalığı, daha önce resmi YZ eğitimi alıp almadıkları, kullanım sıklıkları ve amaçları ile anatomi sınav performansları değerlendirildi. Tanımlayıcı istatistikler hesaplandı ve ölçeğin ön iç tutarlılığı Cronbach alfa katsayısı kullanılarak incelendi. Alan puanları resmi eğitim ve YZ kullanım sıklığına göre karşılaştırıldı. Anatomi sınav performansı ile ilişkiler Spearman korelasyon analiziyle değerlendirildi. Çalışma için kurumsal araştırma etik kurulundan onay alındı (CHSUU.REC.2026-46).

Bulgular: Katılımcıların %94,3'ü YZ araçlarına aşina olduğunu, %80,5'i bu araçları sınav hazırlığında kullandığını ve %73,0'ı YZ'nin anatomi eğitimine entegre edilmesini desteklediğini belirtti. Ortalama puanlar Verimlilik (3,73), Anlama (3,58), Kalıcılık (3,56), Entegrasyon (3,51) ve Kaygılar (3,27) alanlarının tümünde nötr orta noktanın üzerindeydi. Önerilen alanların Cronbach alfa katsayıları 0,66 ile 0,83 arasında değişirken, 15 maddelik olumlu algı bileşiminin alfa katsayısı 0,92 idi. Resmi YZ eğitimi alan öğrencilerin Kaygılar ve Entegrasyon puanları eğitim almayanlardan daha yüksekti (her ikisi için $p=0,002$). Sık kullananlarda Anlama, Verimlilik ve Kalıcılık puanları daha yüksek bulundu (tümü için $p<0,001$); Entegrasyon puanı da yüksekti ($p=0,040$), ancak Kaygılar açısından anlamlı fark saptanmadı. Anatomi sınav performansı, YZ kullanım sıklığı ve yarar odaklı alanlarla pozitif korelasyon gösterirken ($\rho=0,21–0,36$; $p\leq0,020$), Kaygılar ile ilişkili değildi ($\rho=-0,02$; $p>0,05$).

Sonuç: AI-AALQ'nun ilk uygulaması, iç tutarlılığa ve eğitim ile kullanım örüntülerine bağlı farklılıklara ilişkin ön bilgi sağladı. Resmi eğitim, hem YZ entegrasyonuna destek hem de kaygılara yönelik farkındalıkla ilişkiliydi. Anketin yerleşik bir ölçüm aracı olarak kabul edilebilmesi için faktör yapısının, geçerliliğinin ve güvenilirliğinin daha büyük ve bağımsız örneklemlerde değerlendirilmesi gerekmektedir.

Anahtar Kelimeler: Yapay zekâ, anatomi eğitimi, tıp öğrencileri, anket geliştirme, eğitim teknolojisi.

DEVELOPMENT AND PRELIMINARY EVALUATION OF THE AI-INTEGRATED ANATOMY LEARNING QUESTIONNAIRE AMONG MEDICAL STUDENTS

Abstract

Background: Artificial intelligence (AI) tools are increasingly used by medical students to explain difficult concepts, summarise content, solve questions, and prepare for examinations. Although these tools may support anatomy learning, concerns remain about accuracy and appropriate educational use. This study aimed to develop the AI-Integrated Anatomy Learning Questionnaire (AI-AALQ) and report preliminary findings from its first application.

Methods: This cross-sectional study included 122 medical students. The AI-AALQ contained 20 items rated on a five-point Likert scale and covered five proposed domains: Understanding, Efficiency, Retention, Concerns, and Integration. Additional questions assessed AI familiarity, formal training, frequency and purposes of use, and anatomy examination performance. Descriptive statistics were calculated, and preliminary internal consistency was examined using Cronbach's alpha. Domain scores were compared by training and AI-use frequency. Associations with examination performance were assessed using Spearman's correlation. Ethical approval was obtained from the institutional research ethics committee (CHSUU.REC.2026-46).

Results: Overall, 94.3% of participants were familiar with AI tools, 80.5% had used them for examination preparation, and 73.0% supported their integration into anatomy education. Mean scores exceeded the neutral midpoint for Efficiency (3.73), Understanding (3.58), Retention (3.56), Integration (3.51), and Concerns (3.27). Cronbach's alpha coefficients ranged from 0.66 to 0.83 across the proposed domains; the 15-item positive-perception composite had an alpha of 0.92. Students with formal AI training had higher Concerns and Integration scores than untrained students ($p=0.002$ for both). Frequent users had higher Understanding, Efficiency, and Retention scores (all $p<0.001$) and a higher Integration score ($p=0.040$), while Concerns did not differ significantly. Anatomy examination performance correlated positively with AI-use frequency and the benefit-related domains ($\rho=0.21–0.36$, $p\leq0.020$), but not with Concerns ($\rho=-0.02$, $p>0.05$).

Conclusion: The initial application of the AI-AALQ provided preliminary information on internal consistency and on differences associated with training and usage patterns. Formal training was associated with both support for AI integration and awareness of concerns. Larger independent studies are required to examine factor structure, validity, and reliability before the questionnaire can be considered a fully established instrument.

Keywords: Artificial intelligence, anatomy education, medical students, questionnaire development, educational technology.

GLP-1 RESEPTÖRLERİNİN ANATOMİK DAĞILIMI VE NÖROBİYOLOJİK ETKİLEŞİM AĞI

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1. Giriş ve Stratejik Önem

Proglukagon gen ürünü olan ve postprandiyal olarak intestinal L hücrelerinden salgılanan 30 aminoasitlik bir inkretin hormonu olan glukagon benzeri peptid-1 (GLP-1), keşfinden ve inkretin etkisinin tanımlanmasından[1] sonra , intraserebroventriküler GLP- 1 uygulamasının kemirgenlerde iştahı baskıladığını gösteren çeşitli çalışmalar yayınlandı.[2] Geleneksel olarak glukoz bağımlı insülinotropik etkileriyle tanımlanan bu peptid, güncel kanıta dayalı tıp literatüründe çok daha geniş bir pleiotropik etki spektrumuna sahip stratejik bir modülatör olarak konumlanmaktadır.[3] Özellikle Alzheimer hastalığının (AH) "Tip 3 Diyabet" olarak sınıflandırılması merkezi sinir sistemi (SSS) ve metabolik sinyal yolağı arasındaki patofizyolojik kesişimin göstergesidir.[4] GLP-1 reseptör (GLP-1R) agonistlerinin nöroprotektif kapasitesi, glisemi regülasyonunu sağlamasına ek olarak oksidatif stresin azaltılması, nöroinflamasyonun baskılanması gibi doğrudan mekanizmalar üzerinden de gerçekleşmektedir.[5] Bu etkiler, reseptörlerin dokulardaki anatomik dağılım profili ile ilgilidir.

2. GLP-1 Reseptörlerinin Sistemik ve Kardiyak Dağılımı

GLP-1 reseptörleri, pankreas adacık hücreleri, akciğer dokusu, mide mukozası, böbrek ve karaciğer parankiması gibi metabolik odak noktalarında eksprese edilmektedir. Kardiyovasküler sistem üzerindeki reseptörler ise miyokardiyuma spesifik lokalizasyona sahiptir.[6]

Reseptörlerin Dağılım Profili:

- **Genel Sistemik Dağılım:** Pankreas (beta hücreleri), akciğer, mide, böbrek ve karaciğer.
- **Kardiyak Mikro-Anatomi:** Kardiyomiyositler, endokardiyum, mikrovasküler endotel ve aorta-tunica media düz kas hücreleri

Analitik Değerlendirme: GLP-1 reseptör agonistleri (GLP-1RA'lar), kan basıncını ve lipid düzeylerini düşürür, endotel fonksiyonunu iyileştirir ve damar duvarındaki inflamasyonu azaltarak ateroskleroz gelişimini yavaşlatır; böylece miyokard enfarktüsü, inme ve majör kardiyovasküler olay riskini azaltabilirler.[7] Ayrıca klinik çalışmalarda kardiyovasküler mortaliteyi düşürdükleri gösterilmiş olup, bu etkiler yalnızca glisemik kontrol ile değil, doğrudan kardiyoprotektif ve vasküloprotektif mekanizmalarla da ilişkilidir.[8] Kalpteki bu yerleşim, GLP-1R aktivasyonunun cAMP/PKA sinyal yolağı üzerinden miyokardiyal hasarı düzeltme, ROS üretimini azaltma ve anti-enflamatuvar yanıtları modüle etme kapasitesini açıklar. Tirzepatid gibi dual agonistlerin etkileri sadece GLP-1R ve GIP-R üzerinden değil, aynı zamanda hedef dışı (off-target) bir mekanizma ile **beta2\beta3-adrenerjik reseptörler** üzerinden de gerçekleşebilmektedir. Kardiyovasküler sistemdeki bu kapsamlı dağılım, SSS'deki karmaşık nöronal ağlar ile entegre bir biçimde çalışmaktadır.

3. Santral Sinir Sistemi (SSS) Lokasyonu ve Nöronal Network

SSS'de kognitif fonksiyonlardan otonom kontrole kadar geniş bir yelpazede görev yapan nöronlarda GLP-1 reseptörü yer alır. İnsan beyninde **neocortex ve striatum** dağılımı yaygınken diğer türlerde reseptör yoğunluğu beyin sapı ve area postrema'da kümelenmiştir. paraventricular nucleus (PVN), arcuate nucleus (ARC), dorsomedial hypothalamic nucleus (DMH) and central amygdala gibi otonomik kontrol merkezleri GLP-1'in yoğunlukla bulunduğu bölgelerdir.[9] SSS'de GLP-1, periferik L hücrelerinden salınan ve kan-beyin bariyerini geçen endojen hormon ve beyin sapındaki nucleus traktus solitarius'taki nöronlar tarafından sentezlenir.[10]

Fonksiyonel Nöroanatomik Bölgeler:

- **Hipotalamus:** Nucleus arcuatus, nucleus paraventricularis ve nucleus ventromedialis üzerinden iştah ve enerji homeostazı.
- **Beyin Sapı:** Nucleus tractus solitarius ve area postrema üzerinden vagal afferent uyarım.
- **Kognitif ve Limbik Alanlar:** Hipokampüs (öğrenme/hafıza), serebral korteks, amigdala ve bazal ganglionlar.
- **Ödül ve Duyusal Entegrasyon: Nukleus Accumbens** ve **Thalamus**.

4. Glial Hücrelerde Reseptör Varlığı ve Nöroinflamatuvar Etki

Glial hücrelerdeki GLP-1R ekspresyonu, nörodejeneratif süreçlere karşı oluşturulan "nöroprotektif koruma"nın hücresel temelidir. Aktivasyon sonrası tetiklenen cAMP/PKA yolağı, proinflamatuvar sitokin fırtınasını dindirmede önemli fonksiyona sahiptir.

Glial Modülasyon için mikroglial hücrelerdeki GLP-1R aktivasyonu, mikroglıaların proinflamatuvar M1 fenotipine dönüşümünü inhibe ederken, anti-inflamatuvar M2 fenotipini destekler. Ayrıca **NLRP3 inflamozom blokajı** ve amiloid plak fagositozunu artırarak nöroinflamatuvar hasarın sınırlanmasınız sağlar. **Astrositlerdeki** A1 tipi toksik astrosit transformasyonunu engeller. cAMP artışı üzerinden **BDNF (Beyin Türevli Nörotrofik Faktör)** ekspresyonunu uyararak sinaptik plastisiteyi ve nöronal sağkalımı destekler.[11]

Hücresel düzeydeki bu güçlü sinyalizasyonun klinik prezentasyonu için kullanılan GLP-1 reseptör agonistlerinin SSS penetrasyon düzeyi önemlidir.

5. Kan-Beyin Bariyeri Geçiş Oranları ve Farmakokinetik Değişkenlik

GLP-1 agonistlerinin klinik denemelerdeki heterojen sonuçları, kan-beyin bariyerine penetrasyon düzeyiyle doğrudan ilişkilidir.[12]

GLP-1 Reseptör Agonisti	Kan-Beyin Bariyeri Geçişi	Farmakokinetik Özellikler
Exenatide	Gösterilmiş	Küçük peptid yapısı nedeniyle santral sinir sistemine geçişi deneysel çalışmalarda gösterilmiştir.
Lixisenatide	Gösterilmiş	Preklinik çalışmalarda ölçülebilir beyin penetrasyonu bildirilmiştir.
Liraglutide	Orta düzeyde kanıt	Yüksek albumin bağlanma özelliği nedeniyle sınırlı penetrasyon, ancak preklinik çalışmalarda merkezi sinir sistemi üzerindeki etkileri destekleyen bulgular mevcuttur.
Semaglutide	Sınırlı	Doğrudan beyin penetrasyonunun düşük olduğu düşünülmekle birlikte santral etkileri çeşitli çalışmalarda bildirilmiştir.

Tablo 1: Bazı GLP-1 agonistlerinin kan-beyin bariyeri penetrasyon durumu

Analitik Bakış: Kan-beyin bariyeri penetrasyonu sınırlı olan Semaglutid gibi moleküllerin SSS etkilerinin bulunması, vagal afferentlerin uyarılması veya sirkumventriküler organlar (KBB'nin zayıf olduğu bölgeler) üzerinden sağlanan dolaylı sinyalizasyon ile açıklanabilir. Ancak Parkinson ve Alzheimer gibi doğrudan parankimal hasar içeren hastalıklarda, kan-beyin bariyerini etkili bir şekilde geçen moleküllerin seçilmesi daha güçlü bir biyolojik rasyonel sunmaktadır.

6. Sonuç ve Klinik Perspektif

Anatomik ve farmakokinetik veriler ışığında incelendiğinde GLP-1R agonistlerinin metabolik bir ajan olmasının yanında nöro-kardiyo protektif moleküller olduğu anlaşılmaktadır. Gelecekteki tedavi protokollerinde bu veriler ışığında şu 3 ana çıkarım önem arz edebilir

1. **Hassas Moleküler Seçim:** Nörodejeneratif ilerlemeyi hedefleyen tedavilerde, "class effect" varsayımı yerine, kan-beyin bariyerini geçme kapasitesi yüksek olan moleküller önceliklendirilmelidir.
2. **Dual ve Off-Target Sinerjisi:** Tirzepatid örneğindeki gibi, GLP-1/GIP aktivasyonu ile birlikte \beta-adrenerjik yolakları da etkileyebilen agonistlerin, çoklu patolojik süreçleri bir arada baskılama potansiyeli değerlendirilmelidir.
3. **Metabolik Stratifikasyon:** Klinik başarıyı artırmak için, özellikle insülin direnci ve metabolik disfonksiyonu belirgin olan "Tip 3 Diyabet" fenotipindeki hasta gruplarının biyobelirteç odaklı seçimi, kritik bir "hassas tıp" stratejisiyle gerçekleştirilmelidir.

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ANATOMICAL DISTRIBUTION AND NEUROBIOLOGICAL INTERACTION NETWORK OF GLP-1 RECEPTORS

1. Introduction and Clinical Relevance

Glucagon-like peptide-1 (GLP-1) is a 30-amino acid incretin hormone derived from the proglucagon gene and secreted postprandially by intestinal L-cells. Since its discovery and the characterization of its incretin effect[1], numerous experimental studies have shown that intracerebroventricular administration of GLP-1 suppresses appetite in rodents.[2] Although initially recognized for its glucose-dependent insulinotropic properties, GLP-1 is now known to exert a range of biological effects beyond glycemic regulation.[3] The concept of Alzheimer's disease (AD) as "Type 3 Diabetes" has further highlighted the relationship between metabolic dysfunction and neurodegeneration.4 In addition to improving glucose homeostasis, GLP-1 receptor (GLP-1R) agonists have been shown to reduce oxidative stress and neuroinflammation, mechanisms that may contribute to their neuroprotective effects.[5] These actions are closely related to the anatomical distribution of GLP-1 receptors throughout the body.

2. Systemic and Cardiac Distribution of GLP-1 Receptors

GLP-1 receptors are expressed in several metabolically active tissues, including pancreatic islets, the lungs, stomach, kidneys, and liver. Within the cardiovascular system, receptor expression has been identified in multiple cardiac and vascular structures.[6]

Receptor Distribution Profile

General Systemic Distribution; pancreatic β-cells, lungs, stomach, kidneys, liver

Cardiac Distribution; cardiomyocytes, endocardium, microvascular endothelium, smooth muscle cells of the aortic tunica media

Clinical Implications

GLP-1 receptor agonists have been reported to slow the progression of atherosclerosis through improvements in blood pressure, lipid metabolism, endothelial function, and vascular inflammation.

These effects contribute to reductions in the risk of myocardial infarction, stroke, and major adverse cardiovascular events.[7] Clinical studies have also demonstrated reductions in cardiovascular mortality, suggesting benefits that extend beyond glycemic control alone.[8] The presence of GLP-1 receptors within cardiac tissue may partly explain the observed reduction in reactive oxygen species (ROS), attenuation of inflammatory responses, and activation of intracellular signaling pathways such as cAMP/PKA. Recent evidence has also suggested that the effects of dual agonists, including tirzepatide, may involve mechanisms beyond GLP-1R and GIP-R activation, potentially including interactions with β2- and β3-adrenergic signaling pathways. These cardiovascular actions appear to function in parallel with central nervous system regulatory networks.

3. Central Nervous System Localization and Neuronal Networks

GLP-1 receptors are expressed in neuronal populations involved in cognitive, autonomic, and metabolic regulation. In the human brain, receptor expression has been identified in cortical and subcortical regions, whereas studies in other species have reported higher concentrations in the brainstem and area postrema. High levels of GLP-1 signaling have also been observed in autonomic regulatory centers, including the paraventricular nucleus (PVN), arcuate nucleus (ARC), dorsomedial hypothalamic nucleus (DMH), and central amygdala.[9] Within the central nervous system, GLP-1 is produced by neurons located in the nucleus tractus solitarius (NTS) and is also influenced by peripheral GLP-1 released from intestinal L-cells.[10]

Major Neuroanatomical Regions Involved in GLP-1 Signaling

Hypothalamus; arcuate nucleus, paraventricular nucleus, ventromedial nucleus, regulation of appetite and energy homeostasis

Brainstem; nucleus tractus solitarius, area postrema, vagal afferent signaling

Cognitive and Limbic Areas; hippocampus, cerebral cortex, amygdala, basal ganglia

Reward and Sensory Integration Centers; Nucleus accumbens, Thalamus

4. GLP-1 Receptors in Glial Cells and Their Role in Neuroinflammation

GLP-1 receptor expression in glial cells provides a mechanistic basis for many of the neuroprotective effects observed in experimental models of neurodegenerative disease. Activation of GLP-1R stimulates intracellular signaling pathways, particularly cAMP/PKA signaling, which contributes to the regulation of inflammatory responses.

In microglial cells, GLP-1R activation suppresses polarization toward the pro-inflammatory M1 phenotype while promoting the anti-inflammatory M2 phenotype. Experimental studies have further shown that GLP-1 signaling can inhibit activation of the NLRP3 inflammasome and enhance the clearance of amyloid plaques. In astrocytes, GLP-1R activation appears to reduce the formation of neurotoxic A1 astrocytes. Increased intracellular cAMP levels may also promote the expression of brain-derived neurotrophic factor (BDNF), thereby supporting neuronal survival and synaptic plasticity.[11]

The extent to which these cellular effects translate into clinical benefit may depend, at least in part, on the ability of individual GLP-1 receptor agonists to access the central nervous system.

5. Blood–Brain Barrier Permeability and Pharmacokinetic Considerations

Differences in blood–brain barrier (BBB) permeability have been proposed as one explanation for the variable neurological outcomes reported across studies of GLP-1 receptor agonists.[12]

GLP-1 Receptor Agonist	Evidence of CNS Exposure	Comments
Exenatide	Demonstrated	CNS exposure shown in experimental studies
Lixisenatide	Demonstrated	Measurable brain penetration reported in preclinical studies
Liraglutide	Moderate evidence	Due to its high albumin-binding properties, it shows limited central nervous system penetration; however, preclinical studies provide evidence of its effects on the central nervous system.
Semaglutide	Limited	Direct CNS penetration appears low, but central effects have been documented

Table 1. Blood–brain barrier penetration characteristics of selected GLP-1 receptor agonists.

Interpretation of Current Evidence

The neurological effects observed with agents exhibiting limited BBB penetration, such as semaglutide, may be mediated through indirect pathways, including activation of vagal afferents or signaling via circumventricular organs where the blood–brain barrier is naturally less restrictive. Nevertheless, in disorders characterized by direct neuronal injury and neurodegeneration, including Parkinson's disease and Alzheimer's disease, agents with greater CNS penetration may offer theoretical advantages that warrant further investigation.

6. Conclusion and Clinical Perspective

Current anatomical, pharmacological, and clinical evidence suggests that GLP-1 receptor agonists exert effects that extend beyond metabolic regulation. Their actions within both the cardiovascular system and the central nervous system have generated considerable interest regarding their potential role in cardiometabolic and neurodegenerative disorders.

Several considerations may be relevant for future therapeutic strategies:

1. Selection of Agents According to BBB Penetration: In disorders involving neurodegenerative progression, differences in CNS accessibility among GLP-1 receptor agonists should be considered rather than assuming uniform effects across the drug class.
2. Potential Advantages of Dual Receptor Agonism: The therapeutic potential of dual agonists such as tirzepatide, which may influence multiple signaling pathways in addition to GLP-1 and GIP receptor activation, requires further investigation.
3. Patient Stratification Based on Metabolic Status: Identifying patient populations with insulin resistance, metabolic dysfunction, or features consistent with the proposed "Type 3 Diabetes" phenotype may help optimize treatment selection and improve clinical outcomes.

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MEKANİK TRAVMAYA MARUZ KALAN ERİTROSİTLERDE NİTRİK OKSİTİN KORUYUCU ETKİSİ

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Özet

Amaç: Kan hücreleri, kardiyopulmoner bypass, yapay kalp ve kalp kapakçığı, dolaşım destekleme cihazları, hemodiyaliz ekipmanları gibi yapay ortamlarda büyük mekanik kuvvetlerin etkisinde kalırlar. Yüksek kayma gerilimi, türbülans, yabancı yüzeylere çarpma kanın yapay organlarla temasta olduğu durumlarda kaçınılmazdır ve hemolize neden olabilir. Bu çalışmada eritrositlerin mekanik travmaya maruz kalması sonucunda meydana gelen hemolizde Nitrik Oksit (NO) donörünün olası koruyucu etkilerinin araştırılması planlanmıştır.

Materyal ve Yöntem: Eritrosit süspansiyonları dolaşım sisteminin koşulları taklit etmek üzere yapılmış bir düzenek kullanılarak mekanik kuvvetlerin etkisinde bırakılmış ve kanın belirli bir akım ve basınç altında kapiller bir borudan geçmesi sağlanmıştır. Pompalama döngüsüne 15 dakika boyunca devam edilmiştir. Süre sonunda kan örneklerinden spekrofotometrik olarak hemoliz ölçümleri, NO ve RBC sayımı yapılmıştır.

Bulgular: Mekanik strese maruz kalan eritrosit süspansiyonunda beklendiği gibi hemoliz görülmeye başlamış ama NO'de anlamlı bir değişim gözlenmemiştir. Sodium nitroprusside (SNP) uygulanan grupta ise hemoliz oranında anlamlı bir azalma ve buna eşlik eden NO miktarında artış gözlenmiştir ($p<0.05$).

Sonuç: Ekstrakorporeal dolaşımda çeşitli nedenlerle mekanik kuvvetlerin etkisinde kalan ve bundan dolayı çeşitli seviyelerde hemolize uğrayan eritrositlerde NO aracılı bir korucu etki gözlenmiştir. NO'in bunu hangi fizyolojik yolakları kullanarak yaptığı daha sonraki çalışmalarda araştırılmalıdır.

Anahtar Kelimeler: Eritrosit; mekanik stress; hemoliz; nitrik oksit

PROTECTIVE EFFECT OF NITRIC OXIDE IN ERYTHROCYTES EXPOSED TO MECHANICAL TRAUMA

Abstract

Purpose: Blood cells are subjected to significant mechanical forces in artificial environments such as cardiopulmonary bypass, artificial hearts and heart valves, circulatory support devices, and hemodialysis equipment. High shear stress, turbulence, and impact with foreign surfaces are inevitable when blood comes into contact with artificial organs and can lead to hemolysis. This study aimed to investigate the potential protective effects of a nitric oxide (NO) donor against hemolysis resulting from mechanical trauma to erythrocytes.

Materials and Methods: Red blood cell suspensions were subjected to mechanical forces using a setup designed to mimic conditions in the circulatory system, and the blood sample was passed through a capillary tube under specific flow rates and pressures. The pumping cycle was continued for 15 minutes. At the end of the cycle, spectrophotometric measurements of hemolysis, NO levels, and RBC counts were performed on the blood samples.

Results: As expected, hemolysis began to occur in the erythrocyte suspension exposed to mechanical stress, but no significant change in NO levels was observed. In the group treated with sodium nitroprusside (SNP), however, a significant decrease in the hemolysis rate and a concomitant increase in NO levels were observed ($p < 0.05$).

Conclusion: A NO-mediated protective effect has been observed in erythrocytes that are exposed to mechanical forces for various reasons during extracorporeal circulation and consequently undergo hemolysis to varying degrees. The physiological pathways through which NO exerts this effect should be investigated in future studies.

Keywords: Erythrocyte; mechanical stress; hemolysis; nitric oxide

BAKTERİYEL METABOLİTLERDEN NÖRAL SİNYALLERE: VSL#3'ÜN BEYİN–BAĞIRSAK EKSENİ ÜZERİNDEKİ FARMAKODİNAMİK ETKİLERİ

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Özet

Bağırsak-beyin ekseni, gastrointestinal sistem ile merkezi sinir sistemi arasında nöral, endokrin, immün ve metabolik mekanizmalar aracılığıyla gerçekleşen çift yönlü bir iletişim ağıdır. Son yıllarda bağırsak mikrobiyotasının yalnızca gastrointestinal fonksiyonların düzenlenmesinde değil, aynı zamanda nörolojik ve psikiyatrik süreçlerin şekillenmesinde de önemli rol oynadığı ortaya konmuştur. Mikrobiyotadaki değişikliklerin depresyon, anksiyete ve otizm spektrum bozukluğu gibi çeşitli nöropsikiyatrik hastalıklarla ilişkili olduğunun gösterilmesi, psikobiyotik olarak tanımlanan probiyotiklere yönelik ilgiyi artırmıştır. Bu kapsamda, sekiz farklı bakteri suşundan oluşan yüksek yoğunluklu probiyotik preparat VSL#3, bağırsak-beyin ekseni üzerindeki çok yönlü etkileri nedeniyle dikkat çekmektedir. Bu sunumda, VSL#3'ün bağırsak-beyin ekseni üzerindeki farmakodinamik etkilerinin moleküler ve hücresel mekanizmalar temelinde değerlendirilmesi amaçlanmıştır. Mevcut literatür bulguları ve araştırma grubumuz tarafından yürütülen deneysel çalışmalar birlikte ele alınarak VSL#3'ün nöroprotektif ve nöromodülatör özellikleri incelenmiştir.

VSL#3 uygulaması sonrasında bağırsak lümeninde bulunan sindirilemeyen karbonhidratların bakteriyel fermantasyonu artmakta ve bunun sonucunda asetat, propiyonat ve bütirat gibi kısa zincirli yağ asitleri oluşmaktadır. Bu metabolitler, GPR41 ve GPR43 reseptörlerini aktive ederek bağışıklık yanıtının düzenlenmesine, inflamatuvar süreçlerin baskılanmasına ve bağırsak bariyer bütünlüğünün korunmasına katkı sağlamaktadır. Özellikle bütiratın kolonositler için temel enerji kaynağı olarak görev yapması ve sıkı bağlantı proteinlerinin ekspresyonunu artırması, bağırsak geçirgenliğinin azalmasında önemli rol oynamaktadır. Böylece bakteriyel endotoksinlerin sistemik dolaşıma geçişi sınırlandırılmakta ve nöroinflamasyonun gelişimi engellenmektedir.Bunun yanında VSL#3'ün nörotransmitter sistemleri üzerinde de etkili olduğu bildirilmektedir. Kısa zincirli yağ asitlerinin enterokromaffin hücreleri uyarması sonucunda serotonin sentezi artmakta, ayrıca glutamat-GABA dengesi düzenlenerek nöronal uyarılabilirlik kontrol altına alınmaktadır. Mikrobiyal metabolitler ve nörotransmitter aracılı sinyaller vagus siniri üzerinden merkezi sinir sistemine iletilmekte, böylece bağırsak ve beyin arasındaki iletişim güçlenmektedir. Ek olarak VSL#3'ün kan-beyin bariyerinin bütünlüğünü desteklediği, mikrogliyal aktivasyonu düzenlediği ve nöroinflamatuvar yanıtları azalttığı gösterilmiştir.

Araştırma grubumuz tarafından gerçekleştirilen deneysel çalışmalarda, VSL#3'ün depresyon modellerinde fluoksetin ve timokinon ile birlikte kullanıldığında sinerjistik etkiler gösterdiği belirlenmiştir. Ayrıca propiyonik asit ile oluşturulan deneysel otizm modelinde nöroinflamasyonu azalttığı ve belirgin nöroprotektif etkiler ortaya koyduğu gözlenmiştir.

Sonuç olarak VSL#3, yalnızca bağırsak mikrobiyotasını düzenleyen bir probiyotik değil, bağırsak-beyin ekseni boyunca metabolik, immünolojik ve nörokimyasal mekanizmaları etkileyen çok yönlü bir biyolojik modülatördür. Elde edilen bulgular, psikobiyotik temelli yaklaşımların nöropsikiyatrik ve nörogelişimsel hastalıkların tedavisinde önemli bir terapötik potansiyele sahip olduğunu göstermekte ve gelecekte mikrobiyota hedefli tedavi stratejilerinin önem kazanacağını düşündürmektedir.

Anahtar Kelimeler: VSL#3, bağırsak-beyin ekseni, psikobiyotik, nöroinflamasyon, nöroproteksiyon.

FROM BACTERIAL METABOLITES TO NEURAL SIGNALS: PHARMACODYNAMIC EFFECTS OF VSL#3 ON THE GUT–BRAIN AXIS

Abstract

The gut–brain axis represents a complex bidirectional communication network integrating neural, endocrine, immune, and metabolic signaling pathways between the gastrointestinal tract and the central nervous system. Increasing evidence suggests that alterations in gut microbiota composition may contribute to the pathophysiology of several neuropsychiatric and neurodevelopmental disorders, including depression, anxiety, and autism spectrum disorder. Consequently, psychobiotics have emerged as promising therapeutic agents capable of modulating brain function through microbiota-mediated mechanisms. Among these, VSL#3, a high-potency multi-strain probiotic formulation containing eight bacterial strains from the genera Lactobacillus, Bifidobacterium, and Streptococcus, has attracted considerable attention due to its broad spectrum of biological activities.

This presentation aims to summarize the pharmacodynamic mechanisms underlying the effects of VSL#3 on the gut–brain axis and to discuss its potential neuroprotective and neuromodulatory properties. Current evidence indicates that VSL#3 promotes the fermentation of non-digestible dietary carbohydrates, leading to increased production of short-chain fatty acids (SCFAs), primarily acetate, propionate, and butyrate. These metabolites act as signaling molecules through activation of free fatty acid receptors GPR41 and GPR43, resulting in modulation of immune responses, suppression of pro-inflammatory signaling pathways, and enhancement of intestinal barrier integrity. In addition, butyrate serves as a major energy source for colonocytes and contributes to the upregulation of tight junction proteins, thereby reducing intestinal permeability and limiting systemic exposure to bacterial endotoxins.

Beyond its local gastrointestinal effects, VSL#3 influences several neurochemical pathways involved in brain function. SCFA-mediated stimulation of enterochromaffin cells promotes serotonin biosynthesis, while modulation of glutamate decarboxylase activity contributes to the maintenance of glutamate–GABA balance. Furthermore, microbial metabolites and neurotransmitter-related signals can activate vagal afferent pathways, facilitating rapid communication between the gut and central nervous system. Emerging evidence also suggests that VSL#3 supports blood–brain barrier integrity, regulates microglial activation, and attenuates neuroinflammatory responses associated with neuronal dysfunction.

In addition to literature findings, experimental studies conducted by our research group demonstrated beneficial effects of probiotic supplementation in animal models of depression and autism spectrum disorder. VSL#3 exhibited synergistic activity when combined with fluoxetine and thymoquinone in depression models and produced neuroprotective effects against propionic acid-induced neuropathological alterations in an experimental autism model.

Overall, VSL#3 appears to function as a multifaceted biological modulator capable of influencing metabolic, immunological, and neurochemical processes along the gut–brain axis. These findings support the growing therapeutic potential of psychobiotic interventions and highlight microbiota-targeted strategies as promising approaches for future neuropsychiatric and neurodevelopmental pharmacotherapy.

Keywords: VSL#3, gut–brain axis, psychobiotics, neuroinflammation, neuroprotection.

CYP1A1 RS4646421 POLİMORFİZMİ İLE MİDE KANSERİ ARASINDAKİ İLİŞKİNİN DEĞERLENDİRİLMESİ

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Özet

Mide kanseri, dünya genelinde kansere bağlı ölümlerin önde gelen nedenlerinden biri olmaya devam etmekte olup, patogenezinde çevresel ve genetik faktörlerin karmaşık etkileşimi rol oynamaktadır. Genetik belirleyiciler arasında, sitokrom P450 1A1 (CYP1A1) gibi ksenobiyotik metabolize edici enzimlerdeki polimorfizmler önemli ilgi görmektedir. CYP1A1, prokarsinojenlerin metabolik aktivasyonunda kritik bir rol oynamakta olup, bu gendeki varyasyonlar bireysel mide karsinogenezine yatkınlığı etkileyebilmektedir. CYP1A1 geni içerisinde yer alan rs4646421 polimorfizmi çeşitli kanser türlerinde araştırılmış olmakla birlikte, mide kanserindeki rolü henüz net olarak ortaya konulamamıştır.

Bu olgu-kontrol çalışmasında, CYP1A1 rs4646421 polimorfizmi ile mide kanseri riski arasındaki ilişki değerlendirilmiştir. Çalışmaya mide kanseri tanısı almış 45 hasta ve 45 sağlıklı kontrol dahil edilmiştir. Genotipleme standart moleküler yöntemler kullanılarak gerçekleştirilmiş, alel ve genotip frekansları gruplar arasında karşılaştırılmış ve istatistiksel analizler ile olası ilişkiler değerlendirilmiştir.

Elde edilen ön bulgular, incelenen popülasyonda CYP1A1 rs4646421 polimorfizmi ile mide kanseri riski arasında istatistiksel olarak anlamlı bir ilişki göstermemiştir ($p > 0.05$). Genotip dağılımlarının hasta ve kontrol grupları arasında benzer olduğu gözlenmiş olup, mevcut örneklem büyüklüğünde bu polimorfizmin hastalık yatkınlığına belirgin bir katkısı olmadığı düşünülmektedir.

Bununla birlikte, başlangıç analizinde anlamlı bir ilişki saptanmamış olsa da, sınırlı örneklem büyüklüğü çalışmanın istatistiksel gücünü azaltmış olabilir. Devam eden süreçte hasta ve kontrol sayısının 100'er bireye çıkarılması planlanmakta olup, bu sayede daha güçlü ve kesin sonuçlar elde edilmesi hedeflenmektedir. Ayrıca, CYP1A1 mRNA ekspresyon düzeylerinin değerlendirilmesi de planlanmakta olup, bu yaklaşımın mide karsinogenezindeki potansiyel rolünün daha iyi anlaşılmasına katkı sağlaması beklenmektedir.

Anahtar Kelimeler: Mide kanseri, CYP1A1, rs4646421, polimorfizm, genetik yatkınlık

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EVALUATION OF THE ASSOCIATION BETWEEN CYP1A1 RS4646421 POLYMORPHISM AND GASTRIC CANCER

Abstract

Gastric cancer remains one of the leading causes of cancer-related mortality worldwide, with both environmental and genetic factors contributing to its pathogenesis. Among genetic determinants, polymorphisms in xenobiotic-metabolizing enzymes such as cytochrome P450 1A1 (CYP1A1) have attracted considerable attention. CYP1A1 plays a crucial role in the metabolic activation of procarcinogens, and variations in this gene may influence individual susceptibility to gastric carcinogenesis. The rs4646421 polymorphism, located within the CYP1A1 gene, has been investigated in various cancers; however, its role in gastric cancer remains unclear.

In this case-control study, we evaluated the association between the CYP1A1 rs4646421 polymorphism and gastric cancer risk in a cohort of 45 patients diagnosed with gastric cancer and 45 healthy controls. Genotyping was performed using standard molecular techniques. Allele and genotype frequencies were compared between groups, and statistical analyses were conducted to determine potential associations.

Our preliminary findings did not reveal a statistically significant association between the CYP1A1 rs4646421 polymorphism and gastric cancer risk in the studied population ($p > 0.05$). Genotype distributions were comparable between patient and control groups, suggesting no evident contribution of this polymorphism to disease susceptibility at the current sample size.

Although no significant association was identified in this initial analysis, the limited sample size may have reduced the statistical power of the study. Ongoing efforts to expand both patient and control groups to 100 individuals each may provide more definitive insights. Further large-scale studies are warranted to clarify the potential role of CYP1A1 polymorphisms in gastric cancer susceptibility and to better understand their contribution to carcinogen metabolism and disease development. Moreover, planned analyses will include the investigation of CYP1A1 mRNA expression levels to better clarify its potential role in gastric carcinogenesis.

Keywords: Gastric cancer, CYP1A1, rs4646421, polymorphism, genetic susceptibility

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ROLE OF RS246395 POLYMORPHISM IN GASTRIC CANCER SUSCEPTIBILITY

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Abstract

Gastric cancer remains one of the leading causes of cancer-related mortality worldwide. Tumor progression and metastasis are strongly influenced by stromal interactions and angiogenesis. Platelet-derived growth factor receptor beta (PDGFR-β) plays an important role in the remodeling of the tumor microenvironment by supporting vascular stabilization through fibroblast activation and pericyte recruitment. Genetic variations in PDGFR-β may influence cancer susceptibility by modulating these pathways.

This study aimed to investigate the association between PDGFR-β rs246395 polymorphism and gastric cancer risk.

A total of 50 gastric cancer patients and 50 healthy controls were included in this preliminary case-control study. Genomic DNA was isolated from peripheral blood samples, and genotyping of the rs246395 polymorphism was performed using real-time PCR (qPCR). Genotype and allele frequencies were compared between groups using appropriate statistical analyses.

No statistically significant differences were observed between gastric cancer patients and healthy controls in terms of genotype and allele frequencies ($p > 0.05$).

Our preliminary findings suggest that PDGFR-β rs246395 polymorphism may not be associated with gastric cancer susceptibility. However, the study is ongoing with an increased sample size (target: 100 patients and 100 controls) to improve statistical power. In addition, future analyses will include evaluation of PDGFR-β mRNA expression levels to better understand its role in gastric tumorigenesis.

Keywords: Gastric cancer, PDGFR-β, polymorphism, rs246395, gene expression.

MIDE KANSERI YATKINLIĞINDA RS246395 POLIMORFIZMININ ROLÜ

Özet

Mide kanseri, dünya çapında kansere bağlı ölümlerin önde gelen nedenlerinden biri olmaya devam etmektedir. Tümör ilerlemesi ve metastazı, stromal etkileşimler ve anjiyogenezden büyük ölçüde etkilenmektedir. Trombosit kaynaklı büyüme faktörü reseptörü beta (PDGFR-β), fibroblast aktivasyonu ve perisit rekruitmanı yoluyla damar stabilizasyonunu destekleyerek tümör mikroçevresinin yeniden şekillenmesinde önemli bir rol oynar. PDGFR-β'deki genetik varyasyonlar, bu yolları modüle ederek kanser yatkınlığını etkileyebilir.

Bu çalışma, PDGFR-β rs246395 polimorfizmi ile mide kanseri riski arasındaki ilişkiyi araştırmayı amaçlamıştır. Bu ön çalışma niteliğindeki vaka-kontrol çalışmasına toplam 50 mide kanseri hastası ve 50 sağlıklı kontrol dahil edilmiştir. Genomik DNA, periferik kan örneklerinden izole edildi ve rs246395

polimorfizminin genotiplemesi gerçek zamanlı PCR (qPCR) kullanılarak gerçekleştirildi. Genotip ve alel frekansları, uygun istatistiksel analizler kullanılarak gruplar arasında karşılaştırıldı.

Mide kanseri hastaları ile sağlıklı kontroller arasında genotip ve alel frekansları açısından istatistiksel olarak anlamlı bir fark gözlenmedi ($p > 0,05$).

Ön bulgularımız, PDGFR-β rs246395 polimorfizminin mide kanseri yatkınlığı ile ilişkili olmayabileceğini düşündürmektedir. Bununla birlikte, istatistiksel gücü artırmak amacıyla çalışma daha geniş bir örneklem büyüklüğü (hedef: 100 hasta ve 100 kontrol) ile devam etmektedir. Ayrıca, gelecekteki analizlerde PDGFR-β mRNA ekspresyon düzeylerinin değerlendirilmesi planlanarak mide tümörigenezindeki rolünün daha iyi anlaşılması hedeflenmektedir.

Anahtar Kelimeler: Mide kanseri, PDGFR-β, polimorfizm, rs246395, gen ekspresyonu

AN ECO-FRIENDLY AND PERFORMANCE-ENHANCING APPROACH: EFFECTS OF PLANT-BASED PROTEIN SOURCES ON ATHLETIC PERFORMANCE

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Abstract

Introduction: Sustainable nutrition is a concept that is rapidly gaining significance for athletes in today's world, both in light of global environmental pressures and individual dietary policies. The shift between the types of protein sources can be impactful for populations with high protein requirements, such as elite athletes. In particular, the effects of plant-based protein sources on athletes' performance can be attributed to muscle synthesis and recovery. Even though plant-based diets and proteins offer these benefits, athletes are hesitant to adopt plant-based diets or consume plant-based protein due to concerns about protein adequacy and amino acid quality. **Aim**: The present review aims to evaluate the effects of plant-based protein sources on athletic performance in the light of current literature. **Method:** Studies published between 2015-2025 in the PubMed, Scopus, and Web of Science databases were identified using the keywords "plant-based protein," "muscle synthesis," "endurance performance," "strength and power performance," and "sustainable nutrition". **Results:** In a study comparing the intake of 24 grams of pea protein and whey protein, no significant difference in muscle strength was observed between the two groups ($p<0.05$). In a similar study, no significant difference in muscle strength was found between groups consuming 25 grams of pea protein and whey protein ($p<0.05$); in fact, equivalent levels of muscle hypertrophy were observed. Moreover, no significant difference in muscle strength was observed among 22 recreational athletes consuming plant-based proteins (quinoa, beans, tofu, lentils) and plant-based meat alternatives compared to those on an omnivorous diet ($p<0.05$); furthermore, no significant difference was observed in terms of strength performance ($p<0.05$). **Conclusion:** Well-planned dietary models containing sufficient amounts of plant-based protein not only support athletes' muscle development and athletic performance but also contribute positively to ecological sustainability. Dietitians and health professionals are encouraged to consider plant-based protein strategies as a practical and sustainable alternative, as part of personalized nutrition plans for athletes.

Keywords: Athletic performance; endurance performance; muscle protein synthesis; plant-based protein; sustainable nutrition

MENOPOZ SONRASI KADINLARDA MİKROBİYOTA-ÖSTROJEN ETKİLEŞİMİ

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Özet

Menopoz tanım olarak yumurtalık foliküler aktivitesinin kaybını takiben adet döngülerinin kalıcı olarak sona ermesidir. Menopoz sonrası görülen hipoöstrojenizm sağlık üzerinde çeşitli etkilere sahiptir (1). Örneğin çeşitli kronik hastalıkların riski ve görülme sıklığı artmaktadır. Bunlar kardiyovasküler hastalıklar, tümörler, insülin direnci, tip 2 diyabet ve osteoporozdur. Hastalıkların riski yaşam tarzı değişiklikleriyle azaltılabilir (2). Östrojen değişiklikleri ve etkileri üzerinde yapılan çalışmalar bağırsak mikrobiyotasının östrojenle ilişkili olabileceğini göstermiştir (3). Östrojen metabolizmasında rol oynayan gen ve enzimleri içeren bağırsak mikrobiyotası (estrobolome), β-glukuronidaz enzimi aracılığıyla inaktif halde bulunan östrojenleri yeniden aktif hale getirebilir. Bu durum, bağırsaklardan geri emilen serbest östrojen miktarını artırarak dolaşımdaki östrojen düzeylerinin yükselmesine katkıda bulunur. Artan serbest östrojenler, reseptörlerine bağlanarak kemik ve kardiyovasküler sistem başta olmak üzere çeşitli dokularda östrojen reseptör aracılı etkiler gösterebilir (3). Alternatif olarak estrobolome, disbiyoz nedeniyle azalabilir ve sonuç olarak dolaşımdaki aktif estradiol metabolitlerinin daha fazla kaybına yol açabilir (4). Bu durum aynı zamanda mikrobiyota bileşiminin bazı menopozla ilgili klinik durumların başlangıcını veya ilerlemesini belirleyebileceğini düşündürmektedir (4). Bağırsak mikrobiyotasının bileşimi ve fonksiyonu beslenme faktörlerinden önemli ölçüde etkilenmektedir. Diyet lifi, prebiyotikler, probiyotikler ve fitoöstrojenlerden zengin beslenme modellerinin mikrobiyota çeşitliliğini artırarak bağırsak sağlığını desteklediği ve östrojen metabolizmasını olumlu yönde etkileyebileceği bildirilmektedir (5). Bu derlemenin amacı menopoz sonrası kadınlarda bağırsak mikrobiyotası ile östrojen metabolizması arasındaki çift yönlü ilişkiyi ve bunun sağlık sonuçları üzerindeki etkilerini güncel literatür ışığında değerlendirmektir. Çalışmanın kaynakları PubMed ve Google Scholar veri tabanlarında 2015–2025 yılları arasında yayımlanan çalışmalar "menopause", "gut microbiota", "estrobolome", "estrogen metabolism" anahtar kelimeleri kullanılarak taranmıştır. Bu derleme meta-analiz, sistematik derleme ve kesitsel araştırma türündeki yayınların incelenmesi ve sentezlenmesiyle hazırlanmıştır. Sonuç olarak, menopoz sonrası östrojen azalması bağırsak mikrobiyotasını etkilerken, mikrobiyota değişiklikleri de östrojen metabolizmasını modüle ederek kardiyometabolik hastalıklar, osteoporoz ve sistemik inflamasyon üzerinde etkili olabilmektedir.

Mikrobiyota hedefli beslenme yaklaşımları menopoz sonrası sağlık sonuçlarının iyileştirilmesinde potansiyel bir strateji olarak değerlendirilmektedir (6,7).

Anahtar Kelimeler: Menopoz, Bağırsak Mikrobiyotası, Estrobolome.

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MİCROBİOTA-ESTROGEN INTERACTİON İN POSTMENOPAUSAL WOMEN

Abstract:

Menopause, by definition, is the permanent cessation of menstrual cycles following the loss of ovarian follicular activity. Hypoestrogenism observed after menopause has various effects on health (1). For example, the risk and prevalence of various chronic diseases are increasing. These include cardiovascular diseases, tumors, insulin resistance, type 2 diabetes, and osteoporosis. The risk of diseases can be reduced through lifestyle changes (2). Studies on estrogen changes and their effects have shown that the gut microbiota may be related to estrogen (3). The intestinal microbiota (estrobolome), which contains genes and enzymes involved in estrogen metabolism, can reactivate estrogens that are in an inactive state through the enzyme β-glucuronidase. This condition contributes to increased circulating estrogen levels by increasing the amount of free estrogen reabsorbed from the intestines. Increased free estrogens can exert estrogen receptor-mediated effects in various tissues, particularly the bone and cardiovascular system, by binding to their receptors (3). Alternatively, estrobolome may decrease due to dysbiosis, consequently leading to further loss of circulating active estradiol metabolites (4). This finding also suggests that the microbiota composition may determine the onset or progression of certain menopause-related clinical conditions (4). The composition and function of the gut microbiota is significantly influenced by dietary factors.Dietary fiber, prebiotics, probiotics and dietary patterns rich in phytoestrogens are reported to support intestinal health by increasing the diversity of microbiota and may positively affect estrogen metabolism (5).The aim of this review is to evaluate the bidirectional relationship between the intestinal microbiota and estrogen metabolism in postmenopausal women and its effects on health outcomes in the light of current literature. Sources of the study Studies published Decently in PubMed and Google Scholar databases between 2015-2025 were scanned using the keywords "menopause", "gut microbiota", "estrobolome", "estrogen metabolism". This compilation was prepared by reviewing and synthesizing publications in the forms of meta-analysis, systematic review, and cross-sectional research. As a result of decreased estrogen after menopause affects the intestinal mikrobiyota while estrogen metabolism also changes by the module mikrobiyot cardiometabolic diseases, osteoporosis, and systemic inflammation may have an effect on. Microbiota-targeted approaches are being considered as a potential strategy for improving postmenopausal health outcomes (6,7).

Keywords: Menopause, Gut Microbiota, Estrobolome.

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TİP 2 DİYABETLİ BİREYLERDE DİJİTAL SAĞLIK UYGULAMALARININ VE TELEHEMŞİRELİĞİN GLİSEMİK KONTROL VE ÖZ BAKIM GÜCÜNE ETKİSİ

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Özet

Giriş: Tip 2 Diabetes Mellitus (T2DM), yaşam boyu proaktif ve multidisipliner bir yönetim gerektiren, mikrovasküler ve makrovasküler komplikasyon riskleri nedeniyle küresel sağlık sistemleri üzerinde ciddi sosyoekonomik yük oluşturan kronik bir metabolik hastalıktır. Diyabet yönetiminin temelini, hastanın öz bakım gücü, tedavi uyumu ve hedef klinik çıktı olan optimal glisemik kontrol oluşturmaktadır. Gelişen dijital sağlık teknolojileri, akıllı telefon uygulamaları, giyilebilir teknolojik cihazlar ve uzaktan hemşirelik izlemleri (tele-hemşirelik), bu kronik süreçte geleneksel yüz yüze bakım yöntemlerine yenilikçi, maliyet-etkin ve erişilebilir alternatifler sunmaktadır. Ancak, dijital sağlık araçları ile yapılandırılmış tele-hemşirelik müdahalelerinin hastaların öz bakım gücü, öz-yeterlilik inançları ve metabolik parametreleri üzerindeki birleşik ve sinerjik etkisinin kanıta dayalı olarak sistematik bir şekilde ortaya konması gerekmektedir. **Amaç:** Bu sistematik derlemenin amacı, T2DM'li bireylerde dijital sağlık uygulamaları ve tele-hemşirelik müdahalelerinin glisemik kontrol (HbA1c, FBS), beden kitle indeksi (BKİ) ve öz bakım gücü (öz-yeterlilik, öz bakım becerileri) üzerindeki spesifik etkisini inceleyen güncel, ulusal ve uluslararası kanıtları sistematik olarak değerlendirmek ve sentelemektir. **Yöntem:** Derleme kapsamında, ilgili uluslararası ve ulusal veri tabanları (PubMed, ScienceDirect, CINAHL, Google Akademik ve TR Dizin) belirlenen tıbbi konu başlıkları (MeSH) ve "Type 2 Diabetes", "Telenursing", "Digital Health", "Self-Care Agency", "Glycemic Control" anahtar kelime kombinasyonları kullanılarak taranmıştır. Taramada; son yıllarda yayımlanmış, tam metnine ulaşılabilen, doğrudan tele-hemşirelik izlemi, dijital sağlık koçluğu veya mobil uygulama tabanlı müdahale içeren randomize kontrollü çalışmalar (RKÇ) ve yarı deneysel tasarıma sahip araştırmalar dahil edilme kriteri olarak belirlenmiştir. Metodolojik kaliteleri Cochrane risk değerlendirme kriterleri yönünden incelenen ve dahil edilme kriterlerine tam uyum sağlayan 8 orijinal araştırma makalesi nitel senteze dahil edilmiştir. **Bulgular:** İnceleme kapsamına alınan kanıtlarda; telefon tabanlı tele-hemşirelik izlemlerinin, kısa mesaj (SMS) hatırlatıcılarının, EMR (Elektronik Tıbbi Kayıt) entegre akıllı telefon uygulamalarının (iCareD vb.) ve sürekli glikoz izlem (CGM) sistemlerinin glisemik profiller üzerinde yüksek klinik etkinliğe sahip olduğu saptanmıştır. Planlı tele-hemşirelik desteği ve uzaktan takibin, hastaların HbA1c ve açlık kan şekeri (FBS) düzeylerinde kontrol gruplarına göre istatistiksel olarak anlamlı, klinik olarak fark edilebilir ve sürdürülebilir düşüşler sağladığı görülmüştür. Özellikle tele-hemşirelik aracılığıyla yürütülen motivasyonel görüşmeler ve güçlendirme (empowerment) programlarının, hastaların diyabete özgü öz-yeterlilik (DMSES) skorlarını, insülin hazırlama/enjeksiyonu ve glikoz testi gibi pratik medikal öz bakım becerilerini çok güçlü bir şekilde artırdığı belirlenmiştir. Ayrıca bu dijital müdahalelerin, okuryazarlık seviyesi düşük veya yaşlı popülasyonlarda dahi tedavi uyumunu artırdığı, kilo yönetimi (BKİ düşüşü), yaşam tarzı değişiklikleri ve genel tedavi memnuniyeti çıktılarını pozitif yönde desteklediği bulunmuştur. **Sonuç:** Bu sistematik derlemenin sonuçları, güncel kanıtlar doğrultusunda, dijital sağlık uygulamaları ve düzenli tele-hemşirelik takibinin klinik çıktıları iyileştirmede, metabolik kontrolü sağlamada ve bireylerin öz bakım gücü ile becerilerini artırmada son derece etkili, güvenli ve sürdürülebilir bir strateji olduğunu göstermektedir. Yenilikçi uzaktan hemşirelik bakım modellerinin ve dijital sağlık izlem sistemlerinin

geleneksel diyabet yönetim şemalarına ve birinci basamak sağlık hizmetlerine sistematik olarak entegre edilmesi önerilmektedir.

Anahtar Kelimeler: Tip 2 Diyabet, Tele-hemşirelik, Dijital Sağlık, Öz Bakım Gücü, Glisemik Kontrol.

THE EFFECT OF DIGITAL HEALTH APPLICATIONS AND TELE-NURSING ON GLYCEMIC CONTROL AND SELF-CARE AGENCY IN INDIVIDUALS WITH TYPE 2 DIABETES

Abstract

Introduction: Type 2 Diabetes Mellitus (T2DM) is a progressive, chronic metabolic disorder that requires lifelong proactive, multidisciplinary management and imposes profound socioeconomic burdens on global healthcare systems due to its associated microvascular and macrovascular complications. The cornerstone of effective long-term diabetes care relies heavily on enhancing the patient's self-care agency, treatment adherence, and achieving optimal glycemic control as the primary clinical outcome. Rapidly evolving digital health technologies, smart mobile applications, wearable devices, and remote nursing surveillance (telenursing) offer innovative, cost-effective, and highly accessible alternatives to traditional face-to-face care modalities. However, there remains a critical need to systematically evaluate the evidence regarding the combined and synergistic impacts of digital health tools and structured telenursing interventions on patients' self-care agency, self-efficacy beliefs, and metabolic parameters. **Objective:** The objective of this systematic review was to comprehensively evaluate and synthesize national and international contemporary evidence regarding the specific impacts of digital health applications and telenursing interventions on glycemic control (HbA1c, FBS), body mass index (BMI), and self-care agency (encompassing self-efficacy and practical self-care skills) among individuals diagnosed with Type 2 Diabetes. **Methodology:** A rigorous literature search was conducted across major electronic databases, including PubMed, ScienceDirect, CINAHL, Google Scholar, and the TR Dizin registry, utilizing targeted Medical Subject Headings (MeSH) and specific keyword combinations such as "Type 2 Diabetes", "Telenursing", "Digital Health", "Self-Care Agency", and "Glycemic Control". The inclusion criteria restricted selection to recent, peer-reviewed, full-text randomized controlled trials (RCTs) and quasi-experimental studies featuring direct telenursing monitoring, digital health coaching, or mobile application-based interventions. Methodological quality was evaluated using Cochrane risk of bias criteria, and eight original research articles meeting all strict eligibility criteria were included in the final qualitative synthesis. **Results:** The synthesized data from the reviewed evidence demonstrated that telephone-based telenursing follow-ups, short message service (SMS) reminders, Electronic Medical Record (EMR)-integrated smartphone applications (such as the iCareD system), and continuous glucose monitoring (CGM) systems are highly effective modalities in managing glycemic profiles. Structured telemonitoring combined with consistent telenursing support yielded statistically significant, clinically relevant, and sustainable reductions in patients' HbA1c and fasting blood sugar (FBS) levels compared to control groups receiving standard routine care. Furthermore, telenursing-led motivational interviewing and structured empowerment programs significantly enhanced patients' diabetes-specific self-efficacy (DMSES) scores, advanced practical medical self-care skills (such as precise insulin preparation/injection and urine/blood glucose testing), and remarkably improved lifestyle modifications. These technological interventions supported treatment adherence, structured weight management (BMI reduction), and overall treatment satisfaction, even among older adults or low-literacy populations. **Conclusion:** The findings of this systematic review, grounded in contemporary evidence, firmly indicate that the integration of digital health applications and regular telenursing surveillance constitutes an effective, safe, and sustainable strategy for improving clinical outcomes, maintaining metabolic control, and fostering robust self-care agency and operational skills in patients with Type 2 Diabetes. It is highly recommended to systematically incorporate these

innovative remote nursing care models and digital monitoring frameworks into conventional diabetes management systems and primary healthcare delivery networks.

Keywords: Type 2 Diabetes, Telenursing, Digital Health, Glycemic Control, Self-Care Agency

GENÇ KADINLARDA BESLENME OKURYAZARLIĞI VE İLİŞKİLİ FAKTÖRLER

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Özet

Son yıllarda özellikle kadın genç yetişkin popülasyonunda sağlıksız beslenme davranışları ve beden algısına ilişkin memnuniyetsizlik önemli bir halk sağlığı sorunu olarak öne çıkmaktadır. Besin okuryazarlığı, bireylerin beslenme ile ilgili bilgiye ulaşma, bu bilgiyi anlama, değerlendirme ve günlük yaşamlarına entegre etme becerilerini ifade etmektedir. Beden algısı ise bireyin kendi vücudunu algılama biçimi, bedeniyle ilgili düşünceleri ve memnuniyet düzeyini kapsayan çok boyutlu bir kavramdır. Bu iki kavram kadınların yaşam kalitesine ve mental sağlıklarına büyük ölçüde etki etmektedir. Bu çalışma, kadın üniversite öğrencilerinde besin okuryazarlığı düzeyi ile beden algısı arasındaki ilişkinin incelenmesi ve bu ilişkinin kişinin beslenme alışkanlıklarına etkisini incelemek amacıyla planlanmıştır. Araştırma kesitsel ve tanımlayıcı tipte olarak yürütülmüştür. Çalışmanın örneklemini bir öğrenci yurda ikamet eden kadın üniversite öğrencileri olarak seçilmiştir. Veri toplama sürecinde katılımcılara sosyodemografik bilgi formu uygulanmış, ayrıca besin okuryazarlığı düzeylerini belirlemek için Besin Okuryazarlığı Ölçeği ve beden algısını değerlendirmek için Stunkard Figür Derecelendirme Ölçeği kullanılmıştır. Katılımcıların yaş, cinsiyet, öğrenim gördükleri fakülte, sınıf düzeyi, boy ve vücut ağırlığı gibi değişkenleri de veri setine dahil edilerek elde edilen veriler istatistiksel programlar aracılığıyla analiz edilmiştir. Tanımlayıcı istatistikler kullanılarak katılımcıların genel özellikleri ortaya konulmuş, değişkenler arasındaki ilişkilerin değerlendirilmesinde korelasyon analizlerinden yararlanılmıştır. Ayrıca sosyodemografik değişkenlere göre besin okuryazarlığı ve beden algısı puanlarının farklılaşıp farklılaşmadığı uygun karşılaştırma testleri ile incelenmiştir. Bu çalışma, besin okuryazarlığı düzeyi ile beden algısı arasındaki olası ilişkinin ortaya konulması açısından önem taşımaktadır. Elde edilecek bulguların, kadın üniversite öğrencilerinde sağlıklı beslenme davranışlarının geliştirilmesi ve beden algısına yönelik farkındalık çalışmalarının planlanmasına katkı sağlaması beklenmektedir. Aynı zamanda beslenme eğitimi programlarının içeriklerinin geliştirilmesi ve genç yetişkinlerde sağlıklı yaşam davranışlarının desteklenmesine yönelik müdahale çalışmalarına bilimsel temel oluşturması beklenmektedir.

Anahtar Kelimeler: Beslenme okuryazarlığı, beden ağırlığı algısı, beden algısı, kadın sağlığı

NUTRITION LITERACY AND ASSOCIATED FACTORS IN YOUNG WOMEN

Abstract

In recent years, unhealthy eating behaviors and body image dissatisfaction among female young adult populations have emerged as an important public health issue. Nutritional literacy refers to individuals' ability to access, understand, evaluate, and integrate information related to nutrition into their daily lives. Body image, on the other hand, is a multidimensional concept that includes an individual's perception of their own body, their thoughts about their body, and their level of satisfaction with it. These two concepts affect a women's quality of life and their mental haelth significantly. This study was planned to examine the relationship between nutritional literacy level and body image among female university students and to investigate the effect of this relationship on individuals' eating habits. The research was conducted in a cross-sectional and descriptive design. The sample of the study consisted of female university students residing in a student dormitory. During the data collection process, a

sociodemographic information form was administered to the participants, and the Nutritional Literacy Scale was used to determine their nutritional literacy levels, while the Stunkard Figure Rating Scale was used to assess body image. Variables such as participants' age, gender, faculty of study, grade level, height, and body weight were also included in the dataset, and the obtained data were analyzed using statistical software. Descriptive statistics were used to present the general characteristics of the participants, and correlation analyses were used to evaluate the relationships between variables. In addition, appropriate comparison tests were used to examine whether nutritional literacy and body image scores differed according to sociodemographic variables. This study is important in terms of revealing the possible relationship between nutritional literacy level and body image. The findings are expected to contribute to the planning of awareness-raising activities for the development of healthy eating behaviors and body image among female university students. At the same time, it is expected to provide a scientific basis for improving the content of nutrition education programs and for intervention studies aimed at supporting healthy lifestyle behaviors in young adults.

Keywords: Nutritional literacy, body weight perception, body image, women's health.

YANIK HASTASINDA AMELİYAT ÖNCESİ ORAL KARBONHİDRAT YÜKLEMESİ

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Özet

Yanık yaralanmaları; belirgin hipermetabolizma, insülin direnci ve yoğun katabolizma ile karakterize, uzun süreli metabolik stres yanıtına neden olmaktadır. Geniş yüzeyli yanıklarda bazal metabolizma hızı normalin iki katına kadar yükselebilmekte; artan katekolamin, kortizol ve glukagon düzeyleri kas proteinlerinin yıkımını hızlandırarak azot dengesini bozmaktadır. Bu hastalarda ağrı, mide bulantısı ve gastrointestinal motilitenin azalması gibi nedenler besin alımını güçleştirmekte, artmış enerji ve protein gereksiniminin karşılanamaması doku iyileşmesini geciktirebilmektedir. Yanık hastaları debridman ve greftleme gibi tekrarlayan cerrahi girişimlere maruz kalmakta olup her cerrahi öncesinde uygulanan uzun açlık süreleri enerji depolarının tükenmesine ve kümülatif beslenme kaybına yol açarak mevcut katabolik durumu daha da ağırlaştırabilmektedir. Ameliyat Sonrası Gelişmiş İyileşme (Enhanced Recovery After Surgery, ERAS) protokolleri kapsamında ameliyat öncesi oral karbonhidrat yüklemesinde, elektif cerrahi hastalarına genellikle %12,5 maltodekstrin içeren izoozmolar bir içeceğin ameliyattan 2-3 saat önce verilmesi önerilmektedir. Düşük ozmolaritesi sayesinde hızlı gastrik boşalma sağlayan maltodekstrin, endojen insülin salınımını uyararak postoperatif insülin direncini ve hiperglisemi riskini azaltmayı, bağışıklık yanıtını destekleyerek enfeksiyon oranlarını düşürmeyi ve bulantı, susuzluk ile anksiyeteyi azaltarak hasta konforunu artırmayı amaçlamaktadır. Literatürde cerrahi tipi ve metabolik strese göre düşük doz (25-50 g) ve yüksek doz (>50 g, bölünmüş) uygulamalar tanımlanmakla birlikte, ERAS protokolleriyle birlikte pratik tek doz uygulama protokollerine geçiş gözlenmektedir. Amerikan Anesteziyologlar Derneği (American Society of Anesthesiologists, ASA), Avrupa Klinik Beslenme ve Metabolizma Derneği (European Society for Clinical Nutrition and Metabolism, ESPEN) ve Avrupa Anesteziyoloji ve Yoğun Bakım Derneği (European Society of Anaesthesiology and Intensive Care, ESAIC) rehberleri, geleneksel uzun açlık kuralının çoğu hasta için ihtiyaç olmadığını vurgulamakta; karbonhidrattan zengin berrak sıvıların yetişkinlerde 2, pediatrik hastalarda 1 saat öncesine kadar güvenle tüketilebileceğini ifade etmektedir. Genel cerrahi popülasyonlarında preoperatif karbonhidrat yüklemesinin insülin direncini azalttığı, hasta konforunu iyileştirdiği, gastrointestinal fonksiyonların geri dönüşünü hızlandırdığı ve bazı çalışmalarda hastanede kalış süresini kısalttığı gösterilmiştir; ancak yanık hastalarına özgü doğrudan kanıt sınırlıdır. Pediatrik yanık hastalarında gerçekleştirilen ilk prospektif karşılaştırmalı çalışmada, hipermetabolik durum varlığında dahi gastrik boşalmanın korunduğu, kısaltılmış açlık protokolünün aspirasyon güvenliği sınırları içinde kaldığı ve preoperatif konforu artırdığı bildirilmiştir. Mevcut fizyopatolojik bilgiler ve dolaylı klinik veriler bu uygulamanın yanık hastalarında da potansiyel fayda sağlayabileceğine işaret etmekle birlikte güvenlik ve etkinliğin değerlendirilebilmesi için yanık hastalarına yönelik randomize kontrollü çalışmalara ihtiyaç vardır. Bu süreçte diyetisyen; beslenme durumunun değerlendirilmesi, uygun karbonhidrat solüsyonunun seçimi, glisemik takip ve perioperatif beslenme planının bütüncül yönetimi açısından multidisipliner ekibin anahtar bir üyesidir. Uygulamanın yanık cerrahisine özgü

iyileşme protokollerine (ERABS) entegrasyonu, klinik uygulamaya ve hasta bakımına önemli katkılar sağlayabilecektir.

Anahtar Kelimeler: Yanık, Preoperatif bakım, İnsülin direnci, Karbonhidrat yüklemesi, Perioperatif beslenme

PREOPERATIVE ORAL CARBOHYDRATE LOADING IN BURN PATIENTS

Abstract

Burn injuries cause a prolonged metabolic stress response characterized by marked hypermetabolism, insulin resistance, and intense catabolism. In extensive burns, the basal metabolic rate may rise up to twice the normal level, and elevated catecholamine, cortisol, and glucagon concentrations accelerate muscle protein breakdown and disrupt nitrogen balance. In these patients, factors such as pain, nausea, and reduced gastrointestinal motility impair nutritional intake, and failure to meet the increased energy and protein requirements may delay tissue healing. Burn patients undergo repeated surgical interventions such as debridement and grafting, and the prolonged fasting periods applied before each procedure may deplete energy stores and cause cumulative nutritional loss, further aggravating the existing catabolic state. Within the scope of Enhanced Recovery After Surgery (ERAS) protocols, preoperative oral carbohydrate loading is generally recommended as an iso-osmolar beverage containing 12.5% maltodextrin administered 2-3 hours before surgery in elective surgical patients. By providing rapid gastric emptying owing to its low osmolality, maltodextrin stimulates endogenous insulin secretion and thereby aims to reduce postoperative insulin resistance and the risk of hyperglycemia, to lower infection rates by supporting the immune response, and to improve patient comfort by alleviating nausea, thirst, and anxiety. Although low-dose (25-50 g) and high-dose (>50 g, divided) regimens are described in the literature according to the type of surgery and the degree of metabolic stress, a transition toward practical single-dose protocols has been observed together with ERAS. The guidelines of the American Society of Anesthesiologists (ASA), the European Society for Clinical Nutrition and Metabolism (ESPEN), and the European Society of Anaesthesiology and Intensive Care (ESAIC) emphasize that the traditional prolonged fasting rule is unnecessary for most patients and state that carbohydrate-rich clear fluids may be safely consumed up to 2 hours before surgery in adults and up to 1 hour in pediatric patients. In general surgical populations, preoperative carbohydrate loading has been shown to reduce insulin resistance, improve patient comfort, accelerate the return of gastrointestinal function, and, in some studies, shorten hospital stay; however, direct evidence specific to burn patients remains limited. The first prospective comparative study conducted in pediatric burn patients reported that gastric emptying was preserved even in the presence of a hypermetabolic state, that the shortened fasting protocol remained within aspiration safety limits, and that it improved preoperative comfort. Although current pathophysiological knowledge and indirect clinical data indicate that this practice may also provide potential benefit in burn patients, randomized controlled trials targeting burn patients are needed to evaluate its safety and efficacy. In this process, the dietitian is a key member of the multidisciplinary team in terms of assessing nutritional status, selecting the appropriate carbohydrate solution, glycemic monitoring, and the holistic management of the perioperative nutrition plan. Integrating this practice into burn surgery-specific recovery protocols (ERABS) may provide important contributions to clinical practice and patient care.

Keywords: Burn, Preoperative care, Insulin resistance, Dietary carbohydrate loading, Perioperative nutrition

ENDOMETRİUM KANSERİNDE HUB GENLERİN VE POTANSİYEL TERAPÖTİK HEDEFLERİN BELİRLENMESİ: GEO VE TCGA-UCEC VERİLERİNİN ENTEGRE BİYOİNFORMATİK ANALİZİ

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Özet

Endometrium kanseri, kadın genital sisteminin en sık görülen malignitelerinden biri olup son yıllarda insidansında belirgin bir artış gözlenmektedir. Hastaların büyük çoğunluğu erken evrede tanı almakta ve cerrahi tedavi ile başarılı sonuçlar elde edilmekle birlikte, ileri evre, yüksek dereceli ve rekürren olgularda prognoz önemli ölçüde kötüleşmektedir. Bu nedenle hastalığın moleküler mekanizmalarının daha iyi anlaşılması, yeni prognostik biyobelirteçlerin tanımlanması ve hedefe yönelik tedavi stratejilerinin geliştirilmesi büyük önem taşımaktadır. Bu çalışmada, Gene Expression Omnibus veri tabanında yer alan GSE17025 ve GSE115810 gen ekspresyon veri setlerinin entegre biyoinformatik analizi gerçekleştirilerek endometrium kanserinin patogenezinde rol oynayan diferansiyel eksprese genlerin, ilişkili biyolojik süreçlerin, sinyal yolaklarının ve potansiyel terapötik hedeflerin belirlenmesi amaçlandı. Veri setleri GEOquery paketi kullanılarak R ortamına aktarıldı; kalite kontrol işlemlerinin ardından log2 dönüşümü ve quantile normalizasyon uygulandı, farklı platformlardan kaynaklanan teknik varyasyonları ortadan kaldırmak amacıyla ComBat algoritması ile batch etkisi düzeltildi. Diferansiyel gen ekspresyon analizi limma yöntemi kullanılarak gerçekleştirildi ve $|\log2FC|\geq2$ ile düzeltilmiş $p<0,05$ anlamlılık kriteri olarak kabul edildi. Fonksiyonel zenginleştirme analizleri clusterProfiler paketi ile Gene Ontology biyolojik süreç ve moleküler fonksiyon kategorileri ile Kyoto Encyclopedia of Genes and Genomes yolakları düzeyinde gerçekleştirildi. Ayrıca Hallmark gen setlerinin değerlendirilmesi amacıyla fgsea tabanlı gen seti zenginleştirme analizi yapıldı. Protein-protein etkileşim ağı STRING veritabanı aracılığıyla oluşturuldu ve ağ topolojik özellikleri kullanılarak hub genler belirlendi. Elde edilen bulgular The Cancer Genome Atlas Uterine Corpus Endometrial Carcinoma kohortunda TCGAbiolinks ve DESeq2 paketleri kullanılarak doğrulandı; prognostik değerleri Kaplan–Meier sağkalım analizi ve Cox regresyon modelleri ile değerlendirildi. Analiz sonucunda endometrium kanseri ile ilişkili çok sayıda anlamlı diferansiyel eksprese gen saptandı. Gene Ontology analizlerinde hücre döngüsünün düzenlenmesi, mitotik hücre bölünmesi, DNA replikasyonu, kromozom segregasyonu ve proliferasyonla ilişkili süreçlerde belirgin zenginleşme gözlenirken, Kyoto Encyclopedia of Genes and Genomes analizlerinde PI3K/AKT/mTOR sinyal yolu, p53 sinyal yolu, hücre döngüsü kontrol mekanizmaları ve kanser gelişimiyle ilişkili yolakların anlamlı düzeyde zenginleştiği belirlendi. Protein-protein etkileşim ağı analizinde TP53, CDK1, CCNB1, MKI67, TOP2A, AURKA ve PTEN yüksek bağlantı derecesine sahip hub genler olarak tanımlandı. Gen seti zenginleştirme analizleri E2F Targets, G2M Checkpoint ve MYC Targets başta olmak üzere hücresel proliferasyon ve tümör progresyonu ile ilişkili gen setlerinde anlamlı pozitif zenginleşme olduğunu ortaya koydu. TCGA-UCEC doğrulama analizleri bu genlerin ekspresyon paternlerini desteklerken, sağkalım analizleri yüksek hub gen ekspresyonunun daha kötü klinik sonuçlar ve azalmış genel sağkalım ile ilişkili olduğunu gösterdi. Sonuç olarak, gerçekleştirilen entegre biyoinformatik analiz endometrium kanserinin moleküler patogenezinde rol oynayan kritik genleri ve temel sinyal yolaklarını ortaya koymuş, özellikle TP53, CDK1, CCNB1, MKI67, TOP2A, AURKA ve PTEN genlerinin prognostik biyobelirteç ve potansiyel terapötik hedef olarak önemini göstermiştir. Elde edilen bulgular, endometrium kanserinde moleküler temelli tanısal yaklaşımların geliştirilmesine ve yeni hedefe yönelik tedavi stratejilerinin belirlenmesine katkı sağlayabilecek niteliktedir.

Anahtar Kelimeler: Endometrium kanseri, biyoinformatik, hub genler, prognostik biyobelirteçler, hedefe yönelik tedavi.

IDENTIFICATION OF HUB GENES AND POTENTIAL THERAPEUTIC TARGETS IN ENDOMETRIAL CANCER: AN INTEGRATED BIOINFORMATICS ANALYSIS OF GEO AND TCGA-UCEC DATASETS

Abstract

Endometrial cancer is the most common malignancy of the female genital tract, and its incidence has increased substantially in recent years. Although most patients are diagnosed at an early stage and achieve favorable outcomes following surgical treatment, prognosis remains poor in advanced-stage, high-grade, and recurrent cases. Therefore, a better understanding of the molecular mechanisms underlying endometrial carcinogenesis is essential for the identification of novel prognostic biomarkers and the development of targeted therapeutic strategies. In this study, an integrated bioinformatics analysis of the GSE17025 and GSE115810 gene expression datasets obtained from the Gene Expression Omnibus database was performed to identify differentially expressed genes, associated biological processes, signaling pathways, and potential therapeutic targets involved in the pathogenesis of endometrial cancer. The datasets were imported into the R environment using the GEOquery package. Following quality control procedures, log2 transformation and quantile normalization were applied, and batch effects arising from different platforms were corrected using the ComBat algorithm. Differential gene expression analysis was conducted using the limma package, with |log2 fold change| ≥ 2 and adjusted p-value < 0.05 considered statistically significant. Functional enrichment analyses were performed using the clusterProfiler package at the Gene Ontology biological process and molecular function levels, as well as the Kyoto Encyclopedia of Genes and Genomes pathway level. In addition, Hallmark gene sets were evaluated using fast gene set enrichment analysis. A protein–protein interaction network was constructed using the STRING database, and hub genes were identified based on network topological properties. The findings were subsequently validated in The Cancer Genome Atlas Uterine Corpus Endometrial Carcinoma cohort using the TCGAbiolinks and DESeq2 packages, and their prognostic significance was assessed through Kaplan–Meier survival and Cox regression analyses. The integrated analysis identified numerous significantly differentially expressed genes associated with endometrial cancer. Gene Ontology analysis revealed significant enrichment of biological processes related to cell cycle regulation, mitotic cell division, DNA replication, chromosome segregation, and cellular proliferation. Kyoto Encyclopedia of Genes and Genomes pathway analysis demonstrated significant enrichment of the PI3K/AKT/mTOR signaling pathway, p53 signaling pathway, cell cycle regulatory mechanisms, and other cancer-related pathways. Protein–protein interaction network analysis identified TP53, CDK1, CCNB1, MKI67, TOP2A, AURKA, and PTEN as highly connected hub genes. Gene set enrichment analysis further demonstrated significant positive enrichment of proliferation-related gene sets, including E2F Targets, G2M Checkpoint, and MYC Targets. Validation analyses in the TCGA-UCEC cohort confirmed the expression patterns of these genes, while survival analyses indicated that elevated hub gene expression was associated with adverse clinical outcomes and reduced overall survival. In conclusion, this integrated bioinformatics approach elucidated key genes and signaling pathways involved in the molecular pathogenesis of endometrial cancer and highlighted TP53, CDK1, CCNB1, MKI67, TOP2A, AURKA, and PTEN as promising prognostic biomarkers and potential therapeutic targets. These findings may contribute to the development of molecularly informed diagnostic approaches and novel targeted treatment strategies for endometrial cancer.

Keywords: Endometrial cancer, bioinformatics, hub genes, prognostic biomarkers, targeted therapy.

GENÇ YETİŞKİN BİREYLERDE KÜBİTAL AÇI DEĞERLERİNİN CİNSİYETE GÖRE ANALİZİ

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Özet

Amaç: Kübital açı, dirsek ekleminin anatomik hizalanmasını yansıtan önemli morfometrik bir parametredir ve üst ekstremitenin cinsiyete özgü morfolojik özellikleriyle ilişkili olduğu bilinmektedir. Bu açı, humerus ile önkol eksenleri arasındaki ilişkiyi göstermesi nedeniyle antropometrik değerlendirmelerde ve klinik uygulamalarda sıklıkla kullanılmaktadır. Özellikle ortopedik cerrahi uygulamalarında, travma sonrası deformite değerlendirmelerinde ve adli antropoloji alanında kübital açı değerleri önemli bilgiler sağlamaktadır. Bu çalışmada, genç yetişkin bireylerde kübital açı ölçümlerinin cinsiyete göre farklılıkların incelenmesi amaçlandı.

Gereç ve Yöntem: Bu prospektif çalışma için Tokat Gaziosmanpaşa Üniversitesi Tıp Fakültesi Müdahalesiz Bilimsel Araştırma Etik Kurulu'ndan onay alınmıştır (Karar No: 26-MOBAEK-037). Çalışmaya 18-25 yaş aralığında toplam 500 sağlıklı gönüllü dahil edildi. Katılımcıların 250'si kadın, 250'si erkekti. Dirsek ekleminde travma, cerrahi girişim, deformite veya hareket kısıtlılığı bulunan bireyler çalışma dışı bırakıldı. Sağ ve sol kübital açı ölçümleri, katılımcılar anatomik pozisyonda iken standart gonyometre ile ölçüldü. Ölçümler aynı araştırmacı tarafından yapılarak ölçüm standardizasyonu sağlandı. Elde edilen veriler uygun istatistiksel yöntemler ile analiz edildi ve $p<0,05$ değeri istatistiksel olarak anlamlı kabul edildi.

Bulgular: Kadınlarda, hem sağ hem de sol tarafta kübital açı değerleri erkeklere göre daha yüksekti. Sağ kübital açı kadınlarda 15,07 ± 2,55°, erkeklerde 11,78 ± 2,01° olarak ölçüldü; sol kübital açı kadınlarda 14,72 ± 2,53°, erkeklerde 10,92 ± 1,99° olarak ölçüldü ve her iki tarafta da fark istatistiksel olarak anlamlıydı ($p<0,001$). Ayrıca kübital açı değerleri bireylerin boy, kilo, kol ve önkol uzunluğu ile negatif yönlü anlamlı korelasyon gösterdi ($p<0,05$).

Sonuç: Bu çalışma, genç yetişkin bireylerde kübital açının belirgin cinsiyet dimorfizmi gösterdiğini ortaya koymuştur. Kadınlarda daha yüksek kübital açı değerlerinin bulunması, üst ekstremitenin cinsiyete bağlı morfolojik özelliklerini yansıttığını düşündürmektedir. Elde edilen veriler, kübital açının yalnızca anatomik ve antropometrik değerlendirmelerde değil, aynı zamanda adli antropoloji alanında cinsiyet değerlendirmesine katkı sağlayabilecek yardımcı bir morfometrik ölçüt olarak kullanılabileceğini göstermektedir. Ayrıca kübital açının dirsek eklem biyomekaniği ve ortopedik değerlendirmelerde dikkate alınması gereken önemli bir anatomik parametre olabileceği kanaatindeyiz.

Anahtar kelimeler: Antropometri, dirsek açısı, cinsiyetler arası farklılık, üst ekstremite morfometrisi

ANALYSIS OF CUBITAL ANGLE VALUES IN YOUNG ADULTS BY GENDER

Abstract

Objective: The cubital angle is an important morphometric parameter that reflects the anatomical alignment of the elbow joint and is known to be associated with gender-specific morphological characteristics of the upper extremity. Because it indicates the relationship between the humerus and the forearm, this angle is frequently used in anthropometric assessments and clinical practice. In particular, cubital angle measurements provide important information in orthopedic surgical applications, post-traumatic deformity assessments, and forensic anthropology. This study aimed to investigate gender differences in cubital angle measurements among young adults.

Materials and Methods: Approval for this prospective study was obtained from the Ethics Committee for Non-Interventional Scientific Research at the Faculty of Medicine, Tokat Gaziosmanpaşa University (Decision No: 26-MOBAEK-037). A total of 500 healthy volunteers aged 18-25 were included in the study. Of the participants, 250 were female, and 250 were male. Individuals with trauma, surgical intervention, deformity, or limited mobility in the elbow joint were excluded from the study. Right and left cubital angle measurements were taken using a standard goniometer while participants were in the anatomical position. The same researcher performed measurements to ensure measurement standardization. The obtained data were analyzed using appropriate statistical methods, and a p-value of <0.05 was considered statistically significant.

Results: In female, the cubital angle values were higher than those in men on both the right and left sides. The right cubital angle was measured at $15.07 \pm 2.55°$ in females and $11.78 \pm 2.01°$ in males; the left cubital angle was measured at $14.72 \pm 2.53°$ in females and $10.92 \pm 1.99°$ in males, and the difference was statistically significant on both sides ($p<0.001$). Additionally, cubital angle values showed a significant negative correlation with height, weight, and upper and forearm length ($p<0.05$).

Conclusion: This study has demonstrated that the cubital angle exhibits significant sex dimorphism in young adults. The finding of higher cubital angle values in females suggests that this reflects gender-related morphological characteristics of the upper extremity. The data obtained indicate that the cubital angle can be used not only in anatomical and anthropometric assessments but also as an auxiliary morphometric criterion that may contribute to gender determination in forensic anthropology. Furthermore, we believe that the cubital angle may be an important anatomical parameter that should be considered in elbow joint biomechanics and orthopedic evaluations.

Keywords: Anthropometry, elbow angle, sex dimorphism, upper extremity morphometry

SURİYE'DE HAYVAN SAĞLIĞI İÇİN KULLANILAN TIBBİ BİTKİLER: ETNOBOTANİK BİR DEĞERLENDİRME

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Özet

Suriye, sahip olduğu zengin floristik çeşitlilik ve köklü geleneksel tıp kültürü sayesinde etnobotanik açıdan Orta Doğu'nun önemli bölgelerinden biri olarak kabul edilmektedir. Yüzyıllardır kırsal topluluklar tarafından aktarılan geleneksel bilgi birikimi, yalnızca insan sağlığında değil, hayvan sağlığının korunması ve çeşitli hastalıkların tedavisinde de yaygın olarak kullanılmaktadır. Bu çalışmanın amacı, Suriye'nin farklı coğrafi bölgelerinde hayvan sağlığı amacıyla kullanılan tıbbi bitkileri etnobotanik açıdan değerlendirmek ve geleneksel veterinerlik uygulamalarındaki yerlerini ortaya koymaktır. Çalışma çerçevesinde Kuzey Suriye (Halep), Orta Suriye (Hama ve Humus) ile Batı Suriye (Lazkiye ve Tartus) bölgelerinde gerçekleştirilen etnobotanik araştırmalar incelenmiştir. Elde edilen veriler doğrultusunda hayvanlarda görülen sindirim sistemi hastalıkları, solunum yolu enfeksiyonları, deri hastalıkları, paraziter enfestasyonlar, metabolik bozukluklar ve kas-iskelet sistemi rahatsızlıklarının tedavisinde kullanılan bitki türleri değerlendirilmiştir. İncelenen çalışmalar, özellikle Ballıbabagiller (Lamiaceae), Papatyagiller (Asteraceae) ve Maydanozgiller (Apiaceae) familyalarına ait türlerin yaygın olarak kullanıldığını göstermektedir. Hayvan sağlığında en sık kullanılan bitkiler arasında *Foeniculum vulgare* (rezene), *Nigella sativa* (çörek otu), *Origanum syriacum* (zahter), *Thymus vulgaris* (kekik), *Salvia officinalis* (adaçayı), *Artemisia herba-alba* (çöl pelini), *Rosmarinus officinalis* (biberiye), *Matricaria chamomilla* (papatya), *Juglans regia* (ceviz), *Hypericum perforatum* (sarı kantaron) ve *Aloe vera* türlerinin öne çıktığı belirlenmiştir. Bu bitkilerin çoğunun antimikrobiyal, antiinflamatuvar, antiparaziter, antioksidan ve yara iyileştirici özelliklere sahip olduğu görülmüştür. Geleneksel uygulamalarda özellikle koyun, keçi ve sığırlarda sindirim sistemi bozuklukları, solunum yolu enfeksiyonları, deri lezyonları ve paraziter hastalıkların tedavisinde yaygın olarak kullanıldıkları saptanmıştır. Suriye'de hayvan sağlığına yönelik geleneksel bitkisel tedavi uygulamaları önemli bir kültürel ve biyolojik miras niteliği taşımaktadır. Bu bilgi birikiminin bilimsel yöntemlerle doğrulanması, veteriner fitoterapisi alanında yeni araştırmaların geliştirilmesine katkı sağlayabilmektedir. Bunun yanında yerel bitki kaynaklarının sürdürülebilir kullanımı ve geleneksel veterinerlik bilgisinin korunması açısından etnobotanik çalışmaların desteklenmesi büyük önem taşımaktadır.

Anahtar Kelimeler: Etnobotanik, veteriner fitoterapisi, hayvan sağlığı, tıbbi bitkiler, Suriye.

MEDICINAL PLANTS USED FOR ANIMAL HEALTH IN SYRIA: AN ETHNOBOTANICAL ASSESSMENT

Abstract

Syria is recognized as one of the Middle East's key regions from an ethnobotanical perspective, thanks to its rich floristic diversity and deep-rooted traditional medical culture. The traditional knowledge passed down by rural communities for centuries is widely used not only in human health but also in the protection of animal health and the treatment of various diseases. The aim of this study is to ethnobotanically evaluate medicinal plants used for animal health in different geographical regions of Syria and to elucidate their role in traditional veterinary practices. Within the scope of the study, ethnobotanical research conducted in the regions of Northern Syria (Aleppo), Central Syria (Hama and Homs), and Western Syria (Latakia and Tartus) was examined. Based on the data obtained, plant species used in the treatment of digestive system diseases, respiratory tract infections, skin diseases, parasitic

infestations, metabolic disorders, and musculoskeletal disorders in animals were evaluated. The studies reviewed indicate that species belonging to the Lamiaceae (mint family), Asteraceae (daisy family), and Apiaceae (parsley family) are particularly widely used. Among the most commonly used plants in animal health are Foeniculum vulgare (fennel), Nigella sativa (black cumin), Origanum syriacum (za'atar), Thymus vulgaris (thyme), Salvia officinalis (sage), Artemisia herba-alba (desert wormwood), Rosmarinus officinalis (rosemary), Matricaria chamomilla (chamomile), Juglans regia (walnut), Hypericum perforatum (St. John's wort), and Aloe vera. It has been observed that many of these plants possess antimicrobial, anti-inflammatory, antiparasitic, antioxidant, and wound-healing properties. In traditional practices, they have been found to be widely used, particularly in sheep, goats, and cattle, for the treatment of digestive disorders, respiratory infections, skin lesions, and parasitic diseases. Traditional herbal treatments for animal health in Syria constitute an important cultural and biological heritage. Verifying this body of knowledge through scientific methods can contribute to the development of new research in the field of veterinary phytotherapy. Additionally, supporting ethnobotanical studies is of great importance for the sustainable use of local plant resources and the preservation of traditional veterinary knowledge.

Keywords: Ethnobotany, veterinary phytotherapy, animal health, medicinal plants, Syria.

GEBE BAYANLARDA VASKÜLER ENDOTELYAL BÜYÜME FAKTÖRÜ A rs3025039 C>T POLİMORFİZMİ İLE HİPERTANSİF BOZUKLUKLAR ARASINDAKİ İLİŞKİNİN ARAŞTIRILMASI

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Özet

Gebelik süresi, kadının son adet kanamasının ilk günü esas alınarak hesaplanmakta olup, ortalama olarak 280 gün ya da 40 haftalık bir dönemi kapsamaktadır. Gebelik, üç aylık dönemlerden oluşan trimesterler halinde ilerler. Birinci trimester, yumurta ile spermin birleşmesiyle döllenmenin gerçekleştiği andan itibaren başlayarak gebeliğin ilk 14 haftasını kapsar. İkinci trimester 15. haftadan 28. haftaya kadar devam ederken, üçüncü trimester ise, 29. haftadan 40. haftaya kadar olan süreci içerir. Gebelikte görülen hipertansif bozukluklar, gebelik hipertansiyonu, preeklampsi ve eklampsiyi içeren bir terim olup, gebeliklerin yaklaşık %10'unu karmaşık hale getirmektedir. Gebelikte ortaya çıkan hipertansif bozukluklar, gebelik hipertansiyonu, preeklampsi ve eklampsiyi kapsayan klinik bir tablodur. Bu bozuklukların ortaya çıkmasında pek çok farklı faktör rol oynar. Örnek olarak; annenin yaşı, kilosu, boyu, vücut kitle indeksi (BMI), gebelik haftası, sistolik ve diastolik kan basıncı, hipertansiyon öyküsü, diyabet durumu ve böbrek hastalığı gibi etmenler sayılabilir. Vasküler endotelyal büyüme faktörü A (VEGFA), tüm gebelik dönemi boyunca döllenmiş yumurtanın implantasyon sürecinde ve plasental büyüme sürecinde damar oluşumunda önemli bir işleve sahiptir. Bu çalışmanın amacı, gebelerde hipertansif bozukluklar ile VEGFA geni rs3025039 C>T polimorfizmi arasındaki ilişkiyi araştırmaktır. Bu çalışmada, hipertansif bozukluğu olan 70 gebe bayan (hasta grubu) ile sağlıklı 125 gebe bayanın (kontrol grubu) DNA'ları polimeraz zincir reaksiyonu (PZR) ve restriksiyon parça uzunluk polimorfizmi (RFLP) testleri ile analiz edilmiştir. İstatistiksel analizler ki-kare ve ANOVA testleri kullanılarak yapılmıştır. VEGFA geni rs3025039 C>T polimorfizminin allel ve genotip dağılımları hipertansif bozukluğu olan gebe bayanlar ve sağlıklı gebe bayanlar arasında istatistiksel olarak anlamlı bir fark göstermemiştir ($p>0.05$). Hipertansif bozukluğu olan gebe bayanlar hastalık tipine göre, gebelik hipertansiyonu ve preeklampsi olarak ayrılıp birbirleriyle ve sağlıklı gebe bayanlarla karşılaştırıldığında gruplar arasında VEGFA geni rs3025039 C>T polimorfizmi genotip ve allel dağılımları açısından anlamlı bir fark saptanmamıştır ($p>0,05$). Elde edilen bulgular VEGFA geni rs3025039 C>T polimorfizminin gebelikte hipertansif bozuklukların gelişiminde tek başına belirleyici bir genetik risk faktörü olmadığını düşündürmektedir. Gelecek çalışmalarda, genetik faktörlerin yanı sıra çevresel,

epigenetik ve klinik değişkenlerin birlikte değerlendirilmesi, gebelikte hipertansif bozuklukların patofizyolojisinin daha iyi anlaşılmasına katkı sağlayabilir.

Anahtar Kelimeler: Gebelik, Gebelikte Hipertansif Bozukluklar, VEGFA, rs3025039

INVESTIGATION OF THE RELATIONSHIP BETWEEN VASCULAR ENDOTHELIAL GROWTH FACTOR A rs3025039 C>T POLYMORPHİSM AND HYPERTENSIVE DISORDDERS IN PREGNANT WOMEN

Absract

The duration of pregnancy is calculated primarily from the first day of a woman's last menstrual period, encompassing an average period of 280 days or 40 weeks. Pregnancy progresses in trimesters, each lasting three months. The first trimester covers the first 14 weeks of pregnancy, starting from the fusion of egg and sperm. The second trimester runs from week 15 to week 28, while the third trimester includes the period from week 29 to week 40. Hypertensive disorders during pregnancy, encompassing gestational hypertension, preeclampsia, and eclampsia, are a term that complicates approximately 10% of pregnancies. Many different factors play a role in the development of this disorder. For example; Factors considered include maternal age, weight, height, body mass index (BMI), gestational week, systolic and diastolic blood pressure, history of hypertension, diabetes status, and kidney disease. Vascular endothelial growth factor A (VEGFA) plays a crucial role in vascular formation during the implantation process of the fertilized egg and placental growth throughout the reproductive period. This study investigated the correlation between hypertensive episodes and the VEGFA gene rs3025039 C>T polymorphism in pregnant women. DNA from 70 pregnant women with hypertensive disorders (patient group) and 125 healthy pregnant women (control group) was analyzed using polymerase chain (PCR) and restriction fragment polymorphism (RFLP) tests. Statistical analyses were performed using chi-square and ANOVA tests. Allele and genotype distributions of the VEGFA gene rs3025039 C>T polymorphism did not show a persistently significant difference between pregnant women with hypertensive disorders and healthy pregnant women ($p>0.05$). When pregnant women with hypertensive disorders were separated into pregnancy and preeclampsia groups according to their health status, and compared with younger and healthy pregnant women, no significant difference remained in terms of genotype and alleles of the VEGFA gene rs3025039 C>T polymorphism ($p>0.05$). These findings suggest that the VEGFA gene rs3025039 C>T polymorphism is not a sole genetic risk factor for hypertensive disorders in pregnancy. Future growth, combined assessment of genetic activity, performance, epigenetic, and clinical variables may contribute to a better understanding of the pathophysiology of hypertensive disorders in the reproductive system.

Keywords: Pregnancy, Hypertensive Disorders in Pregnancy, VEGFA, rs3025039

ESSENTIAL OILS USED IN AROMATHERAPY

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Abstract

The use of essential oils in aromatherapy, a subset of phytotherapy, to maintain health has gained popularity in recent years. The three basic methods of using essential oils are ingestion (via the digestive system), topical absorption (through the skin), and inhaling (via the respiratory system or olfactory nerves). The biological activity and aroma of essential oils are determined by their chemical makeup, which is a blend of many organic components. They may be divided into a number of categories based on their scent, including citrus, herbaceous, camphorous, flowery, woody, earthy, minty, and spicy. This essay reviews the literature on the application of essential oils to aromatherapy by inhalation. While serious illnesses cannot be cured with this sort of aromatherapy, it may be used effectively to improve mood, balance, and overall well-being, relieve minor discomforts, reduce stress, and strengthen the immunological, respiratory, and circulatory systems. The review also discusses the chemical composition of essential oils, their historical use in different cultures, and their potential therapeutic applications. Findings suggest that inhalation aromatherapy can serve as a valuable complementary approach to conventional healthcare when used safely and appropriately, contributing to improved emotional balance and quality of life. Furthermore, its accessibility and natural origin make it an attractive option for individuals seeking supportive wellness practices today.

Keywords: Aromatherapy, essential oils, inhalation, complementary therapy, fragrance

BİREYLERİN DİJİTAL SAĞLIK OKURYAZARLIĞI İLE YAPAY ZEKÂNIN SAĞLIK AMAÇLI KULLANIMINA YÖNELİK TUTUMLARI ARASINDAKİ İLİŞKİNİN İNCELENMESİ

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Özet

Bu araştırmanın amacı, bireylerin dijital sağlık okuryazarlığı (DSO) düzeyleri ile yapay zekânın (YZ) sağlık amaçlı kullanımına yönelik tutumları arasındaki ilişkiyi incelemektir. Araştırma, İstanbul ili Bakırköy ilçesinde yaşayan 18 yaş ve üzeri 266 birey üzerinde kesitsel ve nicel araştırma yöntemiyle gerçekleştirilmiştir. Veriler, sosyodemografik bilgi formu, Dijital Sağlık Okuryazarlığı Ölçeği (DSOÖ) ve Sağlık Hizmetlerinde Yapay Zekâya Yönelik Genel Tutum Ölçeği kullanılarak çevrimiçi ortamda toplanmıştır. Verilerin analizinde tanımlayıcı istatistikler, Mann–Whitney U testi, Kruskal–Wallis H testi, Spearman korelasyon analizi ve regresyon analizlerinden yararlanılmıştır.

Araştırma bulgularına göre katılımcıların dijital sağlık okuryazarlığı düzeylerinin orta ve iyi düzey arasında olduğu belirlenmiştir. Katılımcıların özellikle bilgi arama ve dijital iletişim becerilerinde daha yeterli oldukları, buna karşılık bilgi güvenilirliğini değerlendirme ve dijital gizliliği koruma konularında daha düşük yeterlilik gösterdikleri saptanmıştır. Yapay zekânın sağlık alanında kullanımına yönelik tutumların ise genel olarak olumlu olduğu, ancak etik kullanım, veri güvenliği ve hata yapma riski gibi konularda kaygıların devam ettiği görülmüştür.

Korelasyon ve regresyon analizleri sonucunda dijital sağlık okuryazarlığı ile yapay zekâya yönelik olumlu tutumlar arasında pozitif yönlü ve anlamlı bir ilişki olduğu belirlenmiştir ($r=0,286$; $p<0,01$). Dijital sağlık okuryazarlığının yapay zekâ tabanlı sağlık teknolojilerini kullanma niyetini anlamlı biçimde yordadığı tespit edilmiştir ($\beta=0,286$; $p<0,001$). Ayrıca algılanan fayda ve algılanan kullanım kolaylığının dijital sağlık okuryazarlığı ile teknoloji kabulü arasındaki ilişkide kısmi aracılık rolü üstlendiği belirlenmiştir. Yapay zekâya duyulan güvenin teknoloji kabulünü olumlu yönde etkilediği, risk algısının ise teknoloji kabulünü olumsuz yönde etkilediği sonucuna ulaşılmıştır.

Araştırmada yaş ve eğitim düzeyinin dijital sağlık okuryazarlığı ile yapay zekâya yönelik tutumlar üzerinde farklılaştırıcı etkisinin bulunduğu, cinsiyet değişkeninin ise anlamlı bir farklılık oluşturmadığı belirlenmiştir. Sonuç olarak, bireylerin dijital sağlık okuryazarlığı düzeylerinin artırılmasının yapay zekâ destekli sağlık teknolojilerinin benimsenmesini destekleyebileceği değerlendirilmektedir. Bu doğrultuda sağlık politikalarında dijital sağlık okuryazarlığını geliştirmeye yönelik eğitim programlarının yaygınlaştırılması, yapay zekâ sistemlerinde şeffaflık ve güvenin artırılması ve veri güvenliğine ilişkin etik düzenlemelerin güçlendirilmesi önerilmektedir.

Anahtar Kelimeler: Dijital sağlık okuryazarlığı, yapay zekâ, teknoloji kabulü, sağlık teknolojileri

Abstract

The aim of this study is to examine the relationship between individuals' digital health literacy (DHL) levels and their attitudes toward the use of artificial intelligence (AI) for healthcare purposes. The study was designed as cross-sectional quantitative research and conducted with 266 individuals aged 18 and over living in the Bakırköy district of Istanbul. Data were collected online using a socio-demographic

information form, the Digital Health Literacy Scale (DHLS), and the General Attitudes toward Artificial Intelligence in Healthcare Scale. Descriptive statistics, Mann–Whitney U test, Kruskal–Wallis H test, Spearman correlation analysis, and regression analyses were used in the data analysis process.

The findings revealed that participants' digital health literacy levels were between moderate and high. Participants demonstrated relatively higher competencies in information searching and digital communication skills, whereas lower competencies were observed in evaluating the reliability of information and protecting digital privacy. Attitudes toward the use of artificial intelligence in healthcare were generally positive, however, concerns regarding ethical use, data security, and the possibility of errors were also identified.

Correlation and regression analyses indicated a positive and statistically significant relationship between digital health literacy and positive attitudes toward artificial intelligence ($r=0.286$; $p<0.01$). Digital health literacy was found to significantly predict the intention to use AI-based healthcare technologies ($\beta=0.286$; $p<0.001$). In addition, perceived usefulness and perceived ease of use were found to play a partial mediating role in the relationship between digital health literacy and technology acceptance. Trust in artificial intelligence positively affected technology acceptance, whereas risk perception negatively affected technology acceptance.

The study also demonstrated that age and educational level had differentiating effects on digital health literacy and attitudes toward artificial intelligence, while gender did not create a significant difference. In conclusion, improving individuals' digital health literacy levels may support the adoption of AI-supported healthcare technologies. Accordingly, it is recommended that health policies focus on expanding digital health literacy training programs, increasing transparency and trust in AI systems, and strengthening ethical regulations related to data security.

Keywords: Digital health literacy, artificial intelligence, technology acceptance, healthcare technologies

HEMŞİRELİKTE İŞ YERİ ŞİDDETİNE GENEL BİR BAKIŞ

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Özet

Hemşirelere yönelik işyeri şiddeti, küresel ölçekte sağlık çalışanlarının güvenliğini tehdit eden önemli bir halk sağlığı ve mesleki sağlık sorunudur. Araştırmalar, hemşirelerin diğer sağlık çalışanlarına göre yaklaşık üç kat daha yüksek yaralanma riski taşıdığını ve işyeri şiddetine en sık maruz kalan meslek gruplarından biri olduğunu göstermektedir. Hemşirelerin meslek yaşamları boyunca şiddete maruz kalma oranlarının %8–38 arasında değiştiği, vakaların yaklaşık %90'ının hasta ve hasta yakınlarından kaynaklandığı ve olayların %80'den fazlasının rapor edilmediği bildirilmektedir.

Sözel şiddet hemşirelerin en sık karşılaştığı şiddet türü olup küresel prevalansı yaklaşık %67'dir. Acil servislerde bu oran %79'a kadar yükselmektedir. Fiziksel şiddete her yıl hemşirelerin yaklaşık %20'si maruz kalırken, cinsel taciz oranları son 12 ay için %12,6, meslek yaşamı boyunca ise %53,4 olarak bildirilmektedir. Ayrıca hemşirelerin %73'ünün psikolojik saldırganlığa tanık olduğu ve psikolojik şiddetin tükenmişlik, iş doyumunda azalma ve işten ayrılma niyeti ile ilişkili olduğu belirtilmektedir. Türkiye'de 2020–2024 yılları arasında medyaya yansıyan sağlıkta şiddet vakalarının %31,1'inin hemşireleri etkilediği bildirilmiştir.

İşyeri şiddeti; kaygı, uyku bozuklukları, travma sonrası stres belirtileri, tükenmişlik ve işten ayrılma niyetinde artış gibi ciddi sonuçlara yol açmaktadır. Literatürde güvenlik önlemlerinin güçlendirilmesi, etkin raporlama sistemlerinin oluşturulması, iletişim ve kriz yönetimi eğitimlerinin yaygınlaştırılması, iş yükünün azaltılması ve koruyucu sağlık politikalarının geliştirilmesi temel çözüm önerileri olarak öne çıkmaktadır.

Anahtar Kelimeler: Hemşirelik, Şiddet, İşyeri Şiddeti,

AN OVERVIEW OF WORKPLACE VIOLENCE IN NURSING

Abstract

Workplace violence against nurses is a significant public health and occupational health issue that threatens the safety of healthcare workers on a global scale. Research indicates that nurses face approximately three times the risk of injury compared to other healthcare workers and are among the occupational groups most frequently exposed to workplace violence. It is reported that the prevalence of exposure to violence throughout nurses' careers ranges from 8% to 38%, with approximately 90% of incidents originating from patients and their relatives, and over 80% of incidents going unreported.

Verbal violence is the most common form of violence encountered by nurses, with a global prevalence of approximately 67%. In A&E departments, this figure rises to as high as 79%. Whilst approximately 20% of nurses are exposed to physical violence each year, rates of sexual harassment are reported at 12.6% over the past 12 months and 53.4% over the course of their professional careers. Furthermore, it is noted that 73% of nurses have witnessed psychological aggression, and that psychological violence is associated with burnout, reduced job satisfaction and intention to leave the profession. In Turkey, it

has been reported that 31.1% of cases of violence in healthcare reported in the media between 2020 and 2024 affected nurses.

Workplace violence leads to serious consequences such as anxiety, sleep disorders, symptoms of post-traumatic stress, burnout and an increase in intention to leave the job. In the literature, strengthening safety measures, establishing effective reporting systems, promoting communication and crisis management training, reducing workload and developing protective health policies are highlighted as key solutions.

Keywords: Nursing, Violence, Workplace Violence,

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SAĞLIK TURİZMİNDE NİTELİKLİ İŞGÜCÜNÜN YÖNETSEL ETKİNLİĞE ETKİSİ: SAĞLIK İŞLETMELERİ ÜZERİNE BİR DEĞERLENDİRME

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Özet

Sağlık turizmi, günümüzde yalnızca sağlık hizmetlerinin sunumuyla sınırlı kalmayıp; hasta deneyimi, tedavi öncesi/sonrası süreçler, lojistik, hizmet kalitesi, uluslararası rekabet, kurumsal itibar ve yönetsel kapasite ile birlikte değerlendirilen çok boyutlu bir sektör hâline gelmiştir. Türkiye; gelişmiş sağlık altyapısı, uzman hekim kadrosu, maliyet avantajı, coğrafi konumu ve turizm potansiyeliyle küresel ölçekte önemli fırsatlara sahiptir. Ancak bu potansiyelin sürdürülebilir bir rekabet üstünlüğüne dönüşebilmesi yalnızca fiziki altyapı veya fiyat avantajı ile açıklanamaz. Sağlık işletmelerinde görev yapan, etik değerlere bağlı ve uluslararası hizmet süreçlerine uyum sağlayabilen nitelikli insan kaynağı, sektörün başarısındaki en dinamik belirleyicilerden biridir.

Bu çalışmanın amacı; sağlık turizmi alanında faaliyet gösteren işletmelerde nitelikli işgücünün yönetsel etkinlik, hizmet kalitesi ve kurumsal performans üzerindeki etkisini değerlendirmektir. Çalışmada; yabancı dil yetkinliği, kültürel farkındalık, mesleki uzmanlık, iletişim becerileri, uluslararası hasta yönetimi, etik sorumluluk ve kurumsal koordinasyon gibi kritik unsurlar üzerinde durulmaktadır. Bu kapsamda, nitelikli işgücünün hastane ve kliniklerdeki yönetsel karar alma süreçlerine, hasta ilişkileri yönetimine ve uluslararası rekabet gücüne sağladığı katkılar tartışılmaktadır.

Çalışma, literatür temelli bir değerlendirme yöntemiyle hazırlanmıştır. Sağlık turizmi, insan kaynakları yönetimi ve sağlık işletmeciliği alanındaki güncel akademik yazın çerçevesinde, nitelikli işgücünün yönetsel etkinliği artırmadaki rolü analitik bir bakış açısıyla ele alınmaktadır. Çalışmanın; sağlık turizminde insan kaynağı planlaması, hizmet kalitesi yönetimi ve kurumsal sürdürülebilirlik politikalarına teorik ve pratik katkı sunması beklenmektedir.

Anahtar Kelimeler: Sağlık turizmi, nitelikli işgücü, sağlık işletmeleri, yönetsel etkinlik, uluslararası hasta yönetimi, insan kaynakları yönetimi.

THE IMPACT OF A QUALIFIED WORKFORCE ON MANAGERIAL EFFECTIVENESS IN HEALTHCARE TOURISM: AN ASSESSMENT OF HEALTHCARE ORGANIZATIONS

Abstract

Today, healthcare tourism is no longer limited to the mere provision of healthcare services; it has evolved into a multidimensional sector that is evaluated in conjunction with patient experience, pre- and post-treatment processes, logistics, service quality, international competition, corporate reputation, and managerial capacity.Türkiye possesses significant global opportunities thanks to its advanced healthcare infrastructure, team of specialist physicians, cost advantage, geographical location, and tourism potential. However, transforming this potential into a sustainable competitive advantage cannot be explained solely by physical infrastructure or price advantages. Qualified human resources working in healthcare organizations who are committed to ethical values and capable of adapting to international service processes are among the most dynamic determinants of the sector's success.

The purpose of this study is to evaluate the impact of a qualified workforce on managerial effectiveness, service quality, and organizational performance in businesses operating in the field of healthcare tourism. The study focuses on critical elements such as foreign language proficiency, cultural awareness, professional expertise, communication skills, international patient management, ethical responsibility, and organizational coordination. In this context, the study discusses the contributions of a qualified workforce to managerial decision-making processes, patient relationship management, and international competitiveness in hospitals and clinics.

This study employs a literature-based evaluation method. Within the framework of current academic literature in the fields of healthcare tourism, human resources management, and healthcare administration, the role of a qualified workforce in enhancing managerial effectiveness is examined from an analytical perspective. The study is expected to provide theoretical and practical contributions to human resource planning, service quality management, and institutional sustainability policies in healthcare tourism.

Keywords: Healthcare tourism, qualified workforce, healthcare organizations, managerial effectiveness, international patient management, human resources management.

SAĞLIK TURİZMİNDE SAĞLIK HİZMETLERİNİN YÖNETİLEBİLİRLİĞİ VE SÜRDÜRÜLEBİLİRLİĞİ: SAĞLIK KURULUŞLARI YÖNETİMİ AÇISINDAN KAVRAMSAL BİR DEĞERLENDİRME

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Özet

Son yıllarda sağlık turizmi, küresel ölçekte ve Türkiye'de hızla gelişen, ekonomik, yönetsel ve sosyal boyutları barındıran stratejik bir hizmet alanı hâline gelmiştir. Türkiye'nin güçlü sağlık altyapısı, uzman insan kaynağı, maliyet avantajı ve coğrafi konumu bu alanda önemli fırsatlar sunmaktadır. Ancak bu hızlı büyüme, sağlık kuruluşlarına artan talebi karşılama sorumluluğunun yanı sıra hizmet kalitesini, hasta güvenliğini ve kaynak kullanımını bütüncül bir yaklaşımla yönetme gerekliliğini de yüklemektedir.

Bu çalışmanın amacı, sağlık turizminde hizmetlerin yönetilebilirliği ve sürdürülebilirliği arasındaki ilişkiyi sağlık kuruluşları yönetimi yaklaşımıyla incelemektir. Literatür taramasına dayalı kavramsal bir değerlendirme niteliği taşıyan bu araştırmada, sürdürülebilir sağlık hizmetleri, verimlilik, hasta güvenliği, erişilebilirlik ve kurumsal kapasite konuları ele alınmıştır ve bu konudaki çeşitli akademik çalışmalar analiz edilmiştir.

Değerlendirme sonucunda, sağlık turizminde sürdürülebilirliğin yalnızca ekonomik gelir veya hasta sayısındaki artışla açıklanamayacağı anlaşılmıştır. Sürdürülebilir bir yönetim, hizmet süreçlerinin etkin planlanmasını, kaynakların verimli kullanımını, nitelikli insan kaynağı yönetimini, hasta güvenliğinin ilk planda tutulması ve çevresel sorumluluk ilkelerinin sisteme uyumunu gerektirmektedir. Bu bağlamda verimlilik, sadece maliyetlerin azaltılmasının yanı sıra kaliteli, güvenli ve etik ilkelere uygun hizmet sunumu anlamına gelmektedir.

Çalışma, kısa vadeli ekonomik kazanımların uzun vadeli kurumsal sürdürülebilirlik için sınırlı katkı sunduğunu göstermektedir. Yönetim kapasitesinin güçlendirilmemesi durumunda hizmet kalitesi, hasta memnuniyeti ve uluslararası rekabet gücü olumsuz etkilenebilir. Bu nedenle sağlık turizmi politikalarının pazarlama stratejilerinin ötesine geçerek, akreditasyon, dijitalleşme ve çevresel sürdürülebilirlik boyutlarını içerecek şekilde geliştirilmesi kritik önem taşımaktadır. Araştırmanın bulguları ışığında, sağlık yöneticilerine, politika yapıcılara ve literatüre kavramsal katkılar sunulması hedeflenmektedir.

Anahtar Kelimeler: Sağlık turizmi, sağlık hizmetleri yönetimi, sürdürülebilir sağlık hizmetleri, yönetilebilirlik, hizmet verimliliği, hasta güvenliği.

THE MANAGEABILITY AND SUSTAINABILITY OF HEALTHCARE SERVICES IN MEDICAL TOURISM: A CONCEPTUAL ASSESSMENT FROM THE PERSPECTIVE OF HEALTHCARE ORGANIZATION MANAGEMENT

Abstract

In recent years, medical tourism has emerged as a strategic service sector with economic, administrative, and social dimensions, experiencing rapid growth both globally and in Türkiye. Türkiye's robust healthcare infrastructure, skilled workforce, cost advantage, and geographical location offer significant opportunities in this field. However, this rapid growth brings with it the responsibility of meeting the increasing demand for healthcare services, as well as ensuring service quality and patient safety

The purpose of this study is to examine the relationship between the manageability and sustainability of services in health tourism from the perspective of healthcare organization management. This study, which constitutes a conceptual review based on a literature review, addresses the topics of sustainable healthcare services, efficiency, patient safety, accessibility, and organizational capacity, and analyzes various academic studies on these topics.

The evaluation revealed that sustainability in medical tourism cannot be explained solely by economic revenue or an increase in the number of patients. Sustainable management requires the effective planning of service processes, the efficient use of resources, the management of qualified human resources, prioritizing patient safety, and the integration of environmental responsibility principles into the system. In this context, efficiency means not only reducing costs but also providing high-quality, safe, and ethically sound services.

The study demonstrates that short-term economic gains make only a limited contribution to long-term institutional sustainability. If management capacity is not strengthened, service quality, patient satisfaction, and international competitiveness may be negatively affected. Therefore, it is critically important to develop health tourism policies that go beyond marketing strategies to include dimensions such as accreditation, digitalization, and environmental sustainability. Based on the findings, it is anticipated that this study will provide a conceptual contribution to healthcare administrators, policymakers, and the literature.

Keywords: Medical tourism, healthcare management, sustainable healthcare services, manageability, service efficiency, patient safety.

YAŞLI BİREYLERDE EV KAZALARININ ÖNLENMESİNDE RİSK TEMELLİ HALK SAĞLIĞI HEMŞİRELİĞİ YAKLAŞIMI

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Özet

Bu çalışmada, yaşlı bireylerde ev kazalarının önlenmesine yönelik risk faktörlerinin değerlendirilmesi ve halk sağlığı hemşireliğinin risk temelli koruyucu yaklaşımının ele alınması amaçlanmıştır. Yaşlanma süreciyle birlikte ortaya çıkan fiziksel, bilişsel, duyusal ve psikososyal değişiklikler; yaşlı bireylerin ev ortamında kaza geçirme olasılığını artırmaktadır. Görme ve işitme kaybı, denge bozuklukları, kas gücünde azalma, kronik hastalıklar, çoklu ilaç kullanımı, unutkanlık, uyku sorunları ve çevresel yetersizlikler ev kazaları açısından önemli risk faktörleri arasında yer almaktadır. Ev kazaları; düşme, yanık, kesik, zehirlenme, elektrik çarpması ve boğulma gibi farklı şekillerde görülebilmekle birlikte, yaşlı bireylerde en sık karşılaşılan ve en ciddi sonuçlara yol açan kaza türü düşmelerdir. Düşmeler; kalça kırığı, kafa travması, fonksiyon kaybı, bağımlılık, yaşam kalitesinde azalma ve mortalite gibi sonuçlara neden olabilmektedir. Bu nedenle yaşlı bireyin önceki düşme öyküsü, denge ve yürüme durumu, kullandığı ilaçlar, kronik hastalıkları, ev içi düzenlemeleri ve çevresel tehlikeleri bütüncül olarak değerlendirilmelidir. Halk sağlığı hemşireleri; ev ziyaretleri, risk değerlendirme ölçeklerinin kullanımı, hasta ve aile eğitimi, ilaç güvenliğinin sağlanması, yeterli aydınlatma, kaygan zeminlerin önlenmesi, tutunma barları ve yardımcı araçların kullanılması gibi girişimlerle ev kazalarının önlenmesinde temel rol üstlenmektedir. Sonuç olarak, yaşlı bireylerde ev kazalarının azaltılması; risklerin erken belirlenmesi, bireyselleştirilmiş bakım planlarının oluşturulması, çevresel düzenlemelerin yapılması ve sürekli hemşirelik izlemiyle desteklenen risk temelli halk sağlığı hemşireliği yaklaşımıyla mümkündür.

Anahtar Kelimeler: Yaşlı sağlığı, ev kazaları, düşme riski, risk temelli yaklaşım, halk sağlığı hemşireliği.

A RISK-BASED PUBLIC HEALTH NURSING APPROACH TO THE PREVENTION OF HOME ACCIDENTS AMONG OLDER PEOPLE

Abstract

The aim of this study is to assess risk factors for the prevention of domestic accidents among older people and to examine the risk-based preventive approach in public health nursing. The physical, cognitive, sensory and psychosocial changes that occur with the ageing process increase the likelihood of older adults experiencing accidents in the home. Vision and hearing loss, balance disorders, reduced muscle strength, chronic illnesses, polypharmacy, forgetfulness, sleep problems and environmental inadequacies are among the significant risk factors for domestic accidents. Whilst home accidents can take various forms—such as falls, burns, cuts, poisoning, electric shocks and drowning—falls are the most common type of accident among older adults and lead to the most serious consequences. Falls can result in hip fractures, head injuries, loss of function, dependency, reduced quality of life and mortality. For this reason, an older person's history of previous falls, balance and walking ability, medications they

are taking, chronic conditions, home modifications and environmental hazards must be assessed holistically. Public health nurses play a key role in preventing home accidents through initiatives such as home visits, the use of risk assessment scales, patient and family education, ensuring medication safety, providing adequate lighting, preventing slippery floors, and the use of grab rails and assistive devices. In conclusion, reducing the incidence of domestic accidents among older people is achievable through a risk-based public health nursing approach, supported by the early identification of risks, the development of personalised care plans, environmental adaptations and continuous nursing monitoring.

Keywords: Older people's health, domestic accidents, risk of falling, risk-based approach, public health nursing.

GÖÇMENLERDE RİSK YAKLAŞIMI VE HALK SAĞLIĞI HEMŞİRESİNİN KORUYUCU SAĞLIK HİZMETLERİNDEKİ ROLÜ

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Özet

Bu çalışmada, göçmen bireylerin karşılaştığı sağlık riskleri risk yaklaşımı çerçevesinde ele alınarak halk sağlığı hemşiresinin koruyucu sağlık hizmetlerindeki rolünün değerlendirilmesi amaçlanmıştır. Göç; bireylerin yalnızca yer değiştirmesi değil, sosyal, ekonomik, kültürel ve psikolojik boyutları olan çok yönlü bir süreçtir. Göçmenler; dil engeli, kültürel uyumsuzluk, sosyal izolasyon, yetersiz barınma, güvencesiz istihdam, ekonomik yoksunluk, ayrımcılık ve sağlık hizmetlerine erişimde yaşanan güçlükler nedeniyle sağlık açısından kırılgan gruplar arasında yer almaktadır. Bu çalışmada özellikle göçmen kadınlar, çocuklar, göçmen işçiler, yaşlılar, kronik hastalığı olan bireyler ve belgesiz göçmenler öncelikli risk grupları olarak değerlendirilmiştir. Göçmenlerde bulaşıcı hastalıklar, malnütrisyon, anemi, kronik hastalıkların kötüleşmesi, üreme sağlığı sorunları, yetersiz doğum öncesi bakım, fiziksel ve cinsel şiddet, depresyon, anksiyete, travma sonrası stres bozukluğu ve uyku sorunları sık görülen sağlık sorunları arasında yer almaktadır. Kalabalık yaşam alanları, temiz su ve sanitasyon eksikliği, aşılama hizmetlerindeki aksamalar ve sağlık güvencesinin bulunmaması mevcut riskleri artırmaktadır. Risk yaklaşımı, bu sorunların erken dönemde belirlenmesi, öncelikli grupların tanılanması ve uygun koruyucu müdahalelerin planlanması açısından önemlidir. Halk sağlığı hemşireleri; kültürel duyarlı bakım, tercüman desteği, sağlık eğitimi, bağışıklama, üreme sağlığı danışmanlığı, ruh sağlığı desteği, ev ziyaretleri ve toplum temelli izlem uygulamalarıyla göçmen sağlığının korunmasında temel rol üstlenmektedir. Sonuç olarak, göçmen sağlığının geliştirilmesi risk temelli, kültürel açıdan duyarlı ve disiplinler arası halk sağlığı uygulamalarıyla mümkündür.

Anahtar Kelimeler: Göçmen sağlığı, risk yaklaşımı, halk sağlığı hemşireliği, koruyucu sağlık hizmetleri, kırılgan gruplar.

RISK APPROACH IN MIGRANTS AND THE ROLE OF PUBLIC HEALTH NURSES IN PREVENTIVE HEALTH SERVICES

Abstract

This study aims to assess the role of public health nurses in preventive healthcare by examining the health risks faced by migrants within the framework of a risk-based approach. Migration is not merely a change of location for individuals, but a multifaceted process with social, economic, cultural and psychological dimensions. Migrants are among the groups most vulnerable to health risks due to language barriers, cultural incompatibility, social isolation, inadequate housing, precarious employment, economic deprivation, discrimination and difficulties in accessing healthcare services. In this study, migrant women, children, migrant workers, older people, individuals with chronic illnesses and undocumented migrants have been identified as priority risk groups. Common health issues among migrants include infectious diseases, malnutrition, anaemia, exacerbation of chronic conditions, reproductive health problems, inadequate antenatal care, physical and sexual violence, depression, anxiety, post-traumatic stress disorder and sleep disorders. Overcrowded living conditions, a lack of clean water and sanitation, disruptions to vaccination services and the absence of health insurance exacerbate these existing risks. A risk-based approach is crucial for the early identification of these issues, the identification of priority groups and the planning of appropriate preventive interventions.

Public health nurses play a key role in safeguarding the health of migrants through culturally sensitive care, interpreter support, health education, immunisation, reproductive health counselling, mental health support, home visits and community-based monitoring programmes. Consequently, improving migrant health is achievable through risk-based, culturally sensitive and interdisciplinary public health practices.

Keywords: Migrant health, risk-based approach, public health nursing, preventive health services, vulnerable groups.

YAŞLI BİREYLERDE GRUP SES TERAPİSİ SONUÇLARININ ÇOK BOYUTLU DEĞERLENDİRİLMESİ

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Özet

Yaşlanmayla birlikte ortaya çıkan ses değişiklikleri, ses sağlığı alanında çalışan profesyonellerin giderek artan bir ilgi alanıdır. Bu çalışmanın amacı organik ses patolojisi bulunmayan, yaşlanmanın etkilerine bağlı ses bozukluğu tanısı almış yaşlı bireylerde grup ses terapisinin uzun dönem etkilerini araştırmaktır. Çalışmamız randomize kontrollü deneysel bir çalışma niteliğinde kontrol grubunun yer aldığı ön test-son test çalışma modelindedir. Katılımcılar her bir grupta 13 olmak üzere toplamda 26 altmış beş yaş üstü bireydir. Katılımcıların ses değerlendirmeleri akustik ve algısal analizleri içermiş; tüm bireylere çalışmanın başında ve sonunda uygulanmıştır. Akustik analizler ses analizi için kullanılan bir araç olan praat programı ile araştırmacılar tarafından Shure SGA58 Cardiot Mikrofon (Shure INC, NILES, ILLINOIS, USA) ve Creative Labs Sound Blaster ses kartı olan Windows işletim sistemi yüklü bir diz üstü bilgisayar ile kayıt edilerek yapılmıştır. Katılımcılar en rahat oldukları ton ve gürlükte uzatabildikleri kadar /a/ fonasyonu sesletmiş, kayıdın ortadaki beş saniyelik bölümleri analiz edilmiştir. Algısal analizler ise araştırmacı eşliğinde elde doldurulan Sesle İlgili Yaşam Kalitesi Ölçeği, Seste Yaşlanma ve Reflü İndeksleri ile yapılmıştır. Çalışma ve kontrol gruplarının cinsiyet dağılımı veya ortalama yaş açısından anlamlı farklılık göstermediği görülmüştür ($p = .430$; $p = .218$). Kontrol grubunda akustik veya algısal analizlerde başlangıç ve terapi sonrası ölçümler arasında istatistiksel olarak anlamlı değişiklikler gözlenmezken çalışma grubunda, terapi sonrası ölçümler sonucunda HNR ($p = .042$), NHR ($p = .011$), DSI ($p = .011$), MPT ($p = .012$), Low F0 ($p = .043$) ve CPP'de ($p = .018$) ve tüm algısal değerlendirme parametrelerinde RSOTOP ($p = .001$), SIYKOTOP ($p = .001$) ve TRAVITOP ($p = .001$) istatistiksel olarak anlamlı iyileşmeler gözlendi. Bireysel ya da grupla olsun her iki terapi yönteminin güçlü yönleri ve sınırlılıkları değişiklik gösterse de çalışmalar her iki yöntemin de ses bozukluklarının tedavisinde etkinliklerini kanıtlamaktadır. Bu çalışmanın sonuçları özellikle algısal değerlendirmeler göz önünde bulundurulduğunda presbifoni semptomlarına sahip yaşlı bireylerde grupla ses terapisinin etkili bir müdahale seçeneği olabileceğini düşündürmektedir.

Anahtar Kelimeler: Presbifoni, Grup ses terapisi, Akustik analiz, Algısal analiz

MULTIDIMENSIONAL EVALUATION OF GROUP VOICE THERAPY OUTCOMES IN OLDER ADULTS

Abstract

Vocal changes which arise by aging is a growing area of interest for professionals working in the field of vocal health. This study aims to investigate the long-term effects of group voice therapy in older adults diagnosed with age-related voice disorders in the absence of organic voice pathology. This study

was designed as a randomized controlled experimental trial using a pretest–posttest model with a control group. A total of 26 individuals aged 65 years and older were included, with 13 participants assigned to each group. Voice evaluations comprised acoustic and perceptual analyses and were conducted at baseline and at the end of the study. Acoustic analyses were performed using Praat software. Voice recordings were obtained using a Shure SGA58 cardioid microphone (Shure Inc., Niles, IL, USA) connected to a laptop computer equipped with a Creative Labs Sound Blaster sound card and running the Windows operating system under standardized recording conditions. Participants were instructed to produce a sustained /a/ phonation at a comfortable pitch and intensity for as long as possible. The central five-second segment of each recording was extracted for analysis. Perceptual evaluations were conducted using the Voice-Related Quality of Life (V-RQOL) Scale, the Aging Voice Index (AVI), and the Reflux Symptom Index (RSI), administered under researcher supervision. No statistically significant differences were observed between the study and control groups in terms of gender distribution or mean age ($p = .430$; $p = .218$). In the control group, no statistically significant changes were found between pre- and post-therapy measurements in either acoustic or perceptual analyses. In contrast, the study group demonstrated statistically significant improvements following therapy, as evidenced by changes in HNR ($p = .042$), NHR ($p = .011$), DSI ($p = .011$), MPT ($p = .012$), Low F0 ($p = .043$), and CPP ($p = .018$). Furthermore, significant improvements were also observed across all perceptual evaluation parameters, including RSOTOP ($p = .001$), SIYKOTOP ($p = .001$), and TRAVITOP ($p = .001$). While individual and group therapy approaches differ in their respective strengths and limitations, existing literature indicates that both are effective in the management of voice disorders. The findings of this study suggest that group voice therapy is an effective intervention for age-related voice disorders in older adults. In particular, based on perceptual evaluation results, it may be considered a promising therapeutic option for individuals with presbyphonia.

Keywords: Presbyphonia, Group Voice Therapy, Acoustic Analysis, Perceptual Analysis

AFAZİDE ALTERNATİF VE DESTEKLEYİCİ İLETİŞİM SİSTEMLERİNİN (ADİS) KULLANIM PROFİLİ: OLGU SUNUMU

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Özet

Giriş/Amaç: Afazi, çoğunlukla inme sonrası gelişen ve konuşma, anlama, okuma ve yazma becerilerini etkileyebilen edinilmiş bir iletişim bozukluğudur. Afazi yalnızca dil becerilerini değil, bireylerin sosyal katılımını ve yaşam kalitesini de olumsuz etkileyebilmekte; sosyal izolasyon ve depresyon gibi psikososyal sorunlara yol açabilmektedir. Alternatif ve destekleyici iletişim sistemleri (ADİS), bireylerin mevcut iletişim becerilerinin iletişim gereksinimlerini karşılamada yetersiz kaldığı durumlarda iletişimi desteklemek, geliştirmek veya telafi etmek amacıyla kullanılan yöntem ve araçları kapsamaktadır. Bu çalışmanın amacı, afazisi olan bir bireyin ADİS kullanımına ilişkin bilgi düzeyini, farkındalığını ve psikososyal tutumlarını incelemektir.

Yöntem: Bu olgu sunumu, kronik dönemde Broka afazisi bulunan, 55 yaşında ve lise mezunu bir erkek birey ile gerçekleştirilmiştir. Olgu, üç yıl önce inme geçirmiş olup inme sonrasında aralıklı dönemlerde dil ve konuşma terapisi almaktadır. Veri toplama amacıyla 11 sorudan oluşan demografik bilgi formu ile 30 maddelik, 5'li Likert tipinde sorulardan oluşan ADİS Tutum Formu uygulanmıştır.

Bulgular: Olgunun resim ve sembol kartları, yazı, alfabe tahtası, iletişim defteri, jest ve mimikler gibi çeşitli ADİS yöntemlerini kullandığı belirlenmiştir. ADİS'i zaman zaman kullandığını ve en sık sağlık kurumlarında yararlandığını bildirmiştir. Olgu, ADİS'in iletişimine katkı sağladığına ve konuşma becerilerini olumsuz etkilemediğine inanmaktadır. Ayrıca ADİS kullanımının iletişimini, özgüvenini ve yaşam kalitesini artıracağını düşünmektedir. Bununla birlikte sistemi nasıl kullanacağı konusunda yeterli bilgiye sahip olmadığını ve kullanımın kendisi için zor olabileceğini ifade etmiştir. Damgalanma, utanma veya dışlanma kaygısı taşımadığını belirten olgu, iletişim kurarken öncelikli olarak konuşmayı tercih ettiğini bildirmiştir. Aile desteği konusunda ise kararsız olduğunu ifade etmiştir.

Sonuç: Bu olguda ADİS kullanımına yönelik yüksek motivasyonun bulunması ve bireyin damgalanma ya da dışlanma gibi olumsuz tutumlar bildirmemesi, rehabilitasyon süreci açısından olumlu bir özellik olarak değerlendirilebilir. Bununla birlikte ADİS kullanımının önündeki temel engelin teknik bilgi eksikliği ve kullanımın zor algılanması olduğu görülmektedir. ADİS'e yönelik eğitim, danışmanlık ve uygulama deneyimlerinin artırılmasıyla bu engellerin azaltılabileceği, buna bağlı olarak iletişim bağımsızlığı ve ADİS kullanımının desteklenebileceği düşünülmektedir.

Anahtar Kelimeler: Afazi, alternatif ve destekleyici iletişim sistemleri, ADİS, inme, iletişim.

APHASIA AND AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (AAC) USAGE PROFILE: A CASE REPORT

Abstract

Introduction/Purpose: Aphasia is an acquired communication disorder that most commonly develops following a stroke and may affect speaking, comprehension, reading, and writing skills. Aphasia can negatively impact not only language abilities but also individuals' social participation and quality of life, potentially leading to psychosocial problems such as social isolation and depression. Augmentative and Alternative Communication (AAC) encompasses methods and tools used to support, enhance, or compensate for communication when an individual's existing communication skills are insufficient to meet their communicative needs. The aim of this study is to examine the level of knowledge, awareness, and psychosocial attitudes of an individual with aphasia regarding AAC use.

Method: This case report was conducted with a 55-year-old male individual with a high school diploma who presented with chronic-phase Broca's aphasia. The case had experienced a stroke three years prior and had been receiving intermittent speech and language therapy since then. A demographic information form consisting of 11 questions and an AAC Attitude Scale comprising 30 items in a 5-point Likert format were administered for data collection.

Results: It was determined that the individual used various AAC methods, including picture and symbol cards, written text, an alphabet board, a communication book, and gestures and facial expressions. He reported using AAC occasionally and most frequently in healthcare settings. The individual believes that AAC contributes to his communication and does not negatively affect his speaking abilities. He also indicated that using AAC would enhance his communication, self-confidence, and quality of life. However, he expressed that he lacked sufficient knowledge about how to use the system and that its use might be challenging for him. The individual stated that he did not experience concerns about stigmatization, embarrassment, or exclusion, and reported preferring speech as his primary mode of communication. Regarding family support, he expressed uncertainty.

Conclusion: The presence of high motivation toward AAC use and the absence of negative attitudes such as stigmatization or exclusion in this case may be considered a favorable factor for the rehabilitation process. Nevertheless, the primary barriers to AAC use appear to be a lack of technical knowledge and the perception that its use is difficult. It is thought that these barriers could be reduced by increasing education, counseling, and practical experience related to AAC, thereby supporting communicative independence and AAC utilization.

Keywords: Aphasia, augmentative and alternative communication, AAC, stroke, communication.

İŞİTME YETERSİZLİĞİ OLAN BİREYLERDE ALTERNATİF VE DESTEKLEYİCİ İLETİŞİM SİSTEMLERİNE YÖNELİK ÇALIŞMALARIN İNCELENMESİ

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Özet

Giriş/Amaç: İşitme yetersizliği bireylerin dil, iletişim, akademik ve sosyal gelişimlerini etkileyebilen önemli bir duyusal yetersizliktir. İşitsel girdinin sınırlı olması nedeniyle ortaya çıkan iletişim güçlüklerinin azaltılmasında Alternatif ve Destekleyici İletişim Sistemleri (ADİS) önemli bir destek sunmaktadır. Bu derlemenin amacı, işitme yetersizliği olan bireylerde kullanılan ADİS uygulamalarına ilişkin güncel literatürü incelemek ve bu sistemlerin iletişim süreçlerine etkilerini incelemektir.

Yöntem: Bu kapsamda son 19 yılda yayımlanan çalışmalar incelenmiş "işitme yetersizliği", "işitme kaybı", "alternatif ve destekleyici iletişim", "deaf", "hearing impairment" ve "augmentative and alternative communication" anahtar kelimeleri ile DergiPark, PubMed, Google Akademik, ve YÖK Ulusal Tez Merkezi veri tabanları incelenmiştir. İşaret dili destekleri, görsel iletişim araçları, Görsel Fonik uygulamaları, mobil teknolojiler ve konuşma üreten cihazlar gibi farklı ADİS yöntemlerinin kullanım alanları ele alınmıştır.

Bulgular: İncelenen çalışmalar 3 derleme, 23 araştırma, 2 sistematik derleme ve 1 vaka çalışmasına ulaşılmıştır. İşitme engeline odaklanan ise 4 çalışma dahil edilmiştir. İncelenen çalışmalar ADİS uygulamalarının iletişim becerilerinin desteklenmesine, okuryazarlık gelişimine, sosyal katılımın artırılmasına ve özellikle ek yetersizliği bulunan işitme yetersizliği olan bireylerin iletişim gereksinimlerinin karşılanmasına katkı sağlayabildiğini göstermektedir.

Sonuç: ADİS uygulamaları işitme yetersizliği olan bireylerin iletişim olanaklarını genişleten önemli araçlar olarak değerlendirildiği; ancak İşitme yetersizliği olan bireylerde ADİS kullanımına yönelik araştırmaların sınırlı olduğu ve özellikle Türkiye'de bu alanda daha fazla çalışmaya ihtiyaç duyulduğu görülmektedir. Bu alandaki araştırmaların artırılması ve uygulamaların yaygınlaştırılması için önemli olacaktır.

Anahtar Kelimeler: İşitme yetersizliği, alternatif ve destekleyici iletişim, dil ve konuşma terapisi, yardımcı teknolojiler

A REVIEW OF STUDIES ON AUGMENTATIVE AND ALTERNATIVE COMMUNICATION SYSTEMS FOR INDIVIDUALS WITH HEARING IMPAIRMENT

Abstract

Introduction/Objective: Hearing impairment is a significant sensory disability that can affect individuals' language, communication, academic, and social development. Due to limited auditory input,

communication difficulties are common, and Augmentative and Alternative Communication (AAC) systems provide important support in addressing these challenges. This review aims to examine the current literature on AAC systems used with individuals with hearing impairment and to evaluate their effects on communication processes.

Method: Studies published over the last 19 years were reviewed using the keywords "hearing impairment," "hearing loss," "augmentative and alternative communication," "deaf," and "AAC." The databases DergiPark, PubMed, Google Scholar, and the National Thesis Center of the Council of Higher Education (YÖK) were searched. The review covered various AAC approaches, including sign language supports, visual communication tools, Visual Phonics applications, mobile technologies, and speech-generating devices.

Results: A total of 29 studies were identified, including 3 review articles, 23 research studies, 2 systematic reviews, and 1 case study. Among these, only 4 studies specifically focused on individuals with hearing impairment. The reviewed literature suggests that AAC systems can support communication skills, promote literacy development, enhance social participation, and particularly address the communication needs of individuals with hearing impairment who have additional disabilities.

Conclusion: AAC systems are considered valuable tools for expanding communication opportunities for individuals with hearing impairment. However, research specifically addressing AAC systems use in this population remains limited, particularly in Türkiye. Increasing research efforts and promoting the wider implementation of AAC practices will be important for advancing the field.

Keywords: Hearing impairment, augmentative and alternative communication, speech and language therapy, assistive technologies.

DOĞUŞTAN GÖRME ENGELLİ BİR VAKADA DİL VE KONUŞMA MÜDAHALESİNİN ETKİNLİĞİNİN İNCELENMESİ

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Özet

Dil ve konuşma terapisi açısından erken dönemde ortaya çıkan görme yetersizliği, çocukların çevreyle etkileşimini ve dil gelişim süreçlerini olumsuz etkileyebilmektedir. Görsel girdilerden yeterince yararlanamayan çocuklar nesneleri, eylemleri ve kişiler arası etkileşimleri gözlemleme konusunda sınırlılık yaşayabilmektedirler. Bu durum, çocuğun çevresini anlamlandırmasını ve edindiği bilgileri günlük yaşama aktarmasını da güçleştirebilmektedir. Özellikle sözcük ediniminde, sosyal etkileşim, ortak dikkat, iletişimi başlatma ve iletişimi sürdürme becerilerinde gecikmeler görülebilmektedir. Bu nedenle görme yetersizliği bulunan çocukların dil ve iletişim becerilerinin erken dönemde değerlendirilmesi ve çocuğun bireysel gereksinimlerine uygun müdahale programlarının planlanması büyük önem taşımaktadır. Bu çalışmanın amacı, doğuştan görme yetersizliği bulunan bir çocuğun dil ve iletişim becerilerini değerlendirmek ve bireyselleştirilmiş, dil ve konuşma terapisi uygulamalarının çocuğun sözcük dağarcığı, sosyal etkileşim ve iletişim başlatma ve iletişimi devam ettirme becerileri üzerindeki etkilerini incelemektir. Doğuştan görme yetersizliği bulunan 2 yaş 8 aylık erkek bir vakanın dil ve iletişim becerileri değerlendirilmiş ve uygulanan dil ve konuşma terapisi süreci incelenmiştir. Değerlendirme sürecinde dil değerlendirmesinde Dil Gelişimi Değerlendirme Envanteri (DİLTAR) ve doğal iletişim ortamında gerçekleştirilen çocuk-ebeveyn ve terapist etkileşimleri kullanılmıştır. Değerlendirme sonuçları doğrultusunda müdahale programı, danışanın gelişimsel düzeyi, gereksinimleri ve bireysel özellikleri dikkate alınarak yapılandırılmıştır. Müdahale sürecinde doğal dil öğretim stratejileri temel alınmış olup model olma, genişletme, seçenek sunma gibi yöntemlerden yararlanılmıştır. Görsel girdinin sınırlı olması nedeniyle terapi içinde özellikle işitsel, dokunsal ve çok duyulu uyaranlara dayalı etkinliklere yer verilmiştir. Danışan, terapi süreci boyunca değişen sıklıklarda gerçekleştirilen toplam yaklaşık 30 seansa katılmıştır. Terapi süreci sonunda danışanın sözcük dağarcığında artış olduğu, kullandığı sözcükleri farklı kişi ve ortamlarda kullanmaya başladığı ve sosyal etkileşim becerilerinde gelişim gözlendiği belirlenmiştir. Ayrıca danışanın iletişim başlatma davranışlarında artış olduğu ve terapistle etkileşimi sürdürme becerisinin geliştiği gözlenmiştir. Elde edilen bulgular doğrultusunda, görme yetersizliği bulunan çocuklarda erken dönemde başlatılan bireyselleştirilmiş ve çok duyulu yaklaşımlarla yapılandırılan dil ve konuşma terapisi uygulamalarının dil ve iletişim becerilerinin desteklenmesine olumlu katkılar sağlayabileceği düşünülmektedir.

Anahtar Kelimeler: Görme yetersizliği, dil ve konuşma terapisi, erken müdahale, dil gelişimi, doğal dil öğretimi

AN INVESTIGATION INTO THE EFFECTIVENESS OF LANGUAGE AND SPEECH INTERVENTION IN A CASE OF CONGENITAL VISUAL IMPAIRMENT

ABSTRACT

From a speech and language therapy perspective, visual impairment that arises in early childhood can negatively impact children's interaction with their environment and their language development processes. Children who cannot fully benefit from visual input may experience limitations in observing

objects, actions, and interpersonal interactions. This situation can also make it difficult for the child to make sense of their environment and apply the knowledge they have acquired to daily life. Delays may be observed particularly in vocabulary acquisition, social interaction, joint attention, and the skills of initiating and maintaining communication. Therefore, it is of great importance to assess the language and communication skills of children with visual impairments at an early stage and to plan intervention programs tailored to the child's individual needs. The aim of this study is to assess the language and communication skills of a child with congenital visual impairment and to examine the effects of individualized speech-language therapy interventions on the child's vocabulary, social interaction, and the ability to initiate and maintain communication. The language and communication skills of a 2-year-8-month-old male child with congenital visual impairment were assessed, and the speech-language therapy process was examined. During the assessment process, the Language Development Assessment Inventory (DİLTAR), and child-parent and therapist interactions conducted in natural communication settings were utilized. Based on the assessment results, the intervention program was structured by taking into account the client's developmental level, needs, and individual characteristics. The intervention process was grounded in natural language teaching strategies, utilizing methods such as modeling, expansion, and offering choices. Due to limited visual input, the therapy included activities based primarily on auditory, tactile, and multisensory stimuli. The client participated in a total of approximately 30 sessions conducted at varying frequencies throughout the therapy process. At the conclusion of the therapy process, it was determined that the client's vocabulary had increased, they had begun using the words they knew in different contexts and with different people, and improvements in social interaction skills were observed. Additionally, an increase in the client's ability to initiate communication was observed, along with improved skills in maintaining interaction with the therapist. Based on these findings, it is believed that speech and language therapy interventions—structured using individualized and multisensory approaches initiated in the early stages—can make positive contributions to supporting language and communication skills in children with visual impairments.

Keywords: Visual impairment, speech-language therapy, early intervention, language development, natural language instruction

ODYOLOGLARDA BİREYSEL DEĞERLERİN ÇATIŞMA YÖNETİMİ STRATEJİLERİNİN YORDAYICILARI OLARAK İNCELENMESİ

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Özet

Arka Plan: Odyologlar, işitme cihazı merkezleri, klinikler, hastaneler, rehabilitasyon merkezleri gibi pek çok alanda hekimler, çocuk gelişimi uzmanları, öğretmenler, dil konuşma terapistleri ve diğer sağlık çalışanlarından oluşan multidisipliner bir ekibin parçasıdır. Kişisel farklılıkların ve bireysel değerlerin ön plana çıkacağı odyologların çalışma ortamında çatışma ve çatışma yönetimi kavramları, örgütsel çatışma yönetiminin planlanmasında ve iş verimliliğinin arttırılmasında önem taşımaktadır.

Amaç: Bu çalışmanın amacı, Türkiye'de görev yapmakta olan odyologlarda bireysel değerlerin çatışma yönetimi üzerinde yordayıcı etkisi olup olmadığını araştırmaktır.

Gereç ve Yöntem: Araştırmamıza Türkiye'nin farklı bölgelerinde görev yapmakta olan 150 odyolog dahil edilmiştir. Bireysel değerlerin belirlenmesi için Portre Değerler Anketi, çatışma yönetimi stratejilerinin belirlenmesinde ise Örgütsel Çatışma Ölçeği II kullanılmıştır. Anketler online olarak GoogleForms aracılığıyla katılımcılara uygulanmıştır. Verilerin analizinde Adım-Adım (Stepwise) değişken seçim yöntemi kullanılarak çoklu doğrusal regresyon analizi uygulanmıştır.

Bulgular: Regresyon analizlerinde, model varsayımlarını sağlamak ve çoklu doğrusal bağlantıyı önlemek amacıyla anlamlı katkı sağlamayan ($p>0,05$) ve düşük tolerans değerine sahip değişkenler model dışı bırakılmıştır. Bütünleştirme alt boyutunda yalnızca Özaşkınlık anlamlı yordayıcı bulunmuş ($p<0,001$) ve model varyansın %39,4'ünü açıklamıştır. Ödün verme alt boyutunda Muhafazacılık ($p=0,003$) ve Özaşkınlık ($p=0,024$) anlamlı yordayıcılar olup açıklanan varyans %17,7'dir. Hükmetme alt boyutunda Özgenişletim ($p<0,001$) ve Muhafazacılık ($p=0,007$) anlamlı bulunmuş ve model varyansın %33,6'sını açıklamıştır. Uzlaşma alt boyutunda Özaşkınlık ($p<0,001$) ve Hazcılık ($p=0,013$) anlamlı yordayıcılar olup açıklanan varyans %35,0'tir. Kaçınma alt boyutunda ise Muhafazacılık

(p<0,001) pozitif, Yeniliğe Açıklık (p=0,003) negatif yönde anlamlı yordayıcı olup model varyansın %19,5'ini açıklamaktadır.

Sonuç: Elde edilen bulgular, odyologların çatışma yönetimi stillerinin farklı bireysel değerler tarafından anlamlı düzeyde yordandığını göstermektedir. Çatışma durumunda yöneticiler tarafından ekipte bulunan çalışanların bireysel değerleri göz önünde bulundurularak uygulanacak uygun çatışma yönetimi stratejileri, hem odyologların hem de birlikte çalıştıkları multidisipliner ekibin iş verimliliğini arttıracak, odyologların iş tatminine olumlu yönde katkı sağlayacaktır.

Anahtar Kelimeler: Odyolog, çatışma, çatışma yönetimi, bireysel değerler

Bu çalışma TÜBİTAK 2209-A - Üniversite Öğrencileri Araştırma Projeleri Destekleme Programı kapsamında yürütülmüştür (Proje No: 1919B012402194).

INDIVIDUAL VALUES AS PREDICTORS OF CONFLICT MANAGEMENT STYLES AMONG AUDIOLOGISTS

Abstract

Background: Audiologists are part of a multidisciplinary team consisting of physicians, child development specialists, teachers, speech and language therapists, and other healthcare professionals in many settings such as hearing aid centers, clinics, hospitals, and rehabilitation centers. In the working environment of audiologists, where personal differences and individual values are likely to come to the forefront, the concepts of conflict and conflict management are important for planning organizational conflict management and increasing work productivity.

Objective: The aim of this study is to investigate whether individual values have a predictive effect on conflict management among audiologists working in Türkiye.

Materials and Methods: A total of 150 audiologists working in different regions of Türkiye were included in the study. The Portrait Values Questionnaire was used to determine individual values, and the Organizational Conflict Inventory-II was used to identify conflict management strategies. The questionnaires were administered online to participants via Google Forms. Multiple linear regression analysis was performed using the Stepwise variable selection method for data analysis.

Results: In the regression analyses, variables that did not make a significant contribution (p>0.05) and had low tolerance values were excluded from the model in order to meet model assumptions and prevent multicollinearity. In the Integrating subscale, only Self-Transcendence was found to be a significant predictor (p<0.001), and the model explained 39.4% of the variance. In the Obliging subscale, Conservation (p=0.003) and Self-Transcendence (p=0.024) were significant predictors, with an explained variance of 17.7%. In the Dominating subscale, Self-Enhancement (p<0.001) and Conservation (p=0.007) were found to be significant, and the model explained 33.6% of the variance. In the Compromising subscale, Self-Transcendence (p<0.001) and Hedonism (p=0.013) were significant predictors, and the explained variance was 35.0%. In the Avoiding subscale, Conservation (p<0.001) was a significant positive predictor, whereas Openness to Change (p=0.003) was a significant negative predictor, and the model explained 19.5% of the variance.

Conclusion: The findings indicate that audiologists' conflict management styles are significantly predicted by different individual values. Appropriate conflict management strategies implemented by managers while taking into account the individual values of team members in conflict situations may increase the work productivity of both audiologists and the multidisciplinary teams with whom they work and may contribute positively to audiologists' job satisfaction.

Keywords: Audiologist, conflict, conflict management, individual values.

This study was conducted within the scope of the TÜBİTAK 2209-A – University Students Research Projects Support Program (Project No: 1919B012402194).

VITAMIN D AS A BIOMARKER IN PREGNANCIES COMPLICATED BY PREECLAMPSIA AND SARS-COV-2 INFECTION

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Abstract

Preeclampsia is one of the leading causes of maternal and perinatal morbidity and mortality worldwide. The emergence of the COVID-19 pandemic has introduced additional challenges in pregnancy management, as SARS-CoV-2 infection has been associated with an increased risk of obstetric complications, including preeclampsia, preterm birth, and fetal growth restriction.

Vitamin D is well known for its role in calcium and bone metabolism; however, recent evidence has highlighted its immunomodulatory, anti-inflammatory, and vasculoprotective properties. Vitamin D deficiency has been associated with both the development of preeclampsia and more severe forms of COVID-19 infection. To evaluate vitamin D status in pregnant women with preeclampsia and SARS-CoV-2 infection and to investigate the relationship between vitamin D levels, gestational age, and hematological parameters. A retrospective observational study was conducted on a cohort of 50 pregnant women diagnosed with SARS-CoV-2 infection and preeclampsie.

The study demonstrated a high prevalence of vitamin D deficiency among pregnant women with SARS-CoV-2 infection. However, no statistically significant associations were found between vitamin D levels and the analyzed hematological or obstetric parameters.

These findings may be explained by the relatively small sample size and the multifactorial nature of both preeclampsia and the inflammatory response associated with COVID-19.

Keywords: Vitamin D, Preeclampsia, COVID-19, SARS-CoV-2, Pregnancy, Biomarker

ASSESSMENT OF ARTERIAL STIFFNESS AS A PREDICTOR OF CARDIOVASCULAR RISK IN PREGNANCIES COMPLICATED BY HYPERTENSIVE DISORDERS

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Abstract

Hypertensive disorders of pregnancy remain a major cause of maternal and perinatal morbidity and mortality worldwide. Early identification of pregnant women at increased cardiovascular risk may improve maternal and neonatal outcomes. Arterial stiffness, assessed by pulse wave velocity (PWV), has emerged as a valuable non-invasive marker of cardiovascular dysfunction. Methods: A comparative observational study was conducted including 200 pregnant women: 100 diagnosed with hypertensive disorders associated with pregnancy and 100 normotensive controls. Arterial stiffness parameters were assessed using the Arteriograph device, with particular focus on aortic pulse wave velocity (PWVao) and augmentation index (AIx). Maternal demographic characteristics, pregnancy outcomes, and neonatal parameters were analyzed. Results: Women with hypertensive disorders had a mean age of 37.6 years, mean BMI of 30.3 kg/m², mean gestational age at delivery of 34.3 weeks, mean neonatal birth weight of 2574 g, and mean Apgar score of 7.6. Arterial stiffness parameters were significantly elevated in the hypertensive group, with PWVao increasing from 10.92 m/s in the second trimester to 12.37 m/s in the third trimester, accompanied by significant changes in AIx values. Systolic and diastolic blood pressures averaged 196 mmHg and 121 mmHg, respectively. Statistical analysis demonstrated significant differences between hypertensive and normotensive pregnancies regarding arterial stiffness indices, maternal characteristics, and pregnancy outcomes ($p < 0.05$). Conclusions: Increased arterial stiffness is associated with hypertensive disorders of pregnancy and adverse maternal-fetal outcomes.

PWV and AIx measurements may serve as useful non-invasive biomarkers for cardiovascular risk stratification during pregnancy. Incorporating arterial stiffness assessment into routine prenatal evaluation could facilitate earlier identification of women at risk for preeclampsia and other cardiovascular complications, allowing timely intervention and improved perinatal outcomes.

Keywords: Hypertensive disorders, pregnancy, pulse wave velocity, augmentation index

ASSESSMENT OF ARTERIAL FUNCTION DURING PREGNANCY: CURRENT EVIDENCE AND CLINICAL IMPLICATIONS

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Abstract

Pregnancy is associated with profound cardiovascular adaptations that are essential for supporting maternal and fetal physiological demands. Alterations in vascular function and arterial stiffness have gained increasing attention as potential indicators of maternal cardiovascular health and predictors of adverse pregnancy outcomes. Pulse wave velocity (PWV), recognized as the gold-standard non-invasive measure of arterial stiffness, has emerged as a valuable marker for the early detection of vascular dysfunction and cardiovascular risk.

This narrative review summarizes current evidence regarding arterial function assessment during pregnancy, with particular emphasis on pulse wave velocity, augmentation index, and their relationship with hypertensive disorders of pregnancy, including gestational hypertension and preeclampsia. Recent studies suggest that increased arterial stiffness is associated with endothelial dysfunction, impaired placental perfusion, fetal growth restriction, and an elevated risk of future maternal cardiovascular disease. Furthermore, maternal age, obesity, chronic hypertension, and smoking have been identified as important determinants of arterial stiffness during pregnancy.

Although reference values for arterial stiffness in pregnancy remain incompletely established, accumulating evidence supports the integration of vascular function assessment into maternal cardiovascular risk stratification. The combined evaluation of arterial stiffness and inflammatory or angiogenic biomarkers may improve the early identification of women at risk for adverse maternal and fetal outcomes.

In conclusion, arterial stiffness assessment represents a promising non-invasive approach for monitoring cardiovascular adaptation during pregnancy and may contribute to improved prediction, prevention, and management of pregnancy-related cardiovascular complications.

Keywords: arterial stiffness; pulse wave velocity; pregnancy; vascular function; preeclampsia

ANTITHROMBIN LEVELS AND PREGNANCY OUTCOMES IN WOMEN WITH THROMBOPHILIA: ASSOCIATION WITH REPRODUCTIVE LOSS HISTORY

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Abstract

Thrombophilia is associated with an increased risk of thromboembolic events and adverse obstetric outcomes, including recurrent pregnancy loss, fetal growth restriction, preeclampsia, and placental insufficiency. Among inherited thrombophilias, antithrombin deficiency is considered one of the strongest risk factors for thrombotic complications. However, its relationship with pregnancy outcomes remains incompletely understood.

Methods: This observational study included 116 pregnant women diagnosed with thrombophilia. Antithrombin levels were assessed and analyzed in relation to maternal reproductive history and neonatal outcomes, including gestational age at delivery, birth weight, and Apgar score. The difference between the number of pregnancies and deliveries (DIFF) was used as an indicator of previous pregnancy losses. Descriptive statistics, Pearson correlation coefficients, and regression analyses were performed to evaluate associations between antithrombin levels and study variables.

Results: The mean antithrombin level was 97.3%, while the mean gestational age at delivery was 35.1 weeks and the mean neonatal birth weight was 2692 g. No significant associations were identified between antithrombin levels and gestational age, birth weight, or Apgar score (all $p > 0.05$). In contrast, a moderate positive association was observed between antithrombin levels and the DIFF variable ($r =$

0.42, $p < 0.001$), indicating a significant relationship between antithrombin abnormalities and a history of pregnancy loss.

Conclusions: Antithrombin levels were not significantly associated with neonatal outcomes in pregnancies affected by thrombophilia. However, the significant correlation between antithrombin values and previous reproductive losses suggests a potential role of antithrombin abnormalities in adverse reproductive history. Further prospective studies are required to clarify the clinical utility of antithrombin assessment in risk stratification and management of pregnant women with thrombophilia.

Keywords: thrombophilia; antithrombin deficiency; pregnancy loss; recurrent miscarriage; pregnancy outcomes; fetal development; thrombosis.

RELATIONSHIP BETWEEN ADHERENCE TO ANTENATAL CARE AND MATERNAL-FETAL OUTCOMES IN A REMOTE AREAS

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Abstract

Adherence to antenatal care (ANC) is considered essential to early detection and management of pregnancy-related complications, improving maternal and fetal outcomes, and preventing morbidity and mortality. Maternal compliance with ANC may be influenced by several barriers and other factors, particularly for women living in remote or rural areas. This narrative review aimed to assess the relationship between adherence to antenatal care and maternal-fetal outcomes in a remote areas. Databases of PubMed, EBSCO, ScienceDirect, MEDLINE, and Google Scholar were used. Forty-one studies that met the inclusion criteria were published between 2020 and 2025, with a focus on compliance with ANC and outcomes in remote or rural areas, and were included in the review by using appropriate keywords. The review highlights that early, regular attendance and adherence to ANC services were associated with positive outcomes, indicating that several barriers influenced adherence levels across countries. Numerous strategies are being used to improve outcomes and raise attendance. Include healthy lifestyle counseling, emotional support, raising awareness, encouraging the use of telemedicine or electronic applications, increasing the number of qualified healthcare professionals in medical facilities, and constructing more medical facilities in outlying locations. In conclusion, limited studies discussed adherence to antenatal care in remote and rural areas in Saudi Arabia, which need further research.

Keywords: Antenatal care adherence, Prenatal care compliance, Antenatal care utilization, Maternal health outcomes, Fetal health outcomes, Barriers, challenges**,** obstacles, and Remote areas or rural areas.

THE RELATIONSHIP BETWEEN SOCIAL SUPPORT AND LEVEL OF ANXIETY AMONG WOMEN WITH A HISTORY OF ABORTION: NARRATIVE REVIEW

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Abstract

The abortion process is a significant change a woman undergoes, most importantly psychological changes. Women who experience an abortion have a high risk of developing anxiety and depression. The narrative review PICOT question is "What is the relationship between social support and level of anxiety among women with a history of abortion?" and the aim to identify the relationship between social support and level of anxiety among women with a history of abortion.

For this review, an extensive search including keywords applied across the Saudi Digital Library for database search engines: EBSCO (CINAHL and MEDLINE) and an additional source was Google Scholar identified 40 studies from diverse countries.

Across studies, high levels of anxiety and depression were common after abortion, and often persisted beyond post abortion period. Consistently, greater perceived social, familial and partner support were associated with lower anxiety and better psychological adjustment, while low or absent support predicted higher distress, poorer quality of life and greater risk of psychiatric disorders. Intervention studies showed that structured counselling, self-care education, supportive nursing care and digital mental-health programs can significantly reduce anxiety, depression and stress in women with history of abortion. However, many health systems still prioritize physical over emotional care, and stigma and cultural norms limit help-seeking.

Overall, the review concludes that social and psychological support are key protective factors against anxiety after abortion, but optimal forms, timing and culturally adapted models of support require further research.

Keywords: social support, family support, social support network, mental health, anxiety, post-abortion, post miscarriage, pregnancy loss, history of abortion

PERCEPTION OF BODY IMAGE AND INTENTION TO BREASTFEED AMONG POSTPARTUM WOMEN IN SAUDI ARABIA

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Abstract

Perception of body image and intention to breastfeed among postpartum women in Saudi Arabia is an important area of maternal health research. Postpartum body image may influence women's confidence and breastfeeding-related decisions due to physical changes after childbirth. Previous evidence indicates that a positive body image is associated with higher breastfeeding intention and continuation, whereas a negative perception may reduce maternal confidence and breastfeeding rates. This study aims to examine relationships. between postpartum women's body image perception and their intention to breastfeed in Saudi Arabia. A descriptive cross-sectional design will be conducted among postpartum women and women with previous pregnancy experience in Saudi Arabia. Participants will be recruited using purposive sampling from community and healthcare settings. Data will be collected using a validated self-administered questionnaire and analyzed using descriptive and correlational statistics. It is expected that women with a more positive body image perception will demonstrate higher intention to breastfeed compared to those with a negative body image perception, and a significant relationship is anticipated between body image scores and breastfeeding intention. The findings may support healthcare providers in developing interventions that enhance positive body image and promote breastfeeding practices, ultimately improving maternal and infant health outcomes.

Key words: Postpartum body image, breastfeeding intention, maternal health, women's perception, body image

EFFECTS OF BIRTH SKIN-TO-SKIN CONTACT ON MATERNAL OUTCOMES: *A SCOPING REVIEW*

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Abstract

Background: Postpartum hemorrhage remains one of the leading causes of preventable maternal mortality worldwide, accounting for 27.1% of all maternal deaths. Despite the widespread use of uterotonic protocols, postpartum hemorrhage rates have shown little improvement over recent decades. Birth skin-to-skin contact (SSC) between mother and newborn has emerged as a promising non-pharmacological intervention that may support maternal physiological recovery through endogenous oxytocin stimulation.

Aim: This scoping review aimed to map and synthesize the available evidence on the effects of birth SSC on three key maternal outcomes: duration of the third stage of labor, uterine involution, and postpartum blood loss.

Methods: A systematic search was conducted across PubMed, CINAHL, ScienceDirect, and Scopus via the Saudi Digital Library. Studies published from 2021 onward were prioritized, with inclusion of foundational earlier sources where relevant. Boolean operators and MeSH headings were applied. Only peer-reviewed, English-language studies with human participants were included.

Results: Evidence consistently indicates that birth SSC significantly reduces the duration of the third stage of labor, promotes earlier and more complete uterine involution, and is associated with lower postpartum blood loss. These effects are primarily attributed to oxytocin-mediated myometrial contractions triggered by maternal-newborn sensory contact. Findings from Saudi Arabia specifically suggest that SSC reduces the third stage duration from a mean of 16.94 minutes in controls to 7.03 minutes in the SSC group. Despite this evidence, SSC remains markedly underutilized in Saudi delivery settings, with only 15% of mothers receiving SSC after vaginal birth in major Jeddah hospitals.

Conclusion: Birth SSC is a cost-free, evidence-based intervention with meaningful benefits for maternal outcomes. Routine integration of SSC into postpartum care protocols, particularly in Saudi Arabia, is strongly warranted. Further research targeting high-risk populations and cesarean deliveries is needed to broaden the clinical applicability of these findings.

Keywords: skin-to-skin contact, kangaroo mother care, postpartum hemorrhage, uterine involution, third stage of labor, maternal outcomes, Saudi Arabia

EVALUATION OF A CHILDBIRTH PREPARATION PROGRAM REGARDING ANXIETY, DEPRESSION, AND BODY IMAGE AMONG PREGNANT WOMEN: A SINGLE-GROUP PRE-POST COHORT STUDY IN THE PROVINCE OF SETTAT (MOROCCO)

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Abstract

Background: Childbirth preparation is an essential component of prenatal care, helping to improve pregnant women's knowledge, reduce anxiety, and promote their psychological well-being, particularly in areas with low socioeconomic status, where childbirth is often perceived as a stressful experience. In this context, it appears necessary to assess the impact of these interventions on the mental health of pregnant women. This study aims to evaluate the effect of a structured childbirth preparation program on the psychological well-being of pregnant women in the province of Settat**.**

Materials and Methods: A single-group pre-post cohort study was conducted over a 10-month period (February to December 2025). The study included 205 pregnant women. Ethical approval was obtained prior to data collection. The intervention consisted of a structured childbirth preparation program comprising four sessions led by a midwife, incorporating educational, psychological, and physical components. Data were collected using sociodemographic questionnaires, the Hospital Anxiety and Depression Scale (HADS), and the Body Image Scale (BIS). Assessments were conducted at baseline (pre-test, T0) and immediately after the final session of the program (post-test, T1).

Results: Participants had a mean age of 28.07 ± 6.19 years; the majority came from lower-income backgrounds (53.7%) and reported a high baseline fear of childbirth. Following the intervention, a significant reduction in psychological scores was observed. For anxiety (HADS-A), the mean score decreased from 12.42 ± 4.44 to 7.37 ± 2.97. Similarly, the depression score (HADS-D) decreased from 12.50 ± 4.74 to 7.44 ± 3.04 ($p < 0.001$). Furthermore, the BIS score also showed a significant decrease, moving from 23.32 ± 7.86 to 12.89 ± 2.62 ($p < 0.001$). These pre-post differences were statistically significant with large Cohen's d effect sizes (0.94, 0.86 and 1.22, respectively), indicating a meaningful trend toward better psychological adaptation**.**

Conclusion: In conclusion, the positive outcomes observed following this childbirth preparation program suggest the potential value of systematically integrating such interventions into prenatal care in Morocco, particularly in resource-limited regions.

Keywords: childbirth preparation, pregnant women, anxiety, depression, body image.

CORRELATION OF HEALH RELATED QUALITY OF LIFE AND METABOLIC SYNDROME IN POST- MENOPAUSAL WOMEN: INSIGHTS FROM NORTH-EAST INDIA

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Abstract

Risk factors accumulation for development of cardiovascular diseases and metabolic disorders involving type II diabetes mellitus are commonly termed as 'Metabolic syndrome (MetS)'. Particularly important but not so focused group of population that suffers from MetS are Post-menopausal women from both developed and underdeveloped countries. Health related quality of life (HRQL) covers the physical, psychological, social and functional areas of life. Researches involving MetS and HRQL were limited in broader population. The purpose of present study was to explore the impact of MetS on HRQL in post-menopausal women of tribal and non-tribal community.

We conducted a cross sectional study comprising of 370 women (age 25- 65 years) from Tripura using harmonized criteria for MetS (H_MS). The SF-36 questionnaire were used for HRQL.

Both tribal and non-tribal subjects with MetS had poor health related quality of life. There were significant differences in the mean scores of different subscales like physical functioning (PF) and general health (GH). Post-menopausal subjects with metabolic syndrome showed significantly lower values in role emotional (RE) subscale in both groups. PF correlated significantly with systolic and diastolic blood pressure and GH significantly correlated with BMI and TG level. Over all, presence of metabolic syndrome have impact on HRQL in tribal and non-tribal groups.

Keywords: MetS; HRQL; PF, GH; TG

MENOPAUSE: KNOWLEDGE, PERCEPTIONS AND THERAPEUTIC PREFERENCES AMONG ROMANIAN WOMEN

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ABSTRACT

Background: Menopause represents a major physiological transition in a woman's life and is frequently associated with vasomotor, psychological, and metabolic symptoms that may negatively influence quality of life. Despite increasing access to health information, misconceptions regarding menopause and available therapeutic options remain common.

Objective: To assess women's knowledge of menopause, awareness of hormone replacement therapy (HRT), and preferences regarding conventional and alternative therapeutic approaches.

Methods: A cross-sectional questionnaire-based study was conducted among 200 Romanian women aged 19–85 years. Participants completed a structured survey evaluating knowledge of menopause, symptom perception, attitudes toward HRT, awareness of potential adverse effects, and preferences for symptom management. Data were analyzed using descriptive statistical methods.

Results: More than half of the respondents were over 40 years of age. The most frequently recognized menopausal symptoms were hot flashes and night sweats (48.5%), followed by irritability, sleep disturbances, and fatigue (41.5%). Specialist physicians were considered the most appropriate professionals to recommend HRT (50.5%) and nutritional supplements (40.5%). Nearly half of the participants (46.3%) reported limited knowledge regarding potential adverse effects of HRT. Many respondents expressed a preference for plant-based or non-hormonal approaches for symptom control. Furthermore, the majority considered menopause to be insufficiently addressed in mass media and public health campaigns.

Conclusions: Although awareness of common menopausal symptoms is relatively high, significant knowledge gaps persist regarding menopause management and HRT. Educational interventions and evidence-based counseling may improve women's understanding of available therapeutic options and support informed healthcare decisions during the menopausal transition.

Keywords: menopause, women's health, hormone replacement therapy, menopausal symptoms, patient education.

MEN'S PERCEPTIONS AND ATTITUDES TOWARD FEMALE MENOPAUSE

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Abstract

The menopause is a natural biological transition that marks the end of a woman's reproductive years. It is often associated with a range of physical, psychological and emotional symptoms that can impact on a woman's daily life and relationships. While women's experiences of menopause have been extensively investigated, men's perceptions and attitudes regarding female menopause have been largely overlooked. This literature review aimed to explore men's knowledge, beliefs, attitudes and support in women's menopausal transition and the effect on marital relationships and coping outcomes. A comprehensive literature search was done in PubMed, Google Scholar, Scopus, Web of Science, and Elsevier for peer-reviewed articles published from 2018 to 2026. In total, 113 records were identified and after the screening and quality appraisal process, 47 studies were included in the final review. Four key themes emerged: knowledge and awareness of menopause in men; cultural and social influences on attitudes; marriage and relationship dynamics; and support and coping. The findings revealed that men's knowledge of menopause is limited and that they often misinterpret symptoms or attribute them to ageing or behavioral changes. Cultural beliefs and social stigma also impacted attitudes, which in turn impacted communication and support in relationships. Women going through the menopause who had higher awareness and support of partners had higher marital satisfaction, emotional wellbeing and better coping. The review concludes that increasing men's menopause education and promoting open communication may strengthen support systems and improve women's overall quality of life during menopause.

Keywords: Menopause, Male Awareness, Cultural Influences, Spousal Support, Quality of Life

INFERTILITY: A COMPLEX DISORDER INFLUENCED BY DEMOGRAPHIC, CLINICAL, AND HORMONAL FACTORS

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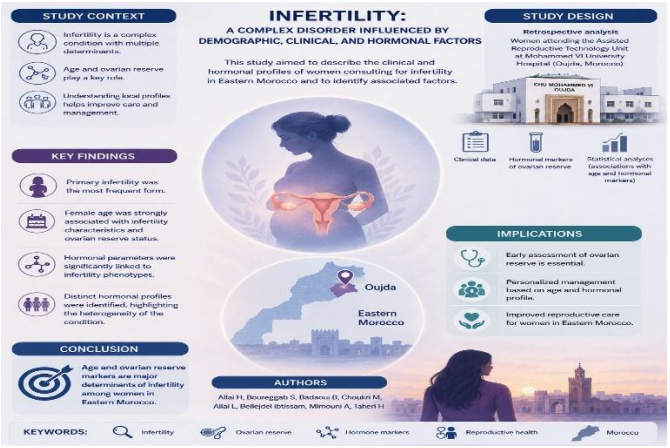
Abstract

This retrospective study was conducted among women consulting for infertility at the Assisted Reproductive Technology Unit of Mohammed VI University Hospital in Oujda, Eastern Morocco. The main objective was to describe the clinical and hormonal characteristics of these patients and to identify the key factors associated with different infertility profiles. Data on clinical information and hormonal markers of ovarian reserve were analyzed. Statistical methods were used to explore associations between infertility type, age, and hormonal parameters.

The results indicate that primary infertility was the most frequent form in the studied population. Female age showed a strong correlation with infertility characteristics and ovarian reserve status. Hormonal parameters, including markers such as anti-Müllerian hormone and follicle-stimulating hormone, were significantly associated with distinct infertility phenotypes. These findings highlight the heterogeneity of infertility among women in this region, with identifiable hormonal profiles.

In conclusion, age and ovarian reserve markers are major determinants of infertility among women in Eastern Morocco. The study emphasizes the need for routine hormonal assessment and age-stratified management strategies to improve diagnosis, personalize care, and optimize reproductive outcomes in this population.

Keywords: Infertility, Ovarian reserve, Hormone markers, Reproductive health, Morocco



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BODY COMPOSITION ASSESSMENT USING THE BODYMETRIX SYSTEM IN MENOPAUSAL WOMEN: CORRELATION WITH BODY MASS INDEX

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Abstract

Menopause is associated with significant metabolic and body composition changes, including increased adiposity, redistribution of fat tissue, and loss of lean muscle mass. Although Body Mass Index (BMI) remains the most widely used anthropometric indicator for obesity assessment, it does not provide information regarding fat distribution or body composition. The BodyMetrix ultrasound system offers a non-invasive method for evaluating subcutaneous fat thickness and body composition parameters.

Aim: To investigate the relationship between body composition assessed by the BodyMetrix system and BMI in menopausal women.

Methods: A cross-sectional evaluation was performed in a cohort of women undergoing metabolic assessment. Body composition was measured using the BodyMetrix ultrasound system, while BMI was calculated from weight and height measurements. Correlations between BMI and body composition parameters were analyzed.

Results: The study population had a mean age of 49.8 years and a mean BMI of 28.0 kg/m², indicating a predominance of overweight status. BodyMetrix assessment identified substantial interindividual variability in adipose tissue distribution despite similar BMI values. Higher BMI values were associated with increased subcutaneous fat thickness and unfavorable body composition profiles. The findings suggest that BMI alone may underestimate metabolic risk in some women and overestimate adiposity in others.

Conclusions: BodyMetrix provides additional clinically relevant information beyond BMI by allowing direct assessment of body fat distribution. In menopausal women, combining BMI with BodyMetrix

measurements may improve the identification of individuals at increased cardiometabolic risk and support personalized lifestyle and therapeutic interventions.

Keywords: menopause, BodyMetrix, body composition, adiposity, body mass index, metabolic risk.

POLYCYSTIC OVARY SYNDROME (PCOS): ROLE OF PHARMACISTS IN AWARENESS AND MANAGEMENT

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Abstract

Background: Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine disorders affecting women of reproductive age. It is characterised by hormonal imbalance, irregular menstrual cycles, hyperandrogenism, and metabolic disturbances such as insulin resistance. PCOS can lead to infertility, obesity, type 2 diabetes mellitus, and cardiovascular complications if left untreated. **Objective:** To review the causes, clinical manifestations, management strategies, and the role of pharmacists in improving awareness, medication adherence, and patient outcomes in PCOS. **Methodology:** A literature review was conducted using information from standard pharmacology textbooks, review articles, and published studies related to PCOS, its pathophysiology, treatment approaches, and pharmacist interventions. **Results:** The review indicates that insulin resistance and hormonal imbalance are major contributors to PCOS. Lifestyle modification, including dietary changes and regular exercise, remains the first-line management strategy. Pharmacological therapies such as metformin, oral contraceptives, and anti-androgens help control symptoms and reduce complications. Pharmacist-led counselling improves medication adherence and promotes healthy lifestyle practices. **Novelty:** This abstract emphasises the expanding role of pharmacists in PCOS management through patient education, medication counselling, and community awareness programs, highlighting their contribution beyond traditional dispensing services. **Conclusion:** Early diagnosis and appropriate management are essential to prevent long-term complications associated with PCOS. Pharmacists can significantly improve patient outcomes through counselling, monitoring therapy, and raising public awareness of the condition.

Keywords: PCOS, Insulin Resistance, Pharmacist Counselling, Women's Health, Lifestyle Modification, Patient Education.

AKILLI TELEFON KULLANIM SÜRESİ BİR ÇOCUK SAĞLIĞI RİSK GÖSTERGESİ OLABİLİR Mİ? MSAĞLIK İZLEME İÇİN TÜRKİYE VERİLERİNDEN EŞİK DEĞER ANALİZİ

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Özet

Bu çalışma, Türkiye'de 6-15 yaş grubundaki çocuklarda akıllı telefon kullanım süresinin sağlıkla ilişkili davranışsal kayıplar üzerindeki etkisini incelemeyi ve mSağlık (mobil sağlık) izleme sistemleri açısından kritik risk eşik değerlerini belirlemeyi amaçlamaktadır. Dünya genelinde çocukluk döneminde dijital cihaz kullanımının hızla artması; uyku yoksunluğu, sosyal izolasyon ve bilişsel aktivite azalması gibi sağlık sorunlarına yol açabileceği konusundaki kaygıları beraberinde getirmektedir. Bu bağlamda akıllı telefon kullanım süresinin pasif bir sağlık risk biyogöstergesi olarak kullanılabilirliğini sorgulayan ulusal ölçekli kanıtlara duyulan ihtiyaç giderek artmaktadır. Araştırma, Türkiye İstatistik Kurumu (TÜİK) tarafından yürütülen Hanehalkı Bilişim Teknolojileri Kullanım Araştırması - Çocuklar veri setinden yararlanılarak gerçekleştirilmiştir. Çalışma grubunu 6-15 yaş arasındaki 7.072 çocuk oluşturmaktadır. Bağımsız değişken olarak hafta içi ve hafta sonu ortalama akıllı telefon kullanım süresi (saat cinsinden) ele alınmıştır. Bağımlı değişkenler ise çocukların kendi beyanına dayalı olarak ekran süresi nedeniyle yaşadıkları kayıplar şeklinde tanımlanmıştır: az uyku, aile ile daha az zaman geçirme, az kitap okuma, az ders çalışma ve arkadaşlarıyla daha az görüşme. Analizlerde ikili lojistik regresyon, doz-yanıt eğrisi modellemesi ve eşik değer analizi kullanılmıştır. Veriler ağırlıklandırılmış olarak analiz edilmiş olup bulgular ulusal temsil niteliği taşımaktadır. Çocukların %34,6'sı ekran süresi nedeniyle daha az kitap okuduğunu, %33,8'i daha az ders çalıştığını, %25,3'ü ailesiyle daha az vakit geçirdiğini ve %16,6'sı daha az uyuduğunu bildirmektedir. Doz-yanıt analizleri, günlük akıllı telefon kullanım süresinin artmasıyla birlikte tüm sağlık davranışı kayıplarında istatistiksel olarak anlamlı artışlar olduğunu ortaya koymuştur. Lojistik regresyon bulguları, günde 3 saat ve üzeri kullanımın uyku yoksunluğu, aile bağı zayıflaması ve bilişsel aktivite azalması riskini önemli ölçüde yükselttiğini göstermektedir; bu ilişki yaş ve cinsiyet kontrol edildiğinde de geçerliliğini korumaktadır. Akıllı telefon kullanım süresi, çocuklarda birden fazla sağlık davranışı kaybıyla güçlü bir doz-yanıt ilişkisi sergilemekte ve pasif bir sağlık risk biyogöstergesi olma potansiyeli taşımaktadır. Belirlenen eşik değerlerin mSağlık izleme uygulamalarına ve okul sağlığı erken uyarı sistemlerine entegre edilmesi önerilmektedir. Sağlık politikası yapıcılarının dijital ekran süresini çocuklar için ulusal sağlık standartları kapsamında değerlendirmesi büyük önem taşımaktadır.

Anahtar Kelimeler: ekran süresi, mSağlık, çocuk sağlığı, akıllı telefon, eşik değer analizi, dijital sağlık

CAN SMARTPHONE USAGE TIME BE A HEALTH RISK INDICATOR FOR CHILDREN? A THRESHOLD VALUE ANALYSIS FROM TURKISH DATA FOR MHEALTH MONITORING

Abstract

This study aims to examine the effect of smartphone usage duration on health-related behavioral losses among children aged 6-15 in Turkey and to identify critical risk threshold values relevant to mobile

health (mHealth) monitoring systems. The rapid increase in digital device use during childhood raises concerns about adverse health effects including sleep deprivation, social isolation, and reduced cognitive activity. Nationally representative evidence on the utility of smartphone usage time as a passive health risk biomarker in children remains limited. The study utilized the Household Information and Communication Technology Usage Survey - Children dataset conducted by the Turkish Statistical Institute (TurkStat), comprising 7,072 children aged 6-15. Average weekday and weekend smartphone usage duration (hours) served as the independent variable. Dependent variables were children's self-reported behavioral losses attributed to screen time: reduced sleep, less family time, less reading, less studying, and fewer peer interactions. Binary logistic regression, dose-response curve modeling, and threshold value analyses were applied to weighted data ensuring national representativeness. Among the surveyed children, 34.6% reported reading fewer books due to screen time, 33.8% reported studying less, 25.3% reported spending less time with family, and 16.6% reported sleeping less. Dose-response analyses revealed statistically significant increases in all health behavior losses as daily smartphone usage increased. Logistic regression findings indicate that usage of 3 or more hours per day substantially elevated the risks of sleep deprivation, weakened family bonding, and reduced cognitive activity; associations remained significant after controlling for age and gender. Smartphone usage duration demonstrates a strong dose-response association with multiple health behavior losses in children, supporting its potential as a passive health risk biomarker. Integration of the identified threshold values into mHealth monitoring applications and school health early warning systems is recommended. Health policy makers are encouraged to incorporate digital screen time within national child health standards.

Keywords: screen time, mHealth, child health, smartphone, threshold analysis, digital health

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OKUL ÖNCESİ ÖĞRETMENLERİNİN MESLEKİ GELİŞİM EĞİTİMLERİNE KATILIMININ ÖĞRETİM KALİTESİNE ETKİSİNE İLİŞKİN GÖRÜŞLER

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Özet

Bu araştırma, okul öncesi öğretmenlerinin mesleki gelişim eğitimlerine katılımlarının öğretim kalitesi üzerindeki etkisine ilişkin görüşlerini ve bu eğitimlere yönelik tutumlarını derinlemesine incelemeyi amaçlamaktadır.

Erken çocukluk dönemi, bireyin bilişsel, duygusal, sosyal ve fiziksel gelişiminin en hızlı ve kalıcı olduğu, yaşam boyu öğrenme becerilerinin temelinin atıldığı kritik bir evredir. Bu süreçte eğitimin niteliği büyük ölçüde öğretmenlerin mesleki yetkinliklerine ve sürekli gelişimlerine bağlıdır. Günümüzde eğitim sistemleri; dijital okuryazarlık, teknolojik entegrasyon ve "Türkiye Yüzyılı Maarif Modeli" gibi yeni müfredat yapılarıyla sürekli bir dönüşüm içerisindedir. Bu dönüşüm, öğretmenlerin hizmet öncesi eğitimle yetinmeyip meslek hayatları boyunca güncel pedagojik yaklaşımları ve oyun temelli öğrenme stratejilerini takip etmelerini zorunlu kılmaktadır.

Nitel araştırma deseniyle kurgulanan bu çalışma, Balıkesir ili Bandırma ilçesinde Millî Eğitim Bakanlığı'na bağlı kurumlarda görev yapan 14 okul öncesi öğretmeni ile yürütülmüştür. Veri toplama aracı olarak, katılımcıların deneyimlerini ve algılarını zengin ayrıntılarla ortaya koymaya olanak tanıyan yarı yapılandırılmış görüşme formu kullanılmıştır.

Araştırma kapsamında; öğretmenlerin mesleki gelişim faaliyetlerine verdikleri önem, bu eğitimlere katılım motivasyonları ve eğitimlerin sınıf içi uygulamalar ile öğretim yöntem ve teknikleri kullanma becerileri üzerindeki somut yansımaları; cinsiyet ve kıdem gibi demografik değişkenler açısından analiz edilmektedir.

Araştırmanın temel problemi, teorik olarak alınan bu eğitimlerin sınıftaki öğretim kalitesine, öğretmen-çocuk etkileşimine ve farklılaştırılmış öğretim tasarımlarına ne derece aktarılabildiğini belirlemektir. Özellikle 2026 yılı perspektifinde devreye giren Milli Eğitim Akademisi ve yeni yasal düzenlemelerle birlikte mesleki gelişimin bir zorunluluktan ziyade öğretim kalitesini dönüştüren bir araç olup olmadığı sorgulanmaktadır. Çalışmadan elde edilecek bulguların, yerel eğitim yöneticilerine veri temelli bir yol haritası sunması, hizmet içi eğitimlerin içeriğinin öğretmen ihtiyaçlarına göre daha işlevsel hale getirilmesine katkı sağlaması ve okul öncesi eğitimde kalitenin anahtarı olan öğretmen yeterliliğini güçlendirecek akademik bir dayanak oluşturması hedeflenmektedir.

Anahtar Kelimeler: Okul Öncesi Eğitim, Mesleki Gelişim, Öğretim Kalitesi, Hizmet İçi Eğitim, Türkiye Yüzyılı Maarif Modeli.

THE OPINIONS OF PRE-SCHOOL TEACHERS REGARDING THE IMPACT OF PARTICIPATION IN PROFESSIONAL DEVELOPMENT TRAINING ON INSTRUCTIONAL QUALITY

Abstract

This research aims to examine in depth the opinions of pre-school teachers on the impact of their participation in professional development training on instructional quality, as well as their attitudes towards these trainings. The early childhood period is a critical stage where an individual's cognitive, emotional, social, and physical development is fastest and most permanent, laying the foundation for lifelong learning skills. In this process, the quality of education largely depends on the professional competencies and continuous development of teachers. Today, educational systems are in a constant state of transformation with new curriculum structures such as digital literacy, technological integration, and the "Türkiye Century Education Model." This transformation necessitates that teachers do not settle for pre-service education but follow current pedagogical approaches and game-based learning strategies throughout their professional lives.

Designed with a qualitative research design, this study was conducted with 14 pre-school teachers working in institutions affiliated with the Ministry of National Education in the Bandırma district of Balıkesir. A semi-structured interview form, which allows for revealing the participants' experiences and perceptions with rich detail, was used as a data collection tool. Within the scope of the research, the importance teachers attach to professional development activities, their motivation to participate in these trainings, and the concrete reflections of the trainings on in-class applications and the ability to use teaching methods and techniques are analyzed in terms of demographic variables such as gender and seniority.

The core problem of the research is to determine the extent to which these theoretically acquired trainings can be transferred to classroom instructional quality, teacher-child interaction, and differentiated instruction designs. Particularly from the perspective of 2026, with the introduction of the National Education Academy and new legal regulations, it is questioned whether professional development is a tool that transforms instructional quality rather than a mere necessity. The findings obtained from the study are intended to provide a data-based roadmap for local educational administrators, contribute to making the content of in-service trainings more functional according to teacher needs, and create an academic basis to strengthen teacher competence, which is the key to quality in pre-school education.

Keywords: Pre-school Education, Professional Development, Instructional Quality, In-service Training, Türkiye Century Education Model.

ÇOCUK HEMATO-ONKOLOJİSİNDE YAPAY ZEKÂNIN KLİNİK VE HEMŞİRELİK UYGULAMALARINA YANSIMALARI

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Özet

Çocuk hemato-onkolojisi, tanı, tedavi ve bakım süreçlerinin karmaşıklığı nedeniyle yenilikçi teknolojilerin kullanımına ihtiyaç duyulan önemli uzmanlık alanlarından biridir. Son yıllarda sağlık hizmetlerinde dijitalleşmenin hız kazanmasıyla birlikte yapay zekâ uygulamaları, klinik karar verme süreçlerinin desteklenmesi, hasta sonuçlarının iyileştirilmesi ve bakım kalitesinin artırılması amacıyla giderek daha fazla kullanılmaya başlanmıştır. Yapay zekâ teknolojileri, büyük miktardaki veriyi kısa sürede analiz edebilme, örüntüleri tanımlayabilme ve öngörüde bulunabilme özellikleri sayesinde çocukluk çağı hematolojik ve onkolojik hastalıklarının yönetiminde önemli fırsatlar sunmaktadır. Bu derlemenin amacı, çocuk hemato-onkolojisinde yapay zekânın klinik ve hemşirelik uygulamalarındaki kullanım alanlarını incelemek, sağladığı katkıları değerlendirmek ve karşılaşılan zorlukları ele almaktır. Çocuk hemato-onkoloji alanında yapay zekâ uygulamaları; tanının desteklenmesi, risk sınıflandırmasının yapılması, prognozun öngörülmesi ve tedavi yanıtının değerlendirilmesi gibi çeşitli alanlarda kullanılmaktadır. Özellikle görüntüleme yöntemleri, patoloji değerlendirmeleri, genomik veriler ve laboratuvar sonuçlarının analizinde kullanılan algoritmaların klinik karar süreçlerine önemli katkılar sağladığı bildirilmektedir. Makine öğrenmesi ve derin öğrenme temelli modeller sayesinde hastalıkların erken dönemde saptanması, yüksek riskli hastaların belirlenmesi ve kişiselleştirilmiş tedavi yaklaşımlarının geliştirilmesi mümkün olabilmektedir. Bunun yanı sıra enfeksiyon gelişimi, febril nötropeni, tedaviye bağlı toksisiteler ve diğer komplikasyonların erken dönemde tahmin edilmesine yönelik çalışmalar, yapay zekânın hasta güvenliğinin artırılmasında önemli bir potansiyele sahip olduğunu göstermektedir. Hemşirelik uygulamaları açısından değerlendirildiğinde yapay zekâ; semptom yönetimi, hasta izlemi, klinik karar destek sistemleri, uzaktan sağlık hizmetleri ve bakım planlaması gibi alanlarda kullanım olanağı sunmaktadır. Yapay zekâ destekli sistemlerin bakım gereksinimlerinin belirlenmesine katkı sağlayabileceği, hemşirelerin iş yükünü azaltabileceği, zaman yönetimini kolaylaştırabileceği ve bakım kalitesini geliştirebileceği düşünülmektedir. Ayrıca hasta ve aile eğitiminde, tedaviye uyumun desteklenmesinde, psikososyal gereksinimlerin belirlenmesinde ve komplikasyonların erken fark edilmesinde önemli avantajlar sağlayabilmektedir. Bununla birlikte veri güvenliği, etik sorunlar, algoritmik yanlılık, açıklanabilirlik eksikliği ve sağlık profesyonellerinin teknolojiye uyum süreçleri yapay zekâ uygulamalarının yaygın kullanımını etkileyen temel zorluklar arasında yer almaktadır. Sonuç olarak yapay zekâ, çocuk hemato-onkolojisinde tanı, tedavi ve bakım süreçlerinin geliştirilmesinde önemli bir potansiyele sahiptir. Ancak bu potansiyelin güvenli ve etkin biçimde kullanılabilmesi için daha fazla bilimsel araştırmaya, teknik altyapının güçlendirilmesine ve disiplinler arası iş birliğine ihtiyaç bulunmaktadır.

Anahtar Kelimeler: Yapay zekâ, çocuk hemato-onkolojisi, pediatrik onkoloji hemşireliği, klinik karar destek sistemleri.

APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN PEDIATRIC HEMATO-ONCOLOGY: IMPLICATIONS FOR CLINICAL AND NURSING PRACTICE

Abstract

Pediatric hematological oncology is a critical specialty requiring the use of innovative technologies due to the complexity of diagnostic, treatment, and care processes. In recent years, with the acceleration of digitalization in healthcare, artificial intelligence (AI) applications have increasingly been used to support clinical decision-making processes, improve patient outcomes, and enhance the quality of care. AI technologies offer significant opportunities in the management of childhood hematological and oncological diseases thanks to their ability to analyze large amounts of data quickly, identify patterns, and make predictions. The aim of this review is to examine the application areas of AI in clinical and nursing practices in pediatric hematological oncology, evaluate its contributions, and address the challenges encountered. AI applications in pediatric hematological oncology are used in various areas such as supporting diagnosis, risk stratification, prognosis prediction, and treatment response evaluation. In particular, algorithms used in imaging methods, pathology evaluations, genomic data, and laboratory result analysis are reported to make significant contributions to clinical decision-making processes. Machine learning and deep learning-based models enable early detection of diseases, identification of high-risk patients, and the development of personalized treatment approaches. Furthermore, studies aimed at predicting infection development, febrile neutropenia, treatment-related toxicities, and other complications early demonstrate that artificial intelligence has significant potential in enhancing patient safety. From a nursing perspective, artificial intelligence offers applications in areas such as symptom management, patient monitoring, clinical decision support systems, remote healthcare services, and care planning. It is believed that AI-supported systems can contribute to determining care needs, reduce nurses' workload, facilitate time management, and improve the quality of care. They can also provide significant advantages in patient and family education, supporting treatment adherence, identifying psychosocial needs, and early detection of complications. However, data security, ethical issues, algorithmic bias, lack of explainability, and the adaptation processes of healthcare professionals to technology are among the main challenges affecting the widespread use of artificial intelligence applications. In conclusion, artificial intelligence has significant potential in improving diagnosis, treatment, and care processes in pediatric hematological oncology. However, further scientific research, strengthened technical infrastructure, and interdisciplinary collaboration are needed to utilize this potential safely and effectively.

Keywords: Artificial intelligence, pediatric hemato-oncology, pediatric oncology nursing, clinical decision support systems.

HEMŞİRELİKTE YAPAY ZEKÂ DESTEKLİ KARAR VERME VE GÖREV–YETKİ SINIRLARININ BULANIKLAŞMASI: TÜRKİYE VE ULUSLARARASI LİTERATÜRÜN KARŞILAŞTIRMALI KAPSAM DERLEMESİ

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Özet

Yapay zekâ (YZ) tabanlı klinik karar destek sistemlerinin sağlık hizmetlerine entegrasyonu, hemşirelik uygulamalarında önemli dönüşümlere yol açmaktadır. YZ, klinik karar verme süreçlerini desteklerken hemşirelerin görev tanımları, karar verme yetkileri ve mesleki özerklikleri açısından yeni tartışma alanları oluşturmaktadır. Mesleki standartlar YZ'yi bağımsız bir karar verici olarak değil, hemşirenin klinik muhakemesini destekleyen bir araç olarak tanımlasa da uygulamada kararın sahibi ve sorumluluğun sınırları konusunda belirsizlikler ortaya çıkabilmektedir. Bu kapsam derlemesinin amacı, YZ destekli karar verme süreçlerinin hemşirelerin görev ve yetki sınırları üzerindeki etkilerini Türkiye ve uluslararası literatür doğrultusunda incelemek ve mevcut düzenleyici boşlukları ortaya koymaktır. Çalışma, Joanna Briggs Institute (JBI) kapsam derlemesi metodolojisi ve PRISMA-ScR rehberi doğrultusunda yürütülmüştür. Population–Concept–Context (PCC) yaklaşımına göre popülasyon hemşireler, kavram YZ'nin görev tanımı, karar verme yetkisi ve mesleki özerklik üzerindeki etkileri, bağlam ise Türkiye ve uluslararası sağlık sistemleri olarak belirlenmiştir. Literatür taraması PubMed, CINAHL, Scopus, Web of Science, TR Dizin, DergiPark ve YÖK Tez veri tabanlarında gerçekleştirilmiş; Arama sürecinde İngilizce ("nursing", "artificial intelligence", "scope of practice", "autonomy", "accountability") ve Türkçe ("hemşire", "yapay zekâ", "karar destek", "görev", "yetki", "özerklik") anahtar sözcükleri kullanılmıştır. Elde edilen çalışmalar tematik analiz yöntemiyle sentezlenmiştir. Bulgular dört tema altında toplanmıştır: İlk tema, normatif yetki sınırlarıdır. Uluslararası kaynaklar, YZ sistemlerinin hemşirelerin yasal uygulama alanlarını genişletmediğini ve profesyonel karar verme sorumluluğunun hemşirede kaldığını vurgulamaktadır. İkinci tema, görev kapsamının fiili olarak genişlemesidir. YZ sistemlerinin klinik karar kapasitesini artırarak uygulama alanlarını dolaylı biçimde etkileyebileceği belirtilmektedir. Üçüncü tema, mesleki özerklik ve sorumluluk kaygılarıdır. Otomasyon yanlılığı nedeniyle profesyonel muhakemenin ikinci plana itilme riski ve mesleki özerkliğin zayıflayabileceği ifade edilmektedir. Dördüncü tema ise mevzuat ve düzenleyici boşluklar olarak belirlenmiştir. Türkiye'de YZ destekli karar verme süreçlerine ilişkin açık düzenlemeler bulunmazken, uluslararası literatürde YZ yetkinliklerinin mesleki standartlara entegrasyonu önerilmektedir. YZ destekli karar verme sistemleri, hemşirelikte normatif yetki sınırları ile fiili uygulamalar arasındaki ayrımı belirsizleştirmektedir. Türkiye'de mevcut mevzuatın YZ teknolojilerini kapsayacak şekilde güncellenmesi, hemşirenin klinik muhakemesini merkeze alan ve mesleki sorumluluk alanlarını netleştiren düzenlemelerin geliştirilmesi gerekmektedir.

Anahtar Kelimeler: Hemşirelik, yapay zekâ, klinik karar destek sistemleri, görev ve yetki, mesleki özerklik, kapsam derlemesi.

AI-SUPPORTED DECISION-MAKING IN NURSING AND THE BLURRING OF ROLE AND AUTHORITY BOUNDARIES: A COMPARATIVE SCOPING REVIEW OF THE TURKISH AND INTERNATIONAL LITERATURE

Abstract

The integration of AI-based clinical decision support systems into healthcare is leading to significant transformations in nursing practice. While AI supports clinical decision-making processes, it also creates new areas of debate regarding nurses' job descriptions, decision-making authority, and professional autonomy. Although professional standards define AI not as an independent decision-maker but as a tool supporting the nurse's clinical reasoning, ambiguities can arise in practice regarding the ownership of decisions and the boundaries of responsibility. The aim of this scope review is to examine the effects of AI-assisted decision-making processes on the job descriptions and authority of nurses in light of Turkish and international literature and to reveal existing regulatory gaps. The study was conducted in accordance with the Joanna Briggs Institute (JBI) scope review methodology and the PRISMA-ScR guidelines. According to the Population–Concept–Context (PCC) approach, the population is defined as nurses, the concept as the effects of AI on job descriptions, decision-making authority, and professional autonomy, and the context as Turkish and international healthcare systems. Literature searches were conducted in PubMed, CINAHL, Scopus, Web of Science, TR Dizin, DergiPark, and YÖK Thesis databases; English ("nursing", "artificial intelligence", "scope of practice", "autonomy", "accountability") and Turkish ("hemşire", "yapay zekâ", "karar destek", "görev", "yetki", "özerklik") keywords were used in the search process. The obtained studies were synthesized using thematic analysis. The findings were grouped under four themes: The first theme is normative authority limits. International sources emphasize that AI systems do not expand the legal scope of practice for nurses and that professional decision-making responsibility remains with the nurse. The second theme is the actual expansion of the scope of duties. It is stated that AI systems can indirectly affect the areas of practice by increasing clinical decision-making capacity. The third theme is concerns about professional autonomy and accountability. It is stated that there is a risk of professional judgment being relegated to the background and professional autonomy being weakened due to automation bias. The fourth theme is identified as legislative and regulatory gaps. While there are no clear regulations regarding AI-assisted decision-making processes in Turkey, the international literature suggests integrating AI competencies into professional standards. AI-assisted decision-making systems blur the line between normative authority boundaries and actual practices in nursing. In Turkey, it is necessary to update existing legislation to include AI technologies and to develop regulations that center on the nurse's clinical judgment and clarify their professional responsibilities.

Keywords: Nursing, artificial intelligence, clinical decision support systems, scope of practice, professional autonomy, scoping review.

NÖROLOJİK FİZYOTERAPİ VE REHABİLİTASYONDA TEKNOLOJİ KULLANIMI: ÜST EKSTREMİTE ROBOTLARININ KULLANIMI LİTERATÜR DERLEMESİ

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Özet

Amaç: Bu derlemenin amacı, nörolojik rehabilitasyonda kullanılan üst ekstremite robotlarının temel sınıflandırmasını, klinik kullanım alanlarını, güncel kanıt düzeyini ve sınırlılıklarını incelemektir. Özellikle inme sonrası üst ekstremite rehabilitasyonu başta olmak üzere, multipl skleroz ve diğer nörolojik tablolar bağlamında robot destekli teknolojik uygulamaların yeri değerlendirilmiştir.

Yöntem: Bu derlemede ağırlıklı olarak 2022–2025 arasında yayımlanan sistematik derlemeler, meta-analizler, şemsiye derlemeler ve seçilmiş randomize kontrollü çalışmalar incelenmiştir. Literatür; üst ekstremite robotik rehabilitasyonu, end-effector sistemler, exoskeleton sistemler, el-parmak robotları, giyilebilir/soft robotik sistemler ve inme sonrası üst ekstremite iyileşmesi, diğer nörolojik tablolarda üst eksremite iyileşmesi ekseninde taranmıştır. Temel odak; klinik etkinlik, edinilen becerilerin günlük yaşam aktivitelerine aktarımı, farklı cihazların özellikleri ve teknolojik rehabilitasyonda gelecekteki uygulama alanları olmuştur.

Bulgular: Güncel literatür, üst ekstremite robotik rehabilitasyonunun özellikle inme sonrası motor kapasite üzerinde küçük ile orta düzey arasında değişen, çoğu zaman istatistiksel olarak anlamlı ancak her zaman klinik olarak anlamlı olmayan kazanımlar sağlayabildiğini göstermektedir. Günlük yaşam aktivitelerine aktarım ise motor sonuçlara göre daha değişkendir. End-effector sistemlerin bazı analizlerde motor fonksiyon açısından, exoskeleton sistemlerin ise bazı analizlerde günlük yaşam aktiviteleri açısından daha avantajlı olabileceği bildirilmiştir. Yardım düzeyi, hareket ettirilen eklemler, serbestlik derecesi, unilateral/bilateral kullanım ve program dozu sonuçları etkileyen başlıca değişkenlerdir. Soft ve taşınabilir robotik sistemler erişilebilirlik ve ev temelli kullanım kolaylığı açısından umut vericidir; ancak bu alandaki kanıt henüz daha sınırlıdır.

Sonuç: Üst ekstremite robotları; nörolojik rehabilitasyonda yüksek tekrar sayısı, tekrarsız tekrar, görev odaklı eğitim, objektif veri toplama ve tedavide standardizasyon potansiyeli sunan önemli teknolojik araçlardır. Bununla birlikte, klinik faydanın büyüklüğü hasta seçimi, hastalığın evresi, hedeflenen ekstremite segmenti, cihaz tipi ve uygulama dozuna bağlıdır. En güçlü kanıt inme sonrası rehabilitasyonda bulunmakta; diğer nörolojik gruplarda ise umut verici fakat daha sınırlı veriler vardır. Gelecekte daha uzun takipli, doz eşleştirilmiş, günlük yaşamdaki fonksiyon ve katılım düzeyi sonuçlarını öne çıkaran çalışmalar gereklidir.

Anahtar kelimeler: Üst ekstremite robotları, robotik rehabilitasyon, nörolojik rehabilitasyon, inme, exoskeleton, end-effector

THE USE OF TECHNOLOGY IN NEUROLOGICAL PHYSIOTHERAPY AND REHABILITATION: A LITERATURE REVIEW ON THE USE OF UPPER EXTREMITY ROBOTS

Abstract

Objective: The aim of this review is to examine the basic classification, clinical application areas, current level of evidence, and limitations of upper extremity robots used in neurological rehabilitation. The role of robot-assisted technological applications is evaluated, particularly in the context of upper extremity rehabilitation after stroke, as well as in the context of multiple sclerosis and other neurological conditions.

Method: This review primarily examined systematic reviews, meta-analyses, umbrella reviews, and selected randomized controlled trials published between 2022 and 2025. The literature was reviewed focusing on upper extremity robotic rehabilitation, end-effector systems, exoskeleton systems, hand-finger robots, wearable/soft robotic systems, and upper extremity recovery after stroke and in other neurological conditions. The main focus was on clinical effectiveness, the transfer of acquired skills to daily living activities, the characteristics of different devices, and future application areas in technological rehabilitation.

Findings: Current literature shows that upper extremity robotic rehabilitation can provide small to moderate gains in motor capacity, especially after stroke, often statistically significant but not always clinically significant. Transfer to activities of daily living is more variable than motor outcomes. End-effector systems have been reported to be more advantageous in terms of motor function in some analyses, while exoskeleton systems may be more advantageous in terms of activities of daily living in other analyses. Assistance level, joints moved, degree of freedom, unilateral/bilateral use, and program dose are the main variables affecting results. Soft and portable robotic systems are promising in terms of accessibility and ease of home-based use; however, evidence in this area is still limited.

Conclusion: Upper extremity robots are important technological tools in neurological rehabilitation offering high repetition counts, non-repetitive repetition, task-oriented training, objective data collection, and the potential for standardization in treatment. However, the magnitude of clinical benefit depends on patient selection, disease stage, targeted extremity segment, device type, and application dose. The strongest evidence is found in post-stroke rehabilitation; Other neurological groups have promising but more limited data. Future studies with longer follow-up periods, dose-matched results, and emphasis on function and participation levels in daily life are needed.

Keywords: Upper extremity robots, robotic rehabilitation, neurological rehabilitation, stroke, exoskeleton, end-effector

KUERSETİN TAKVİYESİNİN EGZERSİZ KAYNAKLI OKSİDATİF STRES VE ANTİOKSİDAN SAVUNMA SİSTEMLERİ ÜZERİNE ETKİLERİ: MİNİ SİSTEMATİK DERLEME

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Özet

Amaç: Vücutta egzersiz sonucunda ROS üretimi ve enzimatik antioksidanların aktivitesinde artış meydana gelir ve bu durum da birçok hastalığın merkezinde yer alan oksidatif stres oluşumuna yol açabilmektedir. Bu mini sistematik derlemede flavonoidlerin bir türü olan kuersetinin antioksidan özellikleri nedeniyle egzersiz kaynaklı oksidatif stres ve antioksidan savunma sistemleri üzerindeki etkilerinin değerlendirilmesi amaçlanmıştır.

Yöntem: Bu mini sistematik derleme PRISMA akışı doğrultusunda yürütülmüştür. PubMed veri tabanı kullanılarak 2001-2026 yılları arasında yayımlanan çalışmalar değerlendirildi. Değerlendirmede "quercetin", "exercise" ve "oxidative stress" anahtar kelimeleri kullanılmıştır. Kuersetinin egzersiz kaynaklı oksidatif stres ve antioksidan savunma sistemleri üzerindeki etkilerinin araştırıldığı insan üzerinde yapılan özgün çalışmalar dahil edilmiştir. Derlemeler, hayvan üzerinde yapılan çalışmalar ve tam metnine ulaşamadığımız çalışmalar dışlanmıştır.

Bulgular: Değerlendirme sonucunda konumuzla ilgili kriterleri sağlayan araştırmalar derlemeye dahil edilmiştir. Dahil edilen çalışmaların bazılarında kuersetin takviyesinin egzersiz kaynaklı oksidatif stres üzerinde iyileştirici etkisinin olduğu gösterilmiştir. Özellikle bazı çalışmalarda malondialdehit (MDA) seviyelerinde azalma, lipid peroksidasyonunun baskılanması ve eritrosit düzeyinde oksidatif hasarın azaltılması gözlemlenmiştir. Bununla birlikte çoğu çalışmada ise kuersetin takviyesinin oksidatif stres ve antioksidan savunma sistemleri üzerinde plaseboya kıyasla istatistiksel olarak anlamlı bir üstünlük sağlamadığı belirlenmiştir. Genel olarak bulgular kuersetinin egzersiz kaynaklı oksidatif stresin azaltılmasına katkı sağlayabileceğini ancak etkinliğin uygulama süresi, doz, egzersiz türü ve birlikte kullanılan takviyelere bağlı olarak değişebileceğini göstermektedir.

Sonuç: Mevcut kanıtlar kuersetinin egzersiz kaynaklı oksidatif stres üzerinde potansiyel yararlı etkileri olduğunu göstermekle birlikte, bulguların tutarsızlığı nedeniyle daha fazla randomize kontrollü çalışmaya ihtiyaç vardır.

Anahtar Kelimeler: Kuersetin, egzersiz, oksidatif stres, antioksidan savunma sistemi.

EFFECTS OF QUERCETIN SUPPLEMENTATION ON EXERCISE-INDUCED OXIDATIVE STRESS AND ANTIOXIDANT DEFENSE SYSTEMS: A MINI SYSTEMATIC REVIEW

Abstract

Objective: Exercise in the body leads to increased ROS production and the activity of enzymatic antioxidants, which can cause oxidative stress, a central issue in many diseases. This mini systematic review aims to evaluate the effects of quercetin, a type of flavonoid, on exercise-induced oxidative stress and antioxidant defense systems due to its antioxidant properties.

Method: This mini systematic review was conducted in accordance with the PRISMA framework. Studies published between 2001 and 2026 were evaluated using the PubMed database. The keywords "quercetin", "exercise", and "oxidative stress" were used in the evaluation. Original human studies investigating the effects of quercetin on exercise-induced oxidative stress and antioxidant defense

systems were included. Reviews, animal studies, and studies for which full text was unavailable were excluded.

Results: As a result of the evaluation, studies meeting the relevant criteria were included in the review. Some of the included studies have shown that quercetin supplementation has a beneficial effect on exercise-induced oxidative stress. Specifically, some studies observed a decrease in malondialdehyde (MDA) levels, suppression of lipid peroxidation, and reduction of oxidative damage at the erythrocyte level. However, most studies determined that quercetin supplementation did not provide a statistically significant advantage over placebo in terms of oxidative stress and antioxidant defense systems. Overall, the findings suggest that quercetin may contribute to reducing exercise-induced oxidative stress, but the effectiveness may vary depending on the duration of application, dose, type of exercise, and concomitant supplements.

Conclusion: While the current evidence suggests that quercetin has potential beneficial effects on exercise-induced oxidative stress, further randomized controlled trials are needed due to the inconsistency of the findings.

Keywords: Quercetin, exercise, oxidative stress, Antioxidant defense system.

OSTEOPOROZ HASTALARINDA KULLANILAN FARMAKOLOJİK TEDAVİLERİN ETKİNLİĞİNİN DUAL-ENERGY X-Ray ABSORBSİYOMETRİ (DXA) BULGULARI İLE DEĞERLENDİRİLMESİ: RETROSPEKTİF BİR ÇALIŞMA

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Özet

Giriş: Osteoporoz, düşük kemik kütlesi ve kemik mikromimarisinde bozulma ile karakterize sistemik bir hastalıktır ve kırık riskinde artışa yol açar. Bu çalışma, osteoporoz tedavisinde kullanılan farmakolojik tedavilerin Dual-Energy X-Ray Absorbsiyometri (DXA) bulguları üzerinden etkinliğini değerlendirmeyi amaçlamıştır.

Yöntem: Hastanemizde osteoporoz nedeniyle takip edilen hastaların tıbbi kayıtları retrospektif olarak incelendi. Demografik özellikler, farmakolojik tedaviler ve tedavi öncesi-sonrası lomber omurga (L1-L4) ve femur boynu DXA T skorları değerlendirildi. İstatistiksel analizler Wilcoxon işaretli sıralar testi kullanılarak yapıldı.

Bulgular: Çalışmaya 32 hasta dahil edildi (ortalama yaş: 64,3±2,7 yıl). Zoledronik asit (n=5), denosumab (n=7), risedronik asit (n=3), ibandronik asit (n=8) ve alendronik asit (n=9) kullanan hastalar analiz edildi. Tedavi öncesi ve sonrası L1-L4 T skorları açısından hiçbir tedavi grubunda anlamlı fark saptanmadı (tüm p>0,05). Femur boynu T skorlarında ise yalnızca alendronik asit grubunda anlamlı farklılık saptandı (p=0,016). Ancak bu değişim T skorunun -1,47'den -1,83'e gerilemesi şeklinde olup kemik mineral yoğunluğunda kötüleşmeyi göstermektedir.

Sonuç: İncelenen tedavi gruplarının çoğunda lomber omurga ve femur boynu T skorlarında anlamlı değişiklik gözlenmemiştir. Alendronik asit grubunda saptanan anlamlı değişiklik ise iyileşme değil, kemik mineral yoğunluğunda azalma yönündedir. Bu bulguların daha geniş örneklemli çalışmalarla doğrulanması gerekmektedir.

Anahtar Kelimeler: Osteoporoz, Dual-Energy X-Ray Absorbsiyometri, Kemik Mineral Yoğunluğu, Bifosfonatlar, Denosumab.

EVALUATION OF THE EFFECTIVENESS OF PHARMACOLOGICAL TREATMENTS USED IN PATIENTS WITH OSTEOPOROSIS THROUGH DUAL-ENERGY X-RAY ABSORPTIOMETRY (DXA) FINDINGS

Abstract

Introduction: Osteoporosis is a systemic disease characterized by low bone mass and deterioration of bone microarchitecture, leading to an increased risk of fractures. This study aimed to evaluate the effectiveness of pharmacological treatments used in osteoporosis through Dual-Energy X-Ray Absorptiometry (DXA) findings.

Methods: Medical records of patients followed for osteoporosis in our hospital were retrospectively reviewed. Demographic characteristics, pharmacological treatments, and pre- and post-treatment lumbar spine (L1-L4) and femoral neck DXA T-scores were evaluated. Statistical analyses were performed using the Wilcoxon signed-rank test.

Results: Thirty-two patients were included (mean age: 64.3±2.7 years). Patients receiving zoledronic acid (n=5), denosumab (n=7), risedronic acid (n=3), ibandronic acid (n=8), and alendronic acid (n=9) were analyzed. No significant differences were observed between pre- and post-treatment L1-L4 T-

scores in any treatment group (all p>0.05). For femoral neck T-scores, a significant difference was detected only in the alendronic acid group (p=0.016). However, this change reflected a decline in T-score from -1.47 to -1.83, indicating worsening bone mineral density.

Conclusion: No significant changes in lumbar spine or femoral neck T-scores were observed in most treatment groups. The significant change detected in the alendronic acid group indicated a decrease rather than an improvement in bone mineral density. Further studies with larger sample sizes are needed to confirm these findings.

Keywords: Osteoporosis, Dual-Energy X-Ray Absorptiometry, Bone Mineral Density, Bisphosphonates, Denosumab.

FİZYOTERAPİ VE REHABİLİTASYON BÖLÜMÜ ÖĞRENCİLERİNDE SAĞLIK OKURYAZARLIĞI İLE FİZİKSEL AKTİVİTE VE UYKU ALIŞKANLIKLARI ARASINDAKİ İLİŞKİNİN DEĞERLENDİRİLMESİ

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Özet

Giriş: Yüksek düzeyde sağlık okuryazarlığı olan kişiler sağlıklarını yönetme, koruma ve yaşam tarzı değişiklikleri konusunda daha etkin kararlar almaktadırlar. Bu çalışmanın amacı, Fizyoterapi ve Rehabilitasyon Bölümü öğrencilerinde sağlık okuryazarlığı düzeyi ile egzersiz ve uyku alışkanlıkları arasındaki ilişkiyi incelemektir.

Yöntem: Çalışmaya 67 (21,45±4,30 yıl) öğrenci dahil edilmiştir. Veriler, "Google Forms" platformu aracılığıyla çevrim içi olarak toplanmıştır. Sağlık okuryazarlığı, "Türkiye Sağlık Okuryazarlığı Ölçeği-32 (TSOY-32)" ile değerlendirilmiştir. Fiziksel aktivite düzeyi "Exercise Vital Sign" ölçeği ile, uyku alışkanlıkları ise "Kısa Pittsburgh Uyku Kalitesi İndeksi" ile değerlendirilmiştir.

Bulgular: Katılımcıların sağlık okuryazarlığı indeksi 15,14±10,90, uyku toplam puanı 5,72±2,78'dir. Katılımcıların %80,6'sı yetersiz sağlık okuryazarlığı düzeyindedir. Sağlık okuryazarlığı ile haftalık aktivite süresi (r=-0,197, p=0,111) ve uyku toplam puanı (r=0,067, p=0,590) arasında anlamlı ilişki yoktur. Fiziksel aktivite düzeylerine göre katılımcıların %28,4'ü inaktif (n=19), %20,9'u az aktif (n=14), %31,3'ü orta düzeyde aktif (n=21) ve %19,4'ü aktif (n=13) olarak sınıflandırılmıştır.

Sonuçlar: Sağlıkla ilgili bir alanda eğitim almalarına rağmen öğrencilerin düşük sağlık okuryazarlığına sahip olması sağlık bilimleri eğitiminin tek başına sağlık okuryazarlığını artırmada yeterli olmayabileceğini düşündürmektedir. Üniversite öğrencilerinde fiziksel aktivite ve uyku düzeni; akademik yoğunluk, stres düzeyi ve çevresel faktörler gibi çok sayıda değişkenden etkilenebilir. Sağlık okuryazarlığı ile fiziksel aktivite ve uyku davranışları arasındaki ilişkinin daha iyi anlaşılabilmesi için daha geniş örneklemli ve sınıf düzeyine göre karşılaştırmalı çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: Fiziksel aktivite, Sağlık okuryazarlığı, Uyku alışkanlıkları

EVALUATION OF THE RELATIONSHIP BETWEEN HEALTH LITERACY, PHYSICAL ACTIVITY, AND SLEEP HABITS IN PHYSIOTHERAPY AND REHABILITATION STUDENTS

Abstract

Introduction: Individuals with a high level of health literacy are more effective in managing and protecting their health and in making informed decisions regarding lifestyle changes. The aim of this study is to examine the relationship between health literacy levels and exercise and sleep habits among students in the Department of Physiotherapy and Rehabilitation.

Method: A total of 67 (21.45±4.30 years) students were included in the study. Data were collected online via the "Google Forms" platform. Health literacy was assessed using the Turkish Health Literacy Scale-32 (TSOY-32), physical activity level was evaluated with the Exercise Vital Sign scale, and sleep habits were assessed using the short form of the Pittsburgh Sleep Quality Index.

Results: Health literacy index score of the participants was 15.14±10.90, and the total sleep score was 5.72±2.78. Most participants (80.6%) had inadequate health literacy levels. No significant relationship was found between health literacy and weekly physical activity (r=-0.197, p=0.111) or total sleep score

(r=0.067, p=0.590). Regarding physical activity levels, 28.4% (n=19) of participants were inactive, 20.9% (n=14) were low active, 31.3% (n=21) were moderately active, and 19.4% (n=13) were active.

Conclusion: Although the students were receiving education in a health-related field, their low health literacy levels suggest that health sciences education alone may not be sufficient to improve health literacy. In university students, physical activity and sleep patterns are influenced by several factors, including academic workload, stress, and environmental conditions. Further studies with larger samples and comparisons across class levels are needed to better understand the relationship between health literacy, physical activity and sleep.

Keywords: Physical activity, Health literacy, Sleep habits

KRONİK BEL AĞRISI OLAN BİREYLERDE DENGE İLE İLİŞKİLİ FAKTÖRLER

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Özet

Giriş: Kronik bel ağrısı, bireylerde ağrı ve engelliliğin yanı sıra kas kuvveti, motor kontrol ve propriosepsiyon bozukluklarına yol açabilen yaygın bir kas-iskelet sistemi problemidir. Bu değişiklikler postüral kontrolü etkileyerek denge performansında bozulmalara neden olabilmektedir. Ayrıca ağrı, hareket korkusu ve fiziksel performanstaki azalma gibi faktörlerin denge üzerinde önemli etkileri olduğu düşünülmektedir. Ancak kronik bel ağrılı bireylerde denge ile ilişkili fiziksel ve psikolojik faktörleri birlikte inceleyen çalışmalar sınırlıdır. Bu çalışmanın amacı, kronik bel ağrısı olan bireylerde denge performansının egzersiz kapasitesi, alt ekstremite fonksiyonu, kas kuvveti, engellilik düzeyi ve kinezyofobi ile ilişkisini araştırmaktır.

Yöntem: Çalışmaya 22 kronik bel ağrısı olan birey (ortalama yaş: 52.55±14.73 yıl, 11 kadın/ 11 erkek) dahil edildi. Katılımcıların demografik özellikleri kaydedildi. Denge zamanlı kalk yürü testi, egzersiz kapasitesi 6 dakika yürüme testi (6DYT), kas fonksiyonları 5 kez otur-kalk testi, diz ekstansör kas kuvveti dinamometre, hareket korkusu Tampa Kinezyofobi ölçeği ve engellilik düzeyi Oswestry Disabilite indeksi ile değerlendirildi.

Bulgular: Zamanlı kalk yürü test süresi ile 6DYT mesafesi ($r=-0.830$, $p<0.001$), sağ diz ekstansör ($r=-0.744$, $p<0.001$) ve sol diz ekstansör ($r=-0.701$, $p=0.002$) kuvveti arasında negatif yönde; zamanlı kalk yürü test süresi ile 5 kez otur-kalk test süresi ($r=0.582$, $p=0.007$) arasında pozitif yönde anlamlı bir ilişki vardı. Zamanlı kalk yürü test süresi ile Tampa Kinezyofobi ölçeği puanı ($r=0.388$, $p=0.074$) ve Oswestry Disabilite indeks puanı ($r=0.148$, $p=0.523$) arasında bir ilişki yoktu.

Tartışma: Bu çalışma kronik bel ağrısı olan bireylerde dengenin fiziksel performans bileşenleri ile ilişkili olduğunu göstermektedir. Denge, egzersiz kapasitesi, alt ekstremite fonksiyonu ve diz ekstansör kas kuvveti ile anlamlı düzeyde ilişkili bulunurken, kinezyofobi ve engellilik düzeyi ile bir ilişki saptanmamıştır. Düşük egzersiz kapasitesi, alt ekstremite performansı ve kas kuvveti olan kronik bel ağrısı olan bireylerde denge performansının da olumsuz etkilenebileceğini düşündürmektedir. Rehabilitasyon programlarında dengeyi geliştirmeye yönelik yaklaşımların yanı sıra alt ekstremite performansının artırılması ve fonksiyonel kapasitenin desteklenmesine yönelik müdahalelere yer verilmesi dengenin geliştirilmesine katkı sağlayabilir.

Anahtar Kelimeler: Kronik bel ağrısı, Denge, Egzersiz kapasitesi, Kas kuvveti.

FACTORS ASSOCIATED WITH BALANCE IN INDIVIDUALS WITH CHRONIC LOW BACK PAIN

Abstract

Introduction: Chronic low back pain is a common musculoskeletal disorder that may lead not only to pain and disability but also to impairments in muscle strength, motor control, and proprioception. These

changes can affect postural control, leading to impairments in balance performance. In addition, factors such as pain, fear of movement, and reduced physical performance are thought to have important effects on balance. However, studies that examine both physical and psychological factors related to balance in individuals with chronic low back pain are limited. The aim of this study is to investigate the relationship between balance performance and exercise capacity, lower extremity function, muscle strength, disability level, and kinesiophobia in individuals with chronic low back pain.

Methods: Twenty-two individuals with chronic low back pain (mean age: 52.55±14.73 years; 11 females/11 males) were included in the study. Demographic characteristics were recorded. Balance was assessed using the timed up and go test, exercise capacity using the 6-minute walk test (6MWT), muscle function using the five times sit-to-stand test, knee extensor muscle strength using a dynamometer, fear of movement using the Tampa Scale for Kinesiophobia, and disability level using the Oswestry Disability Index.

Results: There was a significant negative correlation between timed up and go test duration and 6MWT distance ($r=-0.830$, $p<0.001$), right knee extensor strength ($r=-0.744$, $p<0.001$) and left knee extensor strength ($r=-0.701$, $p=0.002$); and a significant positive correlation between timed up and go test duration and five times sit-to-stand test duration ($r=0.582$, $p=0.007$). There was no correlation between timed up and go test duration and Tampa Scale for Kinesiophobia score ($r=0.388$, $p=0.074$) and Oswestry Disability Index score ($r=0.148$, $p=0.523$).

Discussion: This study shows that balance is associated with components of physical performance in individuals with chronic low back pain. Balance was significantly related to exercise capacity, lower extremity function, and knee extensor muscle strength, whereas no association was found with kinesiophobia or disability level. This suggests that balance performance may also be negatively affected in individuals with chronic low back pain who have low exercise capacity, extremity performance, and muscle strength. In addition to balance-oriented interventions, incorporating strategies aimed at improving lower extremity performance and enhancing functional capacity into rehabilitation programs may contribute to improvements in balance performance.

Keywords: Chronic low back pain, Balance, Exercise capacity, Muscle strength.

DİJİTAL ÇAĞDA ERGEN RİSKLİ DAVRANIŞLARI VE PSİKOSOSYAL KORUYUCU FAKTÖRLER: HALK SAĞLIĞI PERSPEKTİFİNDEN BİR DERLEME

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Özet

Dijital teknolojilerin yaygınlaşması, ergenlerin sosyal, duygusal ve davranışsal gelişim süreçlerini önemli ölçüde etkilemektedir. Akıllı telefonlar, sosyal medya platformları ve çevrimiçi ortamların günlük yaşamın ayrılmaz bir parçası hâline gelmesiyle birlikte problemli internet ve sosyal medya kullanımı, siber zorbalık, çevrimiçi riskli cinsel davranışlar ve dijital oyun bağımlılığı gibi yeni risk alanları ortaya çıkmıştır. Bu derlemenin amacı, dijital çağda ergenlerde görülen dijital risk davranışlarını ve bu davranışlara karşı koruyucu rol oynayan psikososyal faktörleri halk sağlığı perspektifinden bütüncül bir yaklaşımla değerlendirmektir. Bu kapsamda, güncel ulusal ve uluslararası literatürde yer alan çalışmalar anlatı derleme yaklaşımı doğrultusunda incelenmiş; dijital risk davranışları ile bu davranışlara karşı koruyucu rol oynayan psikososyal mekanizmalar halk sağlığı perspektifinde çok düzeyli bir bakış açısıyla değerlendirilmiştir. Literatür bulguları, dijital risk davranışlarının anksiyete, depresyon, düşük benlik saygısı, akademik güçlükler ve sosyal uyum sorunları ile ilişkili olduğunu göstermektedir. Buna karşın bireysel düzeyde öz düzenleme, dijital dayanıklılık, benlik saygısı ve dijital okuryazarlık; aile düzeyinde ebeveyn izleme, aktif medya rehberliği ve açık iletişim; okul düzeyinde okul bağlılığı ve öğretmen desteği; toplumsal düzeyde ise akran desteği, sosyal destek ağları ve gençlik programları önemli koruyucu faktörler olarak öne çıkmaktadır. Sonuç olarak, dijital çağda ergen risk davranışlarının yalnızca bireysel düzeyde değil, aile, okul ve toplum sistemleriyle etkileşim içinde değerlendirilmesi gerekmektedir. Ergen sağlığının korunmasına yönelik halk sağlığı müdahaleleri yalnızca risk davranışlarını azaltmaya değil, psikososyal koruyucu faktörleri güçlendirmeye de odaklanmalıdır. Türkiye bağlamında aile–okul–toplum iş birliğine dayalı, dijital okuryazarlığı ve psikososyal dayanıklılığı destekleyen bütüncül halk sağlığı stratejilerinin geliştirilmesi önem taşımaktadır.

Anahtar Kelimeler: Ergen, dijital risk davranışları, psikososyal koruyucu faktörler, dijital dayanıklılık, halk sağlığı

ADOLESCENT RISK BEHAVIORS AND PSYCHOSOCIAL PROTECTIVE FACTORS IN THE DIGITAL AGE: A REVIEW FROM A PUBLIC HEALTH PERSPECTIVE

Abstract

The widespread use of digital technologies has significantly influenced adolescents' social, emotional, and behavioral development. As smartphones, social media platforms, and online environments have become integral parts of daily life, new areas of risk have emerged, including problematic internet and

social media use, cyberbullying, online sexual risk behaviors, and digital gaming addiction. The aim of this review is to evaluate digital risk behaviors among adolescents and the psychosocial protective factors associated with reduced engagement in these behaviors from a comprehensive public health perspective. To achieve this aim, current national and international studies were examined through a narrative review approach, and digital risk behaviors together with psychosocial protective mechanisms were evaluated from a multi-level public health perspective. The reviewed literature indicates that digital risk behaviors are associated with anxiety, depression, low self-esteem, academic difficulties, and social adjustment problems. In contrast, self-regulation, digital resilience, self-esteem, and digital literacy at the individual level; parental monitoring, active media mediation, and open communication at the family level; school connectedness and teacher support at the school level; and peer support, social support networks, and youth programs at the societal level emerge as significant protective factors. In conclusion, adolescent digital risk behaviors should be evaluated not only at the individual level but also within the interaction of family, school, and community systems. Public health interventions aimed at protecting adolescent health should focus not only on reducing risk behaviors but also on strengthening psychosocial protective factors. In the context of Türkiye, developing comprehensive public health strategies based on family–school–community collaboration that support digital literacy and psychosocial resilience is essential.

Keywords: Adolescents, digital risk behaviors, psychosocial protective factors, digital resilience, public health

SOSYAL MEDYADA SAĞLIK BİLGİ KİRLİLİĞİYLE MÜCADELEDE SAĞLIK OKURYAZARLIĞININ KORUYUCU ROLÜ: BİR DERLEME

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Özet

Dijitalleşme ve sosyal medya kullanımının yaygınlaşması, bireylerin sağlık bilgisine erişim biçimlerini önemli ölçüde dönüştürmüştür. Sosyal medya platformları sağlık bilgisine hızlı erişim sağlamakla birlikte, yanlış ve yanıltıcı sağlık bilgilerinin geniş kitlelere kısa sürede ulaşmasına da zemin hazırlamaktadır. Bu durum özellikle sosyal medyayı yoğun kullanan üniversite öğrencileri ve genç yetişkinler açısından önemli bir halk sağlığı sorunu oluşturmaktadır. Bu derlemenin amacı, üniversite öğrencileri ve genç yetişkinler özelinde sağlık okuryazarlığı ile sosyal medyada karşılaşılan sağlık bilgi kirliliği arasındaki ilişkiyi incelemek ve sağlık okuryazarlığının koruyucu rolünü değerlendirmektir. Bu kapsamda, güncel ulusal ve uluslararası literatürde yer alan çalışmalar anlatı derleme yaklaşımı doğrultusunda incelenmiş; sağlık okuryazarlığı, dijital sağlık okuryazarlığı, sosyal medyada sağlık bilgi kirliliği ve bilgi değerlendirme stratejileri halk sağlığı perspektifinden değerlendirilmiştir. Literatür bulguları, düşük sağlık okuryazarlığı ve sınırlı dijital okuryazarlığın bireylerin yanlış sağlık bilgilerine inanma, bu bilgileri paylaşma ve riskli sağlık davranışları geliştirme olasılığını artırdığını göstermektedir. Buna karşın sağlık okuryazarlığı, dijital sağlık okuryazarlığı, eleştirel düşünme, kaynak doğrulama ve güvenilir sağlık kaynaklarına başvurma becerileri, sosyal medyada karşılaşılan bilgi kirliliğine karşı önemli koruyucu faktörler olarak öne çıkmaktadır. Sonuç olarak, sağlık okuryazarlığı sosyal medyada sağlık bilgi kirliliğiyle mücadelede yalnızca bireysel bir beceri değil, aynı zamanda halk sağlığını koruyucu stratejik bir araç olarak değerlendirilmelidir. Üniversite öğrencileri ve genç yetişkinlere yönelik dijital sağlık okuryazarlığı eğitimleri, farkındalık kampanyaları, bilgi doğrulama uygulamaları ve güvenilir kaynak kullanımını destekleyen üniversite temelli programların geliştirilmesi önem taşımaktadır. Ayrıca sosyal medya platformları, sağlık otoriteleri ve eğitim kurumları arasında iş birliğine dayalı müdahaleler, bilgi kirliliğinin bireysel ve toplumsal etkilerinin azaltılmasına katkı sağlayabilir.

Anahtar Kelimeler: Sağlık okuryazarlığı, dijital sağlık okuryazarlığı, sosyal medya, sağlık bilgi kirliliği, genç yetişkinler

THE PROTECTIVE ROLE OF HEALTH LITERACY AGAINST HEALTH MISINFORMATION ON SOCIAL MEDIA: A REVIEW

Abstract

The widespread use of digital technologies and social media has significantly transformed the ways in which individuals access health information. While social media platforms provide rapid access to

health-related information, they also facilitate the dissemination of inaccurate and misleading health information to large audiences within a short period of time. This situation constitutes an important public health concern, particularly for university students and young adults who use social media intensively. The aim of this review is to examine the relationship between health literacy and health misinformation encountered on social media, with a specific focus on university students and young adults, and to evaluate the protective role of health literacy. To achieve this aim, current national and international studies were examined through a narrative review approach, and health literacy, digital health literacy, health misinformation on social media, and information evaluation strategies were evaluated from a public health perspective. The reviewed literature indicates that low health literacy and limited digital literacy increase individuals' likelihood of believing inaccurate health information, sharing such information, and developing risky health behaviors. In contrast, health literacy, digital health literacy, critical thinking, source verification, and the ability to consult reliable health information sources emerge as important protective factors against health misinformation encountered on social media. In conclusion, health literacy should be considered not only an individual competence but also a strategic public health tool in combating health misinformation on social media. Digital health literacy training, awareness campaigns, fact-checking practices, and university-based programs that promote the use of reliable sources are important for university students and young adults. In addition, collaborative interventions among social media platforms, health authorities, and educational institutions may contribute to reducing the individual and societal effects of health misinformation.

Keywords: Health literacy, digital health literacy, social media, health misinformation, young adults

SAĞLIĞI GELİŞTİREN OKUL BAĞLAMINDA OKUL AIDIYETI, OKUL İKLIMI, ÖZ-YETERLIK, PSIKOLOJIK İYI OLUŞ VE SAĞLIK ALGISI ARASINDAKI BOYLAMSAL İLIŞKILERIN YAPISAL EŞITLIK MODELLEMESI ILE İNCELENMESI

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Özet

Amaç: Sağlığı Geliştiren Okul yaklaşımı, öğrencilerin sağlık ve iyi oluşlarının bireysel özelliklerle ve okulun sosyal ve psikolojik çevresiyle yakından ilişkili olduğunu ileri sürmektedir. Bu araştırmada okul aidiyeti, okul iklimi, öz-yeterlik, psikolojik iyi oluş ve sağlık algısı arasındaki boylamsal ilişkilerin yapısal eşitlik modellemesi (SEM) kullanılarak incelenmesi amaçlanmıştır.

Yöntem: Araştırma iki zaman noktalı boylamsal ilişkisel desenle yürütülmüştür. Çalışmaya ortaokul düzeyinde öğrenim gören 239 öğrenci katılmıştır. Veriler iki farklı zamanda toplanmış ve her iki ölçümde öğrencilerin okul aidiyeti, okul iklimi, öz-yeterlik, psikolojik iyi oluş ve sağlık algısı düzeyleri değerlendirilmiştir. Analizlerde değişkenlerin zaman içerisindeki kararlılığını temsil eden otoregresif yollar ile değişkenler arasındaki boylamsal ilişkileri temsil eden çapraz gecikmeli yollar aynı model içerisinde test edilmiştir. Model uyumu ve doğrudan ile dolaylı etkiler yapısal eşitlik modellemesi kullanılarak incelenmiştir.

Bulgular: Test edilen boylamsal modelin veriye kabul edilebilir düzeyde uyum sağladığı belirlenmiştir (χ^2/df = 1.98, CFI = .95, TLI = .94, RMSEA = .057, SRMR = .046). Birinci zaman noktasındaki okul aidiyeti düzeyinin ikinci zaman noktasındaki öz-yeterliği (β = .29, p < .01) ve psikolojik iyi oluşu (β = .24, p < .05) anlamlı biçimde yordadığı bulunmuştur. Benzer şekilde, birinci zaman noktasındaki okul ikliminin ikinci zaman noktasındaki psikolojik iyi oluş üzerinde anlamlı ve pozitif bir etkisi olduğu görülmüştür (β = .31, p < .01). Öz-yeterliğin ikinci zaman noktasındaki sağlık algısını anlamlı düzeyde açıkladığı (β = .27, p < .01), psikolojik iyi oluşun ise sağlık algısının en güçlü yordayıcılarından biri olduğu belirlenmiştir (β = .42, p < .001). Dolaylı etki analizleri, okul aidiyeti ve okul ikliminin sağlık algısı üzerindeki etkilerinin önemli ölçüde öz-yeterlik ve psikolojik iyi oluş aracılığıyla gerçekleştiğini göstermiştir. Nihai model öğrencilerin ikinci zaman noktasındaki sağlık algısındaki varyansın %52'sini açıklamıştır.

Sonuç: Bulgular, öğrencilerin okula ilişkin olumlu deneyimlerinin zaman içerisinde psikolojik kaynaklarını güçlendirdiğini ve bu kaynakların sağlık algısının gelişimine katkı sağladığını göstermektedir. Özellikle okul aidiyeti ve olumlu okul iklimi, öz-yeterlik ve psikolojik iyi oluş aracılığıyla öğrencilerin sağlıkla ilişkili sonuçlarını etkileyen önemli koruyucu faktörler olarak öne çıkmaktadır. Araştırma sonuçları, Sağlığı Geliştiren Okul yaklaşımının öngördüğü sosyal ve psikolojik

süreçleri desteklemekte ve okul temelli sağlık geliştirme çalışmalarında öğrencilerin okul yaşantılarının güçlendirilmesinin önemine işaret etmektedir.

Anahtar Kelimeler: Sağlığı geliştiren okul, boylamsal yapısal eşitlik modellemesi, okul aidiyeti, okul iklimi, psikolojik iyi oluş, sağlık algısı.

EXAMINING THE LONGITUDINAL RELATIONSHIPS AMONG SCHOOL BELONGING, SCHOOL CLIMATE, SELF-EFFICACY, PSYCHOLOGICAL WELL-BEING, AND PERCEIVED HEALTH WITHIN THE HEALTH-PROMOTING SCHOOL FRAMEWORK: A STRUCTURAL EQUATION MODELING APPROACH

Abstract

Purpose: The Health-Promoting School framework posits that students' health and well-being are closely associated with both individual characteristics and the social and psychological environment of the school. This study aimed to examine the longitudinal relationships among school belonging, school climate, self-efficacy, psychological well-being, and perceived health using structural equation modeling (SEM).

Method: The study employed a two-wave longitudinal correlational design. A total of 239 middle school students participated in the research. Data were collected at two time points, and students' levels of school belonging, school climate, self-efficacy, psychological well-being, and perceived health were assessed at both measurements. The analyses simultaneously tested autoregressive paths representing the stability of constructs over time and cross-lagged paths representing longitudinal relationships among the variables. Model fit as well as direct and indirect effects were examined using structural equation modeling.

Results: The tested longitudinal model demonstrated an acceptable fit to the data (χ^2/df = 1.98, CFI = .95, TLI = .94, RMSEA = .057, SRMR = .046). School belonging at Time 1 significantly predicted self-efficacy (β = .29, p < .01) and psychological well-being (β = .24, p < .05) at Time 2. Similarly, school climate at Time 1 exerted a significant positive effect on psychological well-being at Time 2 (β = .31, p < .01). Self-efficacy significantly predicted perceived health at Time 2 (β = .27, p < .01), while psychological well-being emerged as one of the strongest predictors of perceived health (β = .42, p < .001). Indirect effect analyses indicated that the effects of school belonging and school climate on perceived health were substantially mediated by self-efficacy and psychological well-being. The final model explained 52% of the variance in perceived health at Time 2.

Conclusion: The findings suggest that positive school experiences strengthen students' psychological resources over time, and that these resources contribute to the development of more positive health perceptions. In particular, school belonging and a positive school climate emerged as important protective factors influencing health-related outcomes through their effects on self-efficacy and psychological well-being. The results support the social and psychological processes proposed by the Health-Promoting School framework and underscore the importance of enhancing students' school experiences in school-based health promotion initiatives.

Keywords: Health Promoting School, longitudinal structural equation modeling, school belonging, school climate, psychological well-being, perceived health.

ÜNİVERSİTE ÖĞRENCİLERİNİN RİSKLİ DAVRANIŞLARI İLE SÜREKLİ ÖFKE VE ÖFKE İFADE DÜZEYLERİ VE İÇ-DIŞ DENETİM ODAĞI ARASINDAKİ İLİŞKİNİN İNCELENMESİ

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Özet

Bu araştırma üniversite öğrencilerinde öfke ve öfke ifade düzeyleri, riskli davranışlar ve iç-dış denetim odağı arasındaki ilişkiyi ortaya koymak, bu değişkenlerin demografik özelliklere göre farklılaşıp farklılaşmadığını belirlemek amacıyla yapılmıştır. Bu amaç doğrultusunda İstanbul ilinde yaşamakta olan ve basit elverişli yöntemle seçilen 18-25 yaş arasındaki 284 kadın ve 131 erkek olmak üzere toplam 415 üniversite öğrencisi araştırmanın örneklemini oluşturmaktadır. Araştırmada Sosyodemografik Bilgi Formu, Sürekli Öfke ve Öfke İfade Tarzı Ölçeği (SÖÖİTÖ), Riskli Davranışlar Ölçeği (RDÖ) Üniversite Formu ve Rotter İç-Dış Kontrol Odağı Ölçeği (RİDKOÖ) kullanılarak veri toplanmıştır. Toplanan verilerin değerlendirilmesi ve analizinde IBM SPSS v.25 paket programı kullanılmıştır. İlişkilerin analizinde Pearson Korelasyon analizi, sosyodemografik özelliklere göre karşılaştırmalarda ANOVA, t-Testi, Mann Whitney U ve Kruskal Wallis H testleri, yordama durumları için ise çoklu doğrusal regresyon analizi tercih edilmiştir. Araştırmanın bulgularında sürekli öfke, öfke dışa ve öfke içte alt boyutları ile riskli davranışlar ölçeği tüm alt boyutları (antisosyal davranış, alkol kullanımı, sigara kullanımı, intihar eğilimi, beslenme alışkanlığı, okul terki, madde kullanımı) arasında anlamlı ve pozitif yönlü bir ilişkinin bulunduğu saptanmıştır. Denetim odağı ölçeği puanı (dışsallık) ile riskli davranışlar alt boyutlarından intihar eğilimi arasında ise anlamlı ve pozitif bir ilişki saptanmıştır. Riskli Davranışlar Ölçeği alt boyutlarının cinsiyet değişkenine göre anlamlı bir farklılık gösterdiği ve erkek katılımcıların puanlarının kadın katılımcılara göre daha yüksek olduğu sonucuna ulaşılmıştır. SÖÖİTÖ alt boyutlarından sürekli öfke, öfke dışa ve öfke içte puanlarının erkek katılımcılarda daha yüksek olduğu, öfke kontrolünün ise cinsiyet değişkenine göre anlamlı bir farklılık göstermediği belirlenmiştir. Rotter İç-Dış Kontrol Odağı Ölçeği puanlarının cinsiyet değişkenine göre anlamlı bir farklılık gösterdiği ve kadın katılımcıların dış denetim odağı puanının erkeklere göre daha yüksek olduğu belirlenmiştir. Regresyon analizi sonuçlarında öfke dışa, sürekli öfke ve öfke kontrolü alt boyutlarının antisosyal davranışların %16,9'unu; öfke içte, sürekli öfke ve kontrol odağı puanlarının ise intihar eğiliminin %15,8'ini anlamlı düzeyde yordadığı tespit edilmiştir. Ayrıca annesi ortaokul mezunu olan katılımcıların okul terki puanları, babası lise mezunu olanların alkol kullanımı puanları diğer gruplardan anlamlı düzeyde yüksek bulunmuştur. Bulgular, üniversite öğrencilerinde öfke kontrol yetersizliği ve dış denetim odağının riskli davranış eğilimlerini artırdığını göstermektedir.

Anahtar Kelimeler: Sürekli Öfke ve Öfke İfade Düzeyi, Riskli Davranışlar, İç-Dış Denetim Odağı, Üniversite Öğrencileri

THE INVESTIGATION OF THE RELATIONSHIP BETWEEN RISKY BEHAVIORS, TRAIT ANGER AND ANGER EXPRESSION LEVEL AND LOCUS OF CONTROL AMONG COLLEGE STUDENTS

Abstract

This research was conducted to determine the relationship between anger and anger expression levels, risky behaviors, and locus of control, and to examine how these variables differ according to demographic variables among university students. A total of 415 university students (284 female, 131 male) between 18-25 years old living in Istanbul were chosen as the sample of the study using convenience sampling method. Data were collected using the Socio-demographic Information Form, Trait Anger and Anger Expression Style Scale, Risky Behavior Scale, and Rotter's Internal-External Locus of Control Scale. IBM SPSS v.25 package program was used for the evaluation and analysis of the collected data. Pearson Correlation analysis, ANOVA, Independent Samples t-Test, Mann Whitney U, Kruskal Wallis H tests, and multiple linear regression analysis were utilized for data analysis. In the findings of the study, it was found that there were statistically significant and positive relationships between trait anger, anger-out, anger-in, and all sub-dimensions of risky behaviors (antisocial behavior, alcohol use, smoking, suicidal tendency, eating habits, school dropout, and substance use). A significant and positive relationship was determined between the external locus of control scores and suicidal tendency, which is a sub-dimension of risky behaviors. It was concluded that the sub-dimensions of the Risky Behaviors Scale showed a significant difference according to the gender variable, and the scores of male participants were significantly higher than females. Regarding anger expression styles, trait anger, anger-out, and anger-in scores were higher in male participants, whereas anger control did not show a significant difference according to gender. The scores of the Rotter Internal-External Control Scale showed a significant difference based on gender, and the scores of female participants were significantly higher, indicating a higher tendency toward an external locus of control. Regression analysis revealed that anger-out, trait anger, and anger control subscales predicted 16.9% of antisocial behavior; while anger-in, trait anger, and locus of control scores significantly predicted 15.8% of suicidal tendency. In addition, students whose mothers were middle school graduates had higher school dropout scores, and those whose fathers were high school graduates displayed higher alcohol consumption scores. Research findings demonstrate that low anger control and an external locus of control function as core risk indicators for engaging in risky behaviors among college students.

Keywords: Trait Anger and Anger Expression Levels, Risky Behavior, Internal-External Locus of Control, College Students

İLKOKUL VE ORTAOKUL ÖĞRENCİLERİNİN SABAH KAHVALTISININ ÖĞRENCİLERİN OKUL MOTİVASYONUNA ETKİSİNE İLİŞKİN ÖĞRETMEN GÖRÜŞLERİ

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Özet

Bu araştırmanın amacı, sabah kahvaltısının öğrencilerin akademik başarısına etkisine ilişkin öğretmen görüşlerini incelemektir. Araştırmada öğrencilerin kahvaltı yapma alışkanlıklarının dikkat düzeyi, derse katılım, motivasyon, öğrenme süreci ve akademik başarı üzerindeki etkileri öğretmen görüşleri doğrultusunda değerlendirilmiştir. Kahvaltı, günün en önemli öğünlerinden biri olarak kabul edilmekte ve öğrencilerin bilişsel, fiziksel ve duygusal gelişimlerinde önemli bir role sahip olduğu düşünülmektedir. Bu nedenle araştırmada öğretmenlerin gözlem ve deneyimlerinden hareketle kahvaltı alışkanlığının öğrenciler üzerindeki etkileri ortaya konulmaya çalışılmıştır.

Araştırma, nitel araştırma yöntemlerinden durum çalışması desenine uygun olarak yürütülmüştür. Çalışma grubunu İstanbul ili Üsküdar ilçesinde bulunan Özel MBA Okullarının farklı kademelerinde görev yapan öğretmenler oluşturmaktadır. Katılımcılar amaçlı örnekleme yöntemiyle belirlenmiş ve 2025-2026 eğitim öğretim yılında görev yapmakta olan toplam 16 öğretmen ile görüşmeler gerçekleştirilmiştir. Veri toplama aracı olarak yarı yapılandırılmış görüşme formu kullanılmış, elde edilen veriler betimsel analiz tekniği ile analiz edilmiştir. Analiz sürecinde öğretmen görüşleri doğrultusunda çeşitli tema ve kodlar oluşturularak bulgular sistematik bir şekilde yorumlanmıştır.

Araştırma sonucunda öğretmenlerin büyük çoğunluğunun sabah kahvaltısının öğrencilerin akademik başarıları üzerinde önemli bir etkisi olduğunu düşündükleri belirlenmiştir. Öğretmenler, düzenli kahvaltı yapan öğrencilerin derslere daha aktif katıldıklarını, dikkat sürelerinin daha uzun olduğunu, öğrenmeye karşı daha istekli davrandıklarını ve akademik performanslarının daha yüksek olduğunu ifade etmişlerdir. Buna karşılık kahvaltı yapmadan okula gelen öğrencilerde dikkat dağınıklığı, yorgunluk, motivasyon düşüklüğü, derse karşı ilgisizlik ve öğrenme güçlüğü gibi durumların daha sık görüldüğü belirtilmiştir. Ayrıca öğrencilerin beslenme alışkanlıklarının yalnızca akademik başarıyı değil, sosyal ilişkilerini, sınıf içi davranışlarını ve okul uyumlarını da etkilediği sonucuna ulaşılmıştır.

Araştırma bulguları doğrultusunda ailelerin sağlıklı beslenme konusunda bilinçlendirilmesi, okul kantinlerinde sağlıklı ürünlerin teşvik edilmesi ve okul temelli kahvaltı programlarının yaygınlaştırılması önerilmektedir. Bunun yanında öğrencilerin akademik başarılarının artırılmasında yalnızca öğretim süreçlerinin değil, öğrencilerin temel fiziksel ihtiyaçlarının da dikkate alınması gerektiği sonucuna ulaşılmıştır.

Anahtar Kelimeler: Kahvaltı, akademik başarı, beslenme, öğrenci başarısı, dikkat düzeyi.

TEACHERS' VIEWS ON THE EFFECT OF BREAKFAST HABITS OF PRIMARY AND MIDDLE SCHOOL STUDENTS ON SCHOOL MOTIVATION

Abstract

The aim of this study is to examine teachers' opinions regarding the effect of breakfast on students' academic achievement. In this study, the effects of students' breakfast habits on attention levels, classroom participation, motivation, learning processes, and academic success were evaluated based on teachers' perspectives. The research was conducted using a qualitative case study design. The study group consisted of teachers working at different educational levels in Private MBA Schools located in Libadiye, Istanbul.

The study was designed using qualitative research methods, and data were collected through a semi-structured interview form. Participants were selected through purposive sampling, and interviews were conducted with 16 teachers working during the 2025–2026 academic year. The collected data were analyzed using descriptive analysis, and themes and codes were identified according to teachers' perceptions.

The findings revealed that the majority of teachers believe breakfast has a significant effect on students' academic achievement. Teachers stated that students who regularly have breakfast participate more actively in lessons, have longer attention spans, show greater willingness to learn, and achieve higher academic performance. In contrast, students who come to school without having breakfast were observed to experience attention deficits, fatigue, low motivation, lack of interest in lessons, and learning difficulties more frequently. In addition, according to teachers' opinions, students' eating habits affect not only academic achievement but also social relationships and behavioral characteristics.

The study also revealed that socioeconomic status plays an important role in students' breakfast habits. Teachers emphasized that students from economically disadvantaged families experience more difficulties in having regular breakfast, which negatively affects their academic performance.

Based on the findings, it is recommended to raise parents' awareness about healthy nutrition, encourage healthy food options in school canteens, and expand school-based breakfast programs. Furthermore, the study concluded that improving students' academic achievement requires consideration not only of instructional processes but also of students' physical needs.

Keywords: Breakfast, academic achievement, nutrition, student success, attention level.

PSYCHOLOGICAL READINESS FOR MARRIAGE AND PERSONALITY MATURITY: KEY FACTORS FOR SUCCESSFUL FAMILY LIFE

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Abstract

This study investigates the psychological dimensions of marital readiness and personality maturity as foundational predictors of successful family life. Despite extensive scholarship on marital satisfaction, a critical gap persists in understanding how pre-marital personality consolidation, emotional regulation, and identity maturity combine to determine long-term relational resilience. The present research proposes and validates the Marital Readiness and Personality Maturity Index (MRPMI), a multidimensional assessment framework integrating attachment theory, Five-Factor personality models, and developmental psychology. Employing a mixed-methods longitudinal design across six culturally diverse nations (n = 2,400, ages 20–35), the study synthesizes validated psychometric batteries — including the Big Five Inventory-2 (BFI-2), the Differentiation of Self Inventory-Revised (DSI-R), and the Adult Attachment Interview (AAI) — with structured clinical interviews and 36-month relational outcome tracking. Expected findings indicate that emotional regulation capacity, identity consolidation, and cognitive flexibility emerge as the most robust predictors of marital stability, with attachment security serving as a significant moderating variable across cultural contexts. Cross-cultural invariance analyses will clarify universal versus context-specific readiness constructs, enabling localized clinical calibration. The MRPMI framework offers an evidence-based, scalable pre-marital screening instrument with broad implications for preventive mental healthcare, family policy, and counseling practice. This interdisciplinary contribution bridges personality science, developmental psychology, and family studies, advancing both theoretical models and applied clinical tools for promoting resilient family formation globally.

Keywords: psychological readiness for marriage, personality maturity, marital resilience, attachment theory

BIOPHYSICS OF DENTAL IMPLANTS AND MECHANISMS OF OSSEOINTEGRATION

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Abstract

Dental implantation has become one of the most successful therapeutic approaches for the replacement of missing teeth and the restoration of oral function. Long-term clinical success of implant therapy depends primarily on osseointegration, a process characterized by the direct structural and functional connection between living bone and the surface of an implant under physiological loading conditions. Although osseointegration is often discussed from surgical and biological perspectives, its establishment and maintenance are fundamentally governed by biophysical principles.

The interface between an implant and surrounding bone represents a highly dynamic environment in which mechanical forces, surface energy, electrical phenomena, and cellular signaling pathways continuously interact. The implant does not merely serve as a passive support structure; rather, it acts as a biomechanical component that influences stress distribution, cellular behavior, and tissue remodeling. Variations in implant geometry, material composition, and surface characteristics alter the local microenvironment and subsequently affect bone healing and adaptation.

The biophysical basis of dental implantation encompasses several interconnected mechanisms. Mechanical loading regulates bone remodeling according to Wolff's law, whereby bone architecture adapts to functional demands. Surface microtopography influences protein adsorption and cell adhesion, while nanoscale surface modifications alter osteoblast differentiation and extracellular matrix deposition. Furthermore, mechanotransduction pathways convert physical stimuli into biochemical signals that regulate gene expression and osteogenic activity. Understanding these processes is essential for developing advanced implant systems with improved biological performance and long-term stability.

Consequently, the integration of biophysics into implant dentistry provides valuable insights into implant design, biomaterial engineering, and regenerative approaches aimed at optimizing osseointegration and reducing the risk of implant failure.

Keywords: Dental implants; Osseointegration; Biophysics; Bone remodeling; Surface topography; Mechanotransduction; Implant biomechanics; Biomaterials

COMPUTATIONAL BIOPHYSICS AND GREEN MEDICINAL CHEMISTRY OF BIOACTIVE HETEROCYCLIC COMPOUNDS: ADVANCES IN SYNTHESIS, MOLECULAR DOCKING, DFT AND THERAPEUTIC APPLICATIONS

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Abstract

The continuous emergence of multidrug-resistant microorganisms, the increasing prevalence of chronic degenerative disorders, and the growing global burden of cancer have intensified the search for novel therapeutic agents possessing enhanced efficacy, selectivity, and safety profiles. At the same time, contemporary pharmaceutical research faces increasing pressure to reduce the environmental impact of chemical production and to accelerate the drug discovery process through the implementation of sustainable and computationally driven methodologies. These challenges have promoted the convergence of green medicinal chemistry and computational biophysics, two rapidly expanding disciplines that collectively provide innovative strategies for the design, synthesis, and evaluation of biologically active molecules.

Among the vast diversity of organic compounds investigated in medicinal chemistry, heterocyclic molecules occupy a central position because of their remarkable structural versatility and broad spectrum of biological activities. It is estimated that a substantial proportion of approved pharmaceutical agents contain one or more heterocyclic rings, reflecting their unique ability to establish highly specific interactions with biological targets. Nitrogen-containing heterocycles, particularly triazoles, benzhydrazides, hydrazinecarbothioamides, benzodiazepines, and structurally related scaffolds, have attracted considerable scientific interest owing to their pronounced antimicrobial, antiproliferative, antioxidant, anti-inflammatory, antidiabetic, and anticancer properties.

The biological effectiveness of these compounds originates from their physicochemical and electronic characteristics. The presence of heteroatoms such as nitrogen, oxygen, and sulfur facilitates the formation of hydrogen bonds, dipole interactions, and electrostatic contacts with proteins, nucleic acids, and membrane components. Their conjugated π-electron systems contribute to molecular recognition processes by promoting π–π stacking and hydrophobic interactions within biological macromolecules. Consequently, even minor structural modifications may profoundly alter pharmacological activity by influencing molecular geometry, electronic distribution, and binding affinity toward therapeutic targets.

Keywords. Green medicinal chemistry; computational biophysics; bioactive heterocyclic compounds; molecular docking; density functional theory; molecular recognition; structure–activity relationship; antimicrobial activity; antiproliferative activity; antioxidant activity; drug discovery.

TİMOKİNONUN Leishmania tropica PROMASTİGOTLARINA KARŞI İN VİTRO ANTİLEİSHMANİAL AKTİVİTESİNİN VE PTR1 ENZİMİ İLE MOLEKÜLER ETKİLEŞİMİNİN İNCELENMESİ

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Özet

Leishmaniasis dünya genelinde önemli bir halk sağlığı sorunu olmaya devam etmektedir. Mevcut tedavi seçeneklerinin yan etkileri ve ilaç direnci yeni antileishmanial ajanların araştırılmasını gerekli kılmaktadır. Bu çalışmada, *Nigella sativa*'nın başlıca aktif bileşeni olan timokinonun *Leishmania tropica* (*L.tropica*) promastigotları üzerindeki etkilerinin ve olası etki mekanizmasının araştırılması amaçlanmıştır.

L. tropica promastigotları 1.125-72 µM arasında değişen konsantrasyonlarda timokinon ile 24, 48 ve 72 saat inkübe edildi. Hücre canlılığı değerlendirilerek IC_{50} değerleri hesaplandı. Morfolojik değişiklikler Giemsa boyaması (1:5) ile ışık mikroskobunda incelendi. Ayrıca timokinonun olası moleküler hedeflerinden biri olan pteridin redüktaz 1 (PTR1) enzimi ile etkileşimi, referans ilaç amfoterisin B ile karşılaştırmalı olarak moleküler docking analizi kullanılarak değerlendirildi.

Timokinon, *L. tropica* promastigotları üzerinde zamana ve konsantrasyona bağlı antiproliferatif etki gösterdi. IC_{50} değerleri sırasıyla 24., 48. ve 72. saatlerde 10.86, 8.48 ve 7.14 µM olarak belirlendi. Giemsa boyama sonuçlarında kontrol grubunda ve düşük konsantrasyonlarda tipik mekik şeklindeki promastigot morfolojisi korunurken, yüksek konsantrasyonlarda hücre membran bütünlüğünün bozulduğu, hücre şişmesi, flagellum kaybı ve belirgin morfolojik deformasyonlar gözlendi. Bu değişiklikler özellikle 18-72 µM konsantrasyonlarında daha belirgin olarak ortaya çıktı. Moleküler docking analizinde timokinonun PTR1 enzimine bağlanma enerjisi -5.88 kcal/mol olarak hesaplanırken, amfoterisin B için bu değer -10.56 kcal/mol bulundu. Timokinonun aktif bölgedeki aminoasit kalıntıları ile hidrojen bağları ve hidrofobik etkileşimler oluşturduğu belirlendi. Docking protokolünün doğrulanmasında elde edilen RMSD değeri 0.01 Å olarak hesaplandı ve yöntemin güvenilir olduğunu gösterdi.

Timokinon, *L. tropica* promastigotları üzerinde belirgin antiproliferatif ve morfolojik etkiler göstermiştir. Moleküler docking sonuçları, timokinonun PTR1 enziminin aktif bölgesine bağlanabildiğini ve PTR1'in olası etki mekanizmalarından biri olabileceğini düşündürmektedir. Bu bulgular timokinonun leishmaniasis tedavisinde potansiyel bir aday molekül olarak değerlendirilebileceğini göstermektedir.

Anahtar Kelimeler: *Leishmania tropica*, Timokinon, PTR1 enzimi, Moleküler Docking

INVESTIGATION OF THE IN VITRO ANTILEISHMANIAL ACTIVITY OF THYMOQUINONE AGAINST Leishmania tropica PROMASTIGOTES AND ITS MOLECULAR INTERACTION WITH THE PTR1 ENZYME

Abstract

Leishmaniasis remains a significant public health problem worldwide. The side effects of current treatment options and drug resistance necessitate the investigation of new antileishmanial agents. In this study, it was aimed to investigate the effects of thymoquinone, the major active component of *Nigella sativa*, on *Leishmania tropica* (*L. tropica*) promastigotes and its possible mechanism of action.

L. tropica promastigotes were incubated with thymoquinone at concentrations ranging from 1.125-72 µM for 24, 48 and 72 hours. Cell viability was evaluated and IC_{50} values were calculated. Morphological changes were examined under a light microscope using Giemsa staining (1:5). In addition, the interaction of thymoquinone with pteridine reductase 1 (PTR1) enzyme, one of its possible molecular targets, was evaluated by molecular docking analysis in comparison with the reference drug amphotericin B.

Thymoquinone exhibited a time- and concentration-dependent antiproliferative effect on *L. tropica* promastigotes. IC_{50} values were determined as 10.86, 8.48 and 7.14 µM at 24, 48 and 72 hours, respectively. Giemsa staining results showed that the typical spindle-shaped promastigote morphology was preserved in the control group and at lower concentrations, whereas disruption of cell membrane integrity, cell swelling, loss of flagellum and marked morphological deformities were observed at higher concentrations. These changes were particularly evident at concentrations ranging from 18-72 µM. In molecular docking analysis, the binding energy of thymoquinone to the PTR1 enzyme was calculated as -5.88 kcal/mol, whereas this value was found to be -10.56 kcal/mol for amphotericin B. Thymoquinone was determined to form hydrogen bonds and hydrophobic interactions with amino acid residues in the active site. The RMSD value obtained during validation of the docking protocol was calculated as 0.01 Å, indicating the reliability of the method.

Thymoquinone exhibited significant antiproliferative and morphological effects on *L. tropica* promastigotes. Molecular docking results suggest that thymoquinone can bind to the active site of the PTR1 enzyme and that PTR1 may be one of its possible mechanisms of action. These findings indicate that thymoquinone may be considered a potential candidate molecule for the treatment of leishmaniasis.

Keywords: *Leishmania tropica*, Thymoquinone, PTR1 enzyme, Molecular Docking

TİROİD HÜCRELERİNDE RADYASYON STRESİNE YANIT OLARAK SELENYUM VE miRNA TABANLI GEN REGÜLASYONU

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Özet

Amaç: Bu çalışmanın amacı, tiroid hücrelerinde radyasyon stresine bağlı oluşan moleküler yanıtları ve bu süreçte selenyum ile mikroRNA'ların (miRNA) gen regülasyonu üzerindeki rolünü incelemektir. Özellikle oksidatif stres, DNA hasarı ve hücresel adaptasyon mekanizmaları bağlamında selenyum ve miRNA etkileşiminin potansiyel koruyucu etkileri değerlendirilmiştir.

Yöntem: Çalışma, literatür temelli derleme yaklaşımıyla yürütülmüştür. İyonizan radyasyonun tiroid hücrelerinde oluşturduğu biyolojik etkiler, miRNA ekspresyon değişimleri ve selenyumun antioksidan sistemler üzerindeki rolü mevcut bilimsel çalışmalar üzerinden analiz edilmiştir.

Bulgular: Radyasyon maruziyeti, tiroid hücrelerinde reaktif oksijen türlerinin (ROS) artışına ve DNA hasarına yol açmaktadır. Bu süreçte bazı miRNA'ların (örneğin miR-146b, miR-221/222, miR-155) ekspresyonunda değişiklikler meydana gelerek hücre proliferasyonu, apoptoz ve DNA tamir mekanizmaları etkilenmektedir. Selenyum ise glutatyon peroksidaz gibi antioksidan enzimleri destekleyerek oksidatif stresi azaltmakta ve gen ekspresyonunun düzenlenmesinde dolaylı bir koruyucu rol üstlenmektedir.

Sonuç: Tiroid hücrelerinde radyasyon stresine karşı gelişen moleküler yanıtta miRNA'lar kritik düzenleyici rol oynarken, selenyumun oksidatif stresin azaltılması ve gen ekspresyonunun dengelenmesi üzerinden potansiyel radyoprotektif etkiler gösterdiği düşünülmektedir. Bu etkileşimlerin daha iyi anlaşılması, tiroid kanseri patogenezinde yeni tanı ve tedavi yaklaşımlarının geliştirilmesine katkı sağlayabilir.

Anahtar Kelimeler: Tiroid hücresi, radyasyon, selenyum, miRNA, gen regülasyonu, oksidatif stres

SELENIUM AND miRNA-MEDIATED GENE REGULATION IN RESPONSE TO RADIATION STRESS IN THYROID CELLS

Abstract

Objective: The aim of this study is to investigate the molecular responses to radiation stress in thyroid cells and the role of selenium and microRNAs (miRNAs) in gene regulation during this process. Specifically, the potential protective effects of selenium and miRNA interaction were evaluated in the context of oxidative stress, DNA damage, and cellular adaptation mechanisms.

Method: This study was conducted using a literature- based review approach. The biological effects of ionizing radiation on thyroid cells, changes in miRNA expression, and the role of selenium in antioxidant systems were analyzed based on existing scientific studies.

Findings: Radiation exposure leads to an increase in reactive oxygen species (ROS) and DNA damage in thyroid cells. During this process, changes occur in the expression of some miRNAs (e.g., miR-146b, miR-221/222, miR-155), affecting cell proliferation, apoptosis, and DNA repair mechanisms. Selenium, on the other hand, affects glutathione. It reduces oxidative stress by supporting antioxidant enzymes such as peroxidase and plays an indirect protective role in regulating gene expression.

Conclusion: While miRNAs play a critical regulatory role in the molecular response to radiation stress in thyroid cells, selenium is thought to exhibit potential radioprotective effects through the reduction of oxidative stress and the stabilization of gene expression. A better understanding of these interactions may contribute to the development of new diagnostic and therapeutic approaches in the pathogenesis of thyroid cancer.

Keywords: Thyroid cell, radiation, selenium, miRNA, gene regulation, oxidative stress

BERBERİS VULGARİS'İN AMPK YOLAĞINDAKİ ETKİLERİ

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Özet

Berberine Vulgaris, Berberidaceae familyasından, 3000 yıl eskiye dayanan özellikle Çin'de tıbbi amaçlı kullanılan birçok faydalı etkileri bulunan medikal bir bitkidir. İçerdiği alkoloidler sayesinde obezite, zayıflama ve kan şekeri seviyelerini düzenleme gibi etkileri nedeniyle son dönemde popülerliği artmıştır. Berberis vulgaris, kan şekeri seviyelerinin kontrol altında tutulmasında büyük rol oynamaktadır. Berberin, protoberberinler yapısal sınıfına ait bir izokinolin alkaloididir ve Berberis vulgaris de dahil olmak üzere birçok bitkide bulunmaktadır. Yani, Berberis vulgaris'in aktif bileşeni olarak öne çıkmaktadır. Berberin, insülin duyarlılığını artırarak kan şekerinin düşmesine yardımcı olur. Tip 2 diyabet hastaları üzerinde yapılan çalışmalarda, berberin içeren takviyelerin kan şekeri seviyelerini düzenlediği ve insülin direncini azalttığı görülmüştür.

Kan şekeri seviyesinin yükselmesi (hiperglisemi) uzun vadede ciddi sağlık sorunlarına yol açabilmektedir. Berberin, hiperglisemiyi önlemeye yardımcı olması ile kan şekeri düzenleyici etkisi sayesinde, diyabetin komplikasyonlarını azaltmakta ve vücuttaki glukoz dengesini koruyabilmektedir. AMPK (Adenozin Monofosfat ile aktive olan protein kinaz) ise hücre içi enerji durumunu (AMP/ATP oranı) izleyen kritik bir enzimdir. Enerji azaldığında (örneğin açlık veya egzersiz sırasında) uyarılmaktadır. Berberin doğrudan bu enzime bağlanarak onu aktive ederek vücuda "açlık sinyali" vererek enerji üretimini artırmakta ve gereksiz enerji depolanmasını durdurmaktadır. İskelet kaslarında hücre içine glikoz alımını artırmakta ve karaciğerdeki glikoz üretimini baskılamaktadır. Bu etkileriyle diyabet ilacı olan metformin ile de ortak özellikler göstermektedir. AMPK aktivasyonu, karaciğerde yağ sentezini (lipogenez) durdurarak yağ asitlerinin yakılmasını (oksidasyon) teşvik etmektedir. Ayrıca kan lipid profilini iyileştirerek LDL (low-density lipoprotein) ve trigliserit seviyelerinin düşmesine katkı sağlamaktadır. Diyabetik farelerde yapılan bir çalışmada, günlük 100 mg/kg berberine verilen grupta insülin duyarlılığını artırma, serum lipid seviyelerini iyileştirme ve böbrek fonksiyonlarını koruma gibi etkiler gösterdiği tespit edilmiştir. Ayrıca çalışmada berberinin AMPK'yı aktive edici etkisinin de olduğu görülmüştür.

Sonuç olarak; Berberis vulgaris'in oral kullanımının, diyabetli hastalarda kan şekerini düşürmede ve olumsuz komplikasyonları hafifletmede umut verici bir alternatif fitokimyasal olabileceği düşünülmektedir. Ayrıca ileride planlanan çalışmalarda berberinin daha fazla etki mekanizmalarının araştırılması hedeflenmektedir.

Anahtar Kelimeler: Berberine, AMPK, diyabet, glikoz

EFFECTS OF BERBERIS VULGARIS ON THE AMPK PATHWAY

Abstract

Berberis vulgaris, a member of the Berberidaceae family, is a medicinal plant with many beneficial effects, used for medicinal purposes, particularly in China, for over 3000 years. Its popularity has recently increased due to its alkaloid content, which helps with obesity, weight loss, and regulating blood sugar levels. Berberis vulgaris plays a significant role in keeping blood sugar levels under control. Berberine is an isoquinoline alkaloid belonging to the structural class of protoberberine and is found in many plants, including Berberis vulgaris. Therefore, it is distinguished as the active component of Berberis vulgaris. Berberine helps lower blood sugar by increasing insulin sensitivity. Studies on

patients with type 2 diabetes have shown that supplements containing berberine regulate blood sugar levels and reduce insulin resistance. High blood sugar levels (hyperglycemia) can lead to serious long-term health problems. Berberine helps prevent hyperglycemia and, thanks to its blood sugar-regulating effect, reduces the complications of diabetes and maintains glucose balance in the body. AMPK (Adenosine Monophosphate-Activated Protein Kinase) is a critical enzyme that monitors intracellular energy status (AMP/ATP ratio). It is activated when energy levels decrease (e.g., during fasting or exercise). Berberine directly binds to this enzyme, activating it and sending a "hunger signal" to the body, increasing energy production and preventing unnecessary energy storage. It increases glucose uptake into skeletal muscles and suppresses glucose production in the liver. These effects are similar to those of metformine, a diabetes medication. AMPK activation inhibits fat synthesis (lipogenesis) in the liver, promoting the burning (oxidation) of fatty acids. It also improves the blood lipid profile, contributing to a decrease in LDL (low-density lipoprotein) and triglyceride levels. A study showed that the group given 100 mg/kg of berberine daily had effects such as increasing insulin sensitivity, improving serum lipid levels, and protecting kidney function in diabetic mice. The study also showed that berberine had an activating effect on AMPK. In conclusion, oral administration of Berberis vulgaris is considered a promising alternative phytochemical for lowering blood sugar and mitigating adverse complications in diabetic patients. Furthermore, future studies are planned to investigate more mechanisms of action of berberine.

Keywords: Berberine, AMPK, diabetes, glucose

FİTOKİMYASALLAR VE FİTOTERAPİ: TARİHSEL BAĞLAM VE GÜNCEL TRENDLER

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Özet

Bitkiler tarafından sentezlenen ve spesifik biyolojik aktivitelere sahip sekonder metabolitler olan fitokimyasallar, insanlığın en köklü terapötik ajan kaynağını oluşturmaktadır. Paleolitik Çağ'a kadar uzanan ve Mısır, Hint, Çin ile Yunan medeniyetlerince sistematize edilen bu ampirik bilgi birikimi, zamanla etnofarmakolojinin temelini atarak modern ilaç keşiflerine kılavuzluk etmiştir. 18. ve 19. yüzyıllarda tıbbın rasyonel ve kanıta dayalı bir yapıya evrilmesiyle bitkisel özlerdeki aktif bileşikler izole edilmeye başlanmış; penisilin, rezerpin ve Vinca rosea alkaloidleri gibi öncü keşifler modern farmakognozi disiplinini şekillendirmiştir. Başlangıçta sentetik ilaçlara yönelimi artırarak bitkisel tedavileri gölgede bırakan bu süreç, 21. yüzyılda fitoterapinin geleneksel halk hekimliğinden tamamen ayrışarak kanıta dayalı modern bir tıbbi disiplin kimliği kazanmasını sağlamıştır. Dünya Sağlık Örgütü verilerine göre küresel ölçekte yaygın olarak başvurulan ve modern farmakolojik araştırmalarla desteklenen biyoaktif fitokimyasallar; kanser, nörodejeneratif, kardiyovasküler ve solunum sistemi hastalıklarının yönetiminde güçlü bir potansiyel sunmaktadır. Ancak preparatların standardizasyon eksikliği, kalite kontrol sorunları ve konvansiyonel ilaçlarla olası toksik etkileşimleri ciddi klinik riskler barındırdığından, fitoterapötik uygulamaların mutlaka multidisipliner bir yaklaşımla ve uzman hekim gözetiminde yürütülmesi esastır.

Anahtar Kelimeler: Fitokimyasallar, Fitoterapi, Geleneksel Tıp.

PHYTOCHMICALS AND PHYTOTHERAPY: HISTORICAL CONTEXT AND CURRENT TRENDS

Abstract

Phytochemicals, which are secondary metabolites synthesized by plants and possessing specific biological activities, constitute mankind's most deeply rooted source of therapeutic agents. This empirical knowledge base, dating back to the Paleolithic Era and systematized by Egyptian, Indian, Chinese, and Greek civilizations, eventually laid the foundation for ethnopharmacology, thereby guiding modern drug discovery. The evolution of medicine into a rational and evidence-based framework in the 18th and 19th centuries led to the isolation of active compounds from plant extracts; pioneering discoveries such as penicillin, reserpine, and Vinca rosea alkaloids shaped the discipline of modern pharmacognosy. While this process initially overshadowed botanical treatments by shifting the paradigm toward synthetic drugs, it enabled phytotherapy to entirely diverge from traditional folk medicine in the 21st century, establishing its identity as an evidence-based modern medical discipline. According to World Health Organization data, bioactive phytochemicals, which are widely utilized on a global scale and supported by contemporary pharmacological research, offer potent potential in the management of cancer, neurodegenerative, cardiovascular, and respiratory diseases. However, because the lack of standardization in preparations, quality control deficiencies, and potential toxic interactions with conventional medications pose serious clinical risks, it is essential that phytotherapeutic applications be conducted strictly under expert medical supervision through a multidisciplinary approach.

Keywords: Phytochemicals, Phytotherapy, Traditional Medicine.

ÖZGÜN S100A9 İNHİBİTÖRLERİ: *In silico* KEŞİF ve *In vitro* VALİDASYON

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Özet

Kronik inflamasyon süreçlerinin regülasyonunda hasarla ilişkili moleküler kalıp (DAMP) aktivitesiyle rol oynayan S100A9 proteini; romatoid artrit, Alzheimer, inflamatuar bağırsak hastalıkları ve çeşitli tümör tiplerinin progresyonunda kritik bir biyobelirteçtir. S100A9'un yüzey reseptörleri TLR4 ve RAGE-V ile girdiği patolojik etkileşimi baskılamayı amaçlayan CHAPS ve kinolin-3-karboksamid türevleri (Q-bileşikleri), kısıtlı spesifisite ve yetersiz farmakokinetik özellikleri nedeniyle klinik aşamalarda başarı gösterememiştir. Bununla birlikte, Q-bileşiklerinin hedef protein üzerindeki inhibitör mekanizmalarının yapısal ayrıntılarının bilinmeyişi, S100A9 odaklı rasyonel ilaç tasarım çalışmalarını sekteye uğratmaktadır. Bu araştırma kapsamında, bahsedilen kontrol ligandlarının S100A9 üzerindeki bağlanma dinamiklerinin aydınlatılması, in silico sanal tarama stratejileriyle özgün inhibitör iskelelerinin keşfedilmesi ve bu adayların in vitro yöntemlerle doğrulanması hedeflenmiştir. Çalışmada, S100A9-CHAPS etkileşim lokasyonu referans alınarak Q-bileşiklerinin bağlanma modları moleküler kenetleme (docking) simülasyonlarıyla haritalandırılmıştır. Paralel bir iş akışında, ZINC15 "Named" veri tabanı ilgili bağlanma ceplerine karşı taranmış ve en yüksek afinite skoruna sahip ilk 100 molekül farmakolojik özelliklerine göre sınıflandırılmıştır. Öne çıkan bu gruplardan seçilen temsilci kemotiplerin, kategorize edilmemiş moleküllerin ve kontrol bileşiklerinin S100A9 ile olan konformasyonel kararlılığı 100 ns süreli moleküler dinamik (MD) simülasyonlarıyla atomik düzeyde incelenmiş; ADME/toksisite profilleri hesaplanmıştır. Belirlenen hit moleküllerin ve pozitif kontrol konumundaki tasquinimodun S100A9'a doğrudan bağlanma kapasiteleri, HL-60 hücre hattında DARTS ve CETSA yaklaşımlarıyla termal ve enzimatik stabilizasyon bazında test edilmiştir. Ek olarak, adayların hücresel sitotoksiteleri ve p65 fosforilasyonunu inhibe etme yetenekleri THP-1 makrofaj modellerinde MTS ve Western blotting yöntemleriyle kantitatif olarak analiz edilmiştir. Araştırma bulguları, Q-bileşiklerinin S100A9 üzerindeki etki mekanizmalarını yapısal boyutta ilk kez deşifre etmiş ve gözlenen orta düzeydeki ilginin zayıf bağlanma özgüllüğünden kaynaklandığını kanıtlamıştır. Sanal tarama çıktıları; sartan, ergot alkaloidi ve triterpenoid sınıflarına ait güçlü inhibitör potansiyeli taşıyan yeni yapılar ortaya koymuştur. Hücresel validasyon çalışmaları neticesinde, bir triterpenoid türevi olan Oleanolic Acid'in S100A9 üzerindeki baskılayıcı rolü literatürde ilk defa in vitro olarak gösterilmiştir. Ayrıca ergot alkaloidi Dihydroergotamine'in protein kararlılığını artırarak güçlü bir öncü bileşik niteliği

taşıdığı, tirozin kinaz inhibitörü Imatinib'in ise yüksek seçicilikle S100A9'u inhibe ettiği belirlenmiştir. Özetle bu çalışma, klinik yetersizliklerin moleküler gerekçelerini netleştirerek kronik inflamasyonun kontrolünde terapötik değer taşıyan yeni küçük molekül ligandları biyotıp literatürüne kazandırmıştır.

Anahtar Kelimeler: S100A9, Sanal İlaç Taraması, Moleküler Dinamik Simülasyonları, In vitro Validasyon, Kronik İnflamasyon.

NOVEL S100A9 TARGETING INHIBITORS: *In silico* DISCOVERY AND *In vitro* VALIDATION

Abstract

S100A9 protein, which plays a pivotal role in regulating chronic inflammatory processes through its damage-associated molecular pattern (DAMP) activity, serves as a critical biomarker in the progression of rheumatoid arthritis, Alzheimer's disease, inflammatory bowel diseases, and various malignancies. Current molecules aimed at suppressing the pathological interaction of S100A9 with its surface receptors, TLR4 and RAGE-V—namely CHAPS and quinoline-3-carboxamide derivatives (Q-compounds)—have failed to transition into clinical phases due to poor specificity and suboptimal pharmacokinetic profiles. Furthermore, the structural mechanisms underlying the inhibitory action of Q-compounds on the target protein remain elusive, thereby hindering the rational design of novel, S100A9-specific inhibitors. This study aims to model the binding dynamics of these control ligands on S100A9, discover novel inhibitory scaffolds through in silico virtual screening strategies, and validate these candidates using in vitro methodologies. To this end, the S100A9-CHAPS binding pocket was defined as the target hotspot, and the binding modes of Q-compounds were mapped using molecular docking simulations. Concurrently, the ZINC15 "Named" drug library was screened against the target region, and the top 100 compounds exhibiting the highest binding affinities were categorized according to their pharmacological classes. The conformational stability and atomic-level interaction dynamics of representative chemotypes selected from these groups, unclassified candidates, and control ligands with S100A9 were detailed through 100-ns molecular dynamics (MD) simulations, alongside in silico profiling of their ADME and toxicity properties. The direct target engagement of the selected hits and tasquinimod (as a positive control) with S100A9 was evaluated based on thermal and enzymatic stabilization using DARTS and CETSA assays in HL-60 cell lines. Additionally, cellular cytotoxicity and NF-κB p65 phosphorylation inhibition were quantitatively analyzed in THP-1 macrophage models via MTS and Western blotting assays, respectively. Our findings elucidate the structural mechanism of action of Q-compounds on S100A9 for the first time at the molecular level, confirming that their moderate affinity stems from low binding specificity. The virtual screening pipeline revealed several promising novel inhibitor scaffolds belonging to the sartan, ergot alkaloid, and triterpenoid classes. Notably, in vitro validation assays demonstrated the inhibitory role of the triterpenoid derivative oleanolic acid on S100A9 for the first time in literature. Furthermore, the ergot alkaloid dihydroergotamine was shown to substantially enhance protein stability, highlighting its potential as a robust hit molecule, while the tyrosine kinase inhibitor imatinib inhibited S100A9 with high affinity and selectivity. In conclusion, this study clarifies the molecular rationale behind the clinical limitations of existing Q-compounds and introduces novel, high-precision small-molecule ligands with therapeutic potential for controlling S100A9-mediated chronic inflammation to the biomedical literature.

Keywords: S100A9, Virtual Drug Screening, Molecular Dynamics Simulations, In vitro Validation, Chronic Inflammation.

BURDEN OF METHICILLIN-RESISTANT STAPHYLOCOCCS AURES INFECTION AMONG NEONATES

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Abstract

Background: Methicillin-resistant *Staphylococcus aureus* (MRSA) is a major cause of healthcare-associated infections among hospitalized neonates and poses significant therapeutic challenges due to its resistance to multiple antimicrobial agents. Continuous surveillance of MRSA prevalence and antimicrobial susceptibility patterns is essential for effective infection control and appropriate antibiotic stewardship.

Objective: This study aimed to determine the prevalence of methicillin-resistant *Staphylococcus aureus*, evaluate the antimicrobial resistance patterns of *S. aureus* isolates, and assess the association between methicillin resistance and multidrug resistance among hospitalized neonates.

Methods: A hospital-based cross-sectional study was conducted among 155 neonates. Clinical specimens were collected and processed using standard microbiological techniques. *Staphylococcus aureus* isolates were identified using cultural, morphological, and biochemical methods. Methicillin resistance was determined using the cefoxitin disc diffusion method in accordance with CLSI guidelines. Antimicrobial susceptibility testing was performed using the Kirby-Bauer disc diffusion method. Association between variables were assessed using the Chi-square test. Statistical significance was set at $p < 0.05$.

Results: Of the 155 neonates studied, 65 (41.9%) yielded positive bacterial cultures, of which 31(20%) isolates were identified as *Staphylococcus aureus*. The prevalence of MRSA among the *S. aureus* isolates was 83.9%. Antimicrobial susceptibility testing revealed high levels of resistance to erythromycin (87%) and ciprofloxacin (83%), while resistance to ampicillin and gentamicin was 64% each. Imipenem demonstrated the highest susceptibility rate (32%), although overall susceptibility to the tested antibiotics remained low. Approximately 50% of the isolates exhibited resistance to more than half of the antibiotics tested, indicating a high burden of multidrug resistance. However, no statistically significant association was observed between methicillin resistance and multidrug resistance.

Conclusion: The study revealed a high prevalence of MRSA and extensive antimicrobial resistance among *Staphylococcus aureus* isolates recovered from hospitalized neonates. The high resistance rates to commonly used antibiotics and the substantial burden of multidrug resistance highlight the need for strengthened infection prevention measures, routine antimicrobial susceptibility testing, and effective antimicrobial stewardship programs in neonatal healthcare settings.

Keywords: Methicillin-resistant *Staphylococcus aureus*, MRSA, neonates, antimicrobial

PEDIATRIC HEARING CARE IN NIGERIA: SCREENING, PREVALENCE, INTERVENTIONS, AND POLICY CHALLENGES (2000–2026)

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Abstract

Objective: Hearing loss among children under five years of age constitutes a significant public health challenge in Nigeria. This review synthesizes available evidence on the prevalence, etiological factors, screening practices, diagnostic approaches, intervention options, policy frameworks, and systemic barriers affecting pediatric hearing care in the Nigerian context.

Method: A comprehensive review of peer-reviewed and grey literature published between January 2000 and July 2026 was conducted using PubMed, African Journals Online (AJOL), Google Scholar, and Scopus databases.

Results: The reported prevalence of congenital hearing loss ranges from 5.5 to 28 per 1,000 live births depending on the study setting and methodology. Approximately 3.5 million Nigerian children are estimated to be affected by hearing impairment. Identifiable causes include measles (13.9% of cases), meningitis (8.7%), birth asphyxia (4.3%), and genetic factors (25% of sensorineural cases). Nigeria currently lacks a national newborn hearing screening program. The country has fewer than 250 ear, nose, and throat specialists serving a population of 200 million, and 80% of parents report negative perceptions toward newborn hearing screening. Basic hearing aids cost approximately ₦10,000 to ₦20,000 (about $7 to $13 at the 2026 exchange rate), while advanced devices can exceed ₦300,000 ($200). Cochlear implants cost up to $20,000, placing these interventions beyond the financial reach of most families.

Conclusion: Pediatric hearing loss in Nigeria remains a substantial public health burden requiring urgent systemic attention. Evidence-based recommendations include integrating hearing screening into existing immunization programs, expanding workforce training capacities, subsidizing intervention costs, and strengthening the implementation of existing policy frameworks.

Keywords: Hearing loss; newborn screening; pediatric audiology; nigeria

DETERMINANTS OF MATERNAL MORTALITY IN PAKISTAN: EVALUATING THE EFFECTIVENESS OF PRENATAL AND POSTNATAL HEALTHCARE PROGRAMS

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Abstract

Background: Maternal mortality is a major concern in various countries across the globe and particularly Pakistan. Access to maternal healthcare services is an essential condition for improving women's health. Pakistan, being one of the low-income countries, also reported a high Maternal Mortality Rate of 186 deaths per 100,000 live births in 2019. Though, a signatory of Agenda 2030, the country still lags behind considerably in achieving Sustainable Development Goals (SDGs).

Objective: The present study was designed to determine the maternal mortality and the experiences, perceptions and expectations of pre-birth and post-birth women regarding utilization and delivery of maternal healthcare services in Pakistan.

Methodology: A quantitative study design was used. Convenient sampling technique was adopted to identify the respondents. Interviews were conducted using structures interview guide. The sample size was: pre-birth women ($n = 100$) and post-birth women ($n = 100$). All interviews were recorded after getting permission from the respondents.

Results: The results of the present study concluded that the overall quality of the maternal care services provided in Pakistan was very poor. The age group for the pre-birth respondents was 23–43 years while for post-birth group It was 23–35 years. Majority of mothers 60.8% monthly household income was 20000-40000 and 47.0% mothers education was up to primary. Majority of the mothers 70.3% were delivered baby by caesarian section and 16.1% mothers give birth at home. Majority of the women 65.3% were not involved in the decision-making process, and 34.3 % mothers having less than four ANC visits. 20 % supervisor/attendant during delivery was traditional birth attendants (TBAs /Dai)

Conclusion: By making inclusive policies at national level to improve the healthcare facilities that can reduced maternal mortality rate in Pakistan. The Pakistani pregnancy outcomes are much worse. Reasons for these poorer outcomes likely the reproductive age of women, low socioeconomic status, poor education level, birth at home and non skilled staff. There is a need to lunched a emergency service for a pregnant women, so that she can reached hospital at time and reduced maternal mortality. The cost of maternal care was quite high and not affordable for all, therefor, Government should be make polices for priceless treatment for antenatal care, postnatal care of women. As well as need to improve the education system, produced more nurses so that trained staff can be attend pregnancies.This topic emphasizes policy analysis, focusing on existing maternal health programs, their effectiveness, and recommendations for improving outcomes through better interventions and awareness.

Keywords: Maternal mortality, Healthcare, Antenatal care, Postnatal care, Pakistan

KNOWLEDGE, ATTITUDES, AND PRACTICES (KAP) OF TRADITIONAL MEDICINE PRACTITIONERS IN THE MANAGEMENT OF FUNGAL INFECTIONS IN SOKOTO STATE, NIGERIA

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Abstract

This study assessed the knowledge, attitudes, and practices (KAP) of traditional medicine practitioners regarding the treatment of fungal infections in Sokoto State, Nigeria. A cross-sectional survey was conducted among 60 respondents, including herbalists and traditional healers, using structured questionnaires and oral interviews. Data were analyzed using descriptive statistics and chi-square tests to determine associations between variables. Results showed that while a majority of respondents possessed substantial knowledge of plant-based antifungal remedies, there were notable gaps in dosage standardization, hygiene practices, and awareness of potential toxicity. Socio-demographic factors such as education level and years of practice significantly influenced knowledge and treatment approaches. Common challenges identified included lack of formal training, poor preservation techniques, and limited interaction with modern healthcare systems. The study highlights the need for targeted training programs and policy support to improve the safe use of traditional antifungal therapies. Enhancing practitioners' knowledge and practices could reduce health risks and promote more effective integration of traditional medicine into the formal healthcare system.

EARLY PREGNANCY LOW BACK PAIN MANAGED WITHOUT ANALGESICS: A CASE REPORT OF SCALP ACUPUNCTURE

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Abstract

Low back pain (LBP) is a common complaint during pregnancy, affecting up to 50% of pregnant women and often impairing daily activities and quality of life. Pharmacological treatment is limited because of potential fetal risks, especially during the first trimester, making non-pharmacological approaches preferable. Acupuncture is widely used as a safe non-pharmacological therapy for musculoskeletal pain. This case report describes the outcome of acupuncture treatment in a pregnant woman with LBP.

A 31-year-old primigravida at 9 weeks of gestation presented with acute low back pain for 10 days, with a baseline Numeric Rating Scale (NRS) score of 6/10. Clinical assessment showed no neurological deficits, a negative Straight Leg Raising test, and no red flags. The patient received Zhu's scalp acupuncture targeting lumbar and sacral representations for six sessions over three weeks (two to three sessions weekly). Needles were retained for 30 minutes without manual stimulation. Pain intensity was assessed before and after each session, and adverse events were monitored. Written informed consent was obtained.

Pain intensity progressively decreased throughout treatment, with the NRS score improving from 6 at baseline to 0 after the sixth session. The patient received no analgesic medications or other interventions during the treatment period. Follow-up until delivery showed only occasional mild discomfort (NRS 1–2), described as stiffness without significant pain, despite a gestational weight gain of 10 kg. No adverse events, maternal complications, or pregnancy-related complaints were reported.

Zhu's scalp acupuncture may be a safe and effective non-pharmacological option for managing low back pain during early pregnancy and may provide sustained symptom relief when pharmacological treatment is avoided.

Keywords: Scalp Acupuncture, Acupuncture, Low back pain, Pregnancy

REPORTING CASES IN MEDICINE, FROM RARITIES TO COMMON SENSE

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Abstract

With the increasing number of journals dedicated to case reports, and the impressive amount of clinical cases, studies, images and other subtleties of this kind, it is probably the moment for a reflection. Of course, journals have their guidelines and articles are structured; however, case reports so far have served the purpose of publishing something unusual. What is left from remote sources and authors reporting their cases more than one century ago, will show how thing have substantially changed.

The internal drive of authors to highlight their experience has different explanations and reasons, all of which will contribute to the product as seen from the readers. The industry of case reports is flourishing.

BMJ Case Reports by this date has published an impressive amount of more than thirty-two thousand cases and counting, with some other journals dedicated to case reports surpassing twelve thousand (Clinical Case Reports, Wiley) or more than eight thousand papers (Journal of Medical Case Reports). The World Journal of Clinical Cases is currently as well approaching the figure of eight thousand articles. Moreover, all this is just to mention a few: the author does not pretend to nor exhaustive, neither selective.

It seems, therefore, that case reports as a form of medical publication are en vogue, worth writing and reading. Warranted remains, actually, a discussion on their face value to the medical community.

Keywords: case report; general medicine; publishing; journals.

PERIOPERATIVE HEMODYNAMIC MANAGEMENT IN ISCHEMIC HEART DISEASE

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Abstract

Ischemic heart disease remains one of the leading causes of perioperative cardiovascular morbidity and mortality, particularly among patients undergoing cardiac surgery or major non-cardiac procedures with significant hemodynamic stress. In selected high-risk patients, perioperative circulatory support may be required to stabilize myocardial perfusion, reduce ventricular workload and prevent progression to cardiogenic shock. The intra-aortic balloon pump is one of the most widely used mechanical circulatory support devices in this context. Its physiological effect is based on diastolic balloon inflation, which increases coronary perfusion pressure, and rapid systolic deflation, which reduces left ventricular afterload and myocardial oxygen demand.

This review/clinical study aims to evaluate the role of intra-aortic balloon pump support in patients with ischemic heart disease during the perioperative period, with particular emphasis on indications, timing of insertion, hemodynamic effects, clinical outcomes and potential complications. The use of intra-aortic balloon pump may be considered before surgery in patients with severe coronary artery disease, left main disease, reduced left ventricular ejection fraction, unstable angina, recent myocardial infarction or high risk of perioperative low cardiac output syndrome. It may also be applied intraoperatively or postoperatively in cases of difficult weaning from cardiopulmonary bypass, persistent myocardial ischemia, ventricular dysfunction or cardiogenic shock.

Although the intra-aortic balloon pump can improve short-term hemodynamic stability and facilitate perioperative management, its impact on survival remains dependent on appropriate patient selection, timing of use and underlying cardiac function. Complications such as vascular injury, limb ischemia, bleeding, thrombocytopenia and infection must be carefully monitored. Overall, intra-aortic balloon pump support remains an important adjunctive strategy in the perioperative management of selected patients with ischemic heart disease, especially when myocardial reserve is limited and the risk of hemodynamic deterioration is high. Its use should be individualized within a multidisciplinary decision-making framework involving cardiologists, cardiac surgeons, anesthesiologists and intensive care specialists.

Keywords: intra-aortic balloon pump; ischemic heart disease; perioperative period; myocardial ischemia; mechanical circulatory support.

THE RESULTS OF SURGICAL TREATMENT OF PATIENTS WITH CHRONIC HEMORRHOIDS OF LIGASURE VESSEL SEALING SYSTEM

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Abstract

Introduction. Hemorrhoids are common clinical conditions. It is estimated that 50% of the people older than 50 years have hemorrhoids symptoms at least for a period of time. Almost one third of these patients present to surgeons for treatment.

Hemorrhoids can occur at any age, and they affect both men and women. The most common symptoms include rectal bleeding, pain, anal irritation and anal mass prolapse and a disrupted quality of life. There has been much speculation over the years as to the nature of "hemorrhoids". It is now generally accepted that "hemorrhoids" are a disorder of the anal cushions.

LigaSure Vessel Sealing System has been introduced as a new instrument to upgrade the traditional treatment of haemorrhoids. The advantages of this method are: small area of damage, absence of sutures in the anal area, reducing of the pain syndrome, absence of bleeding and edema of tissues, reduction of terms of treatment, which has the potential to make hemorrhoidectomy in to a day—care procedure.

Aim of the research: The main goal of the research was to evaluate the benefits of the LigaSure Vessel Sealing System over traditional approaches of hemorrhoids treatment.

Materials and methods: Milligan-Morgan method is the most commonly used technique and is widely considered to be the most effective surgical technique for treating hemorrhoids. LigaSure hemorrhoidectomy is a sutureless, closed hemorrhoidectomy technique dependent on a modified electro-surgical unit to achieve tissue and vessel sealing. It is safe and effective, has less blood loss, postoperative pain and complications compared to conventional hemorrhoidectomy. Technically it is much simpler because suturing is not required and hemostasis is easy to achieve.

Results and discussion. For symptomatic grade 3 and 4 hemorrhoids, some form of hemorrhoidectomy remains the accepted modality of treatment. The traditional methods like the Milligan—Morgan method have been in practice for more than half a century for want of a better alternative. Recent years have seen the introduction of newer techniques with relative merits and demerits. In our clinics we used the upgraded with the LigaSure Vessel Sealing System Milligan—Morgan's operation.

Conclusions. Haemorrhoidectomy with LigaSure vessel sealing is quick, easy, reliable and completely bloodless. The low number of complications and hospital admissions suggests that vessel sealing is an optimal technique for use in ambulatory haemorrhoidectomy.

Key words: hemorrhoids, LigaSure hemorrhoidectomy, acceleration of treatment of wounds.

ASSOCIATION BETWEEN PLATELET COUNT AND GRADING OF ESOPHAGEAL VARICES IN PATIENTS WITH LIVER CIRRHOSIS

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Abstract

Background: Upper GI endoscopy is the gold standard technique for diagnosing esophageal varices and to assess the risk of bleeding but is invasive in nature, costly, time consuming and burden for the department. Besides, this platelet count is also an important tool to predict the esophageal varices in cirrhotic patients, and it is a highly accurate test. It has been noted that platelet count in cirrhotic patients with esophageal varices, is less than 100,000/mm but very few of the data is available so the aim of the current study was to find out the association between mean platelet count and grading of esophageal varices in patients with liver cirrhosis.

Methods: A descriptive cross-sectional study was conducted at the medicine department of Hayatabad Medical Complex Peshawar (HMC). For testing platelet count the blood sample was sent to the pathology laboratory of the hospital. Gastroenterologist performed the upper gastrointestinal endoscopy to grade the esophageal varices. Data was analyzed by using the Statistical Package for Social Science (SPSS) version-20. ANOVA with post-Hoc Tuckey test was applied to find out the correlation between the variables. p-value less than 0.05 was considered as significant.

Results: The mean age of the study participants was 34.9±8.6 years. Majority of the study participants were male (61.1%) as compared to their counterparts. The mean platelet count among the study participants was 113,200±29000 /u L majority of cirrhotic patients included in the study were having grade III of esophageal varices (39.5%). It has been noted that mean platelet count decreased with increasing grade of esophageal varices and the association was significant. Cirrhotic patients having Grade I esophageal varices were having near normal mean platelet count but those who were in Grade V of esophageal varices, having markedly decreased platelet count as compared to Grade I, II, III and IV.

Conclusion: It can be concluded that the mean platelet count is significantly inverse association with the grading of esophageal varices, as low as the platelet count, worst the esophageal varices in patients with liver cirrhosis. So, testing mean platelet count can be used for screening purpose of esophageal varices as it is a cost-effective test.

Keywords: Cirrhosis, Esophageal varices, Mean Platelet count

STATISTICAL MODELING OF GASTROINTESTINAL SYMPTOM DYNAMICS FOLLOWING HELICOBACTER PYLORI ERADICATION: A LONGITUDINAL PREDICTIVE FRAMEWORK

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Abstract

The growing availability of longitudinal clinical data has created new opportunities for the application of advanced statistical and machine learning methodologies in healthcare outcome assessment. This study investigates the temporal evolution of gastrointestinal symptom profiles in patients diagnosed with Helicobacter pylori infection before and after eradication therapy, with emphasis on statistical inference and predictive analytics rather than clinical characterization.

A prospective dataset comprising 29 patients was analyzed. Symptom intensity and frequency were measured using standardized ordinal scales across multiple upper and lower gastrointestinal manifestations at baseline and two months following treatment. Statistical significance of symptom changes was initially evaluated through paired comparative analysis, while multivariate exploratory techniques were employed to identify latent symptom structures and treatment-response patterns.

Results revealed a statistically significant reduction in several upper gastrointestinal symptoms following successful eradication, including bitter mouth sensation, belching, globus sensation, fasting epigastric pain, postprandial epigastric pain, nocturnal epigastric pain, right upper quadrant discomfort, postprandial heaviness, and nausea. In contrast, among lower gastrointestinal symptoms, only abdominal pain demonstrated a significant decrease. Patients with unsuccessful eradication exhibited no comparable improvement and showed persistence or worsening of selected symptoms.

From a statistical learning perspective, the findings suggest that symptom trajectories can serve as informative predictors of treatment outcome. The study highlights the potential of longitudinal symptom-based datasets for the development of predictive models capable of classifying therapeutic response and identifying the most influential symptom dimensions associated with eradication success. These results support the integration of statistical modeling and machine learning approaches into clinical decision-support systems for gastrointestinal disorders.

Keywords: Longitudinal data analysis, predictive modeling, Statistical learning, helicobacter pylori, treatment response**.**

TO STUDY THE CORRELATION OF DIABETIC MICROVASCULATURE COMPLICATIONS IN CHRONIC KIDNEY DISEASE

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Abstract

Background/objectives: Chronic renal disease is a global health problem. The prevalence of the disease has increased markedly in recent years. The retinal microvascular changes need to be studied in diabetic nephropathy. The objective of the study is to examine the correlation between microvascular complications of chronic diabetes and chronic renal insufficiency in patients.

Methodology: This cross-sectional descriptive study was conducted in the Endocrinology unit of Hayatabad Medical Complex, Peshawar. Data were collected from 100 inpatients over a 6-month period. Demographic and anthropometric measurements, clinical examination, and biochemical profile were recorded on a structured pro forma. Fundoscopy was performed. Creatinine clearance was calculated. Descriptive analysis was performed using SPSS Version 20.

Results: Bilateral Non-Proliferative Diabetic Retinopathy (NPDR) was found to be one of the most common microvascular complications of diabetes among the study population. The second- and third-most reported complications were Bilateral Cataract (20%) and Bilateral Mild NPDR (10%), respectively.

Conclusion: Diabetic retinopathy accounts for the microvascular changes in the fundi, which further deteriorate the quality of life of patients suffering from kidney diseases. Bilateral Non-Proliferative Diabetic Retinopathy was the most common microvascular complication of diabetes among the study population.

Keywords: Chronic renal insufficiency, chronic kidney disease, diabetic retinopathy.

CHRONIC KIDNEY DISEASE: PATHOPHYSIOLOGY, MANAGEMENT, AND ROLE OF PHARMACISTS IN PATIENT CARE

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Abstract

Background: Chronic Kidney Disease (CKD) is a progressive disorder characterized by a gradual decline in kidney function over time, affecting more than 10% of the global population. In India, the prevalence of CKD is increasing due to the rising incidence of diabetes mellitus and hypertension. Early stages are often asymptomatic, resulting in delayed diagnosis and increased risk of progression to end-stage renal disease (ESRD).

Objective: To review the stages, risk factors, and therapeutic management of CKD, with emphasis on the pharmacist's role in medication management, dose adjustment, and patient counseling.

Methodology: A literature review was conducted using standard pharmacology textbooks, review articles, and published research studies focusing on CKD pathophysiology, clinical management, and pharmacist-led interventions in patient care.

Results: CKD is classified into five stages based on glomerular filtration rate (GFR). Major risk factors include diabetes mellitus, hypertension, cardiovascular disease, and prolonged use of nephrotoxic drugs such as non-steroidal anti-inflammatory drugs (NSAIDs). Management strategies focus on controlling underlying conditions, slowing disease progression through the use of ACE inhibitors or angiotensin receptor blockers, and treating complications such as anemia, electrolyte imbalance, and mineral bone disorders. Pharmacists contribute significantly by ensuring appropriate renal dose adjustments, identifying potential drug interactions, preventing nephrotoxicity, and improving medication adherence through patient education.

Novelty: This review highlights the crucial role of pharmacists in optimizing drug therapy for CKD patients through individualized dose adjustments, medication safety monitoring, and patient counseling. It also emphasizes the contribution of pharmacy students in CKD awareness programs and medication safety initiatives within the community.

Conclusion: Early detection and multidisciplinary management are essential for delaying CKD progression and reducing complications. Pharmacists play a vital role in ensuring safe and effective medication use, promoting adherence, and educating patients on lifestyle modifications. Strengthening pharmacy education in CKD management can enhance future healthcare outcomes.

Keywords: Chronic Kidney Disease, GFR, Renal Dose Adjustment, Pharmacist, Nephrotoxicity, Patient Counseling

STATISTICAL CONVERGENCE ANALYSIS IN 6 MV PHOTON DOSIMETRY: IMPACT OF PARTICLE HISTORY COUNT ON PDD PARAMETERS IN TOPAS MONTE CARLO SIMULATIONS

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Abstract

Purpose: This study investigates the dosimetric characteristics of 6 MV photon beams across a broad range of statistical sampling levels using the TOPAS v3.9 Monte Carlo platform, with the aim of quantitatively determining the minimum number of primary particle histories required for clinically reliable percentage depth dose (PDD) calculations. Benchmarking against AAPM TG-105 and IAEA TRS-398 international protocols constitutes the principal original contribution of this work.

Materials and Methods: A 40×40×40 cm^3 G4_WATER phantom was constructed within TOPAS v3.9 and irradiated with a polyenergetic 6 MV photon beam at a source-to-surface distance (SSD) of 100 cm and a 10×10 cm^2 field size. Eight independent simulation groups were executed with particle history counts ranging from 5×10^5 to 7×10^6. PDD data were recorded at 1 mm voxel resolution along the central axis, and statistical deviations were compared against the theoretical $1/\sqrt{N}$ uncertainty model.

Results: PDD curves achieved clinically acceptable smoothness at and above 4×10^6 histories, and Dmax stabilised at 1.7 cm. PDD_{10} converged to the 66.2–66.5% range in high-history groups, while low-history groups (5×10^5–1×10^6) produced values of approximately 69–70%, representing a statistically significant overestimation exceeding the 1% AAPM TG-105 tolerance threshold.

Conclusion: A minimum of 4×10^6 primary histories is recommended for clinically reliable 6 MV photon PDD simulations. For research-grade applications such as TPS commissioning and linac acceptance testing, 6×10^6 or more histories are advised to bring build-up region and distal tail uncertainties within AAPM TG-105 tolerance limits.

Keywords: Monte Carlo simulation, TOPAS, 6 MV photon, PDD, particle histories.

VALIDATION OF ELECTRON RANGE PARAMETERS IN SUPERFICIAL RADIOTHERAPY: SIMULATION-BASED ANALYSIS OF ENERGY-DEPENDENT PDD PROFILES

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Abstract

Purpose: The aim of this study is to characterize the dosimetric properties of clinical electron beams across the 3–12 MeV energy range using Monte Carlo (MC) simulation, and to benchmark the derived parameters against the international protocols IAEA TRS-398 and AAPM TG-51. Percentage depth dose (PDD) profiles were systematically evaluated, and clinically relevant quantities (namely the depth of maximum dose (Dmax), the half-value depth (R_{50}), surface dose, and practical range (R_p)) were determined for each beam energy.

Materials and Methods: A 30×30×30 cm³ water phantom was constructed within the TOPAS v3.9 simulation platform, which is built upon the Geant4 nuclear physics toolkit. Electron beams were modelled at a source-to-surface distance (SSD) of 100 cm with a 10×10 cm² field size. A total of 4×10^6 primary histories per energy level were tracked to maintain statistical uncertainty below 1%. Electromagnetic interactions were handled by the g4em-standard_opt4 physics list, which has been shown to deliver superior accuracy in clinical dosimetry applications.

Results: The simulated R_{50} values ranged from 11.5 mm at 3 MeV to 51.0 mm at 12 MeV, agreeing with the empirical formula $E_0/2.33\approx R_{50}$ and the NIST ESTAR theoretical range tables within 2%. Surface dose increased progressively with beam energy, while Dmax shifted towards greater depths, consistent with theoretical expectations.

Conclusion: TOPAS-based MC simulation has been confirmed as a reliable and accurate tool for clinical electron beam dosimetry. The comprehensive dataset produced in this work is suitable for use as a reference in the acceptance testing of new linear accelerators and the independent verification of commercial treatment planning systems (TPS).

Keywords: Electron beam dosimetry, Monte Carlo simulation, TOPAS, PDD profiles.

NONTRAVMATİK BAŞ AĞRISI İLE BAŞVURAN ERİŞKİN HASTALARDA BİLGİSAYARLI TOMOGRAFİ BULGULARI: İKİ MERKEZLİ RETROSPEKTİF ÇALIŞMA

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Özet

Nontravmatik baş ağrısı, acil servise başvuruların en sık nedenlerinden biri olup çoğu olgu benign etiyolojiye sahip olsa da bazı hastalarda hayatı tehdit eden intrakraniyal patolojiler saptanabilmektedir. Kraniyal bilgisayarlı tomografi (BT), akut intrakraniyal patolojilerin hızlı değerlendirilmesinde yaygın kullanılan temel görüntüleme yöntemlerinden biridir. Bu çalışmada, nontravmatik baş ağrısı ile acil servise başvuran erişkin hastalarda kraniyal BT bulgularının değerlendirilmesi ve klinik olarak anlamlı intrakraniyal patolojilerin sıklığının ortaya konulması amaçlandı.

Yerel etik kurul onayı alındıktan sonra, Ocak 2023–Aralık 2025 tarihleri arasında Ankara Özel Medikana Hastanesi ve Ankara Eğitim ve Araştırma Hastanesinde nontravmatik baş ağrısı nedeniyle acil servise başvuran ve kraniyal BT çekilen erişkin hastalar retrospektif olarak incelendi. Antikoagülan kullanan hastalar, yakın zamanda intrakraniyal patoloji öyküsü bulunanlar ve daha önce intrakraniyal cerrahi geçirmiş hastalar çalışma dışı bırakıldı. Toplam 2000 hasta çalışmaya dahil edildi. BT bulguları normal, insidental ve klinik olarak anlamlı bulgular olarak sınıflandırıldı. İstatistiksel analizlerde kategorik değişkenler için ki-kare testi, sürekli değişkenler için bağımsız örneklem t-testi kullanıldı ve $p<0.05$ değeri anlamlı kabul edildi.

Çalışmaya dahil edilen hastaların %58,7'si kadın, %41,3'ü erkek olup ortalama yaş 44,6 ± 16,2 yıl idi. Kraniyal BT incelemelerinde 923 hastada (%46,2) pozitif bulgu saptandı. Klinik olarak anlamlı intrakraniyal patoloji 317 hastada (%15,9) izlendi. En sık saptanan anlamlı patolojiler intrakraniyal kanama (n=113), akut iskemik değişiklikler (n=97), kitle lezyonları (n=61) ve hidrosefali (n=46) idi. Elli yaş ve üzerindeki hastalarda klinik olarak anlamlı BT bulguları, 50 yaş altındaki hastalara göre anlamlı derecede daha sık bulundu ($p<0.001$). İki merkez arasında pozitif BT bulguları açısından anlamlı fark izlenmedi ($p=0.41$).

Elde edilen bulgular, nontravmatik baş ağrısı ile başvuran erişkin hastalarda kraniyal BT'nin klinik olarak anlamlı intrakraniyal patolojilerin saptanmasında yüksek tanısal değere sahip olduğunu göstermektedir. Özellikle ileri yaş grubunda anlamlı patoloji oranının belirgin artması, hasta seçiminde klinik risk faktörlerinin önemini ortaya koymaktadır. Bu sonuçlar, acil serviste kraniyal BT kullanımının daha seçici ve klinik temelli planlanmasına katkı sağlayabilir.

Anahtar Kelimeler: Nontravmatik baş ağrısı, bilgisayarlı tomografi, acil servis, kraniyal BT

COMPUTED TOMOGRAPHY FINDINGS IN ADULT PATIENTS PRESENTING WITH NON-TRAUMATIC HEADACHE: A TWO-CENTER RETROSPECTIVE STUDY

Abstract

Non-traumatic headache is one of the most common causes of emergency department admissions. Although most cases are related to benign etiologies, life-threatening intracranial pathologies may be

detected in a subset of patients. Cranial computed tomography (CT) is one of the most widely used imaging modalities for the rapid evaluation of acute intracranial pathologies. This study aimed to evaluate cranial CT findings in adult patients presenting to the emergency department with non-traumatic headache and to determine the frequency of clinically significant intracranial pathologies.

After obtaining local ethics committee approval, adult patients who presented to the emergency departments of Ankara Private Medicana Hospital and Ankara Training and Research Hospital with non-traumatic headache between January 2023 and December 2025 and underwent cranial CT examination were retrospectively evaluated. Patients using anticoagulants, those with a recent history of intracranial pathology, and patients with previous intracranial surgery were excluded. A total of 2000 patients were included in the study. CT findings were classified as normal, incidental, and clinically significant findings. Chi-square test was used for categorical variables, while independent samples t-test was used for continuous variables. A p-value of <0.05 was considered statistically significant.

Of the included patients, 58.7% were female and 41.3% were male, with a mean age of 44.6 ± 16.2 years. Positive CT findings were detected in 923 patients (46.2%). Clinically significant intracranial pathology was observed in 317 patients (15.9%). The most common significant pathologies were intracranial hemorrhage (n=113), acute ischemic changes (n=97), mass lesions (n=61), and hydrocephalus (n=46). Clinically significant CT findings were significantly more frequent in patients aged 50 years and older compared to patients younger than 50 years ($p<0.001$). No statistically significant difference was observed between the two centers regarding positive CT findings ($p=0.41$).

The findings of this study demonstrate that cranial CT has a high diagnostic value in detecting clinically significant intracranial pathologies in adult patients presenting with non-traumatic headache. The markedly increased rate of significant pathology in older patients highlights the importance of clinical risk factors in patient selection. These results may contribute to a more selective and clinically oriented use of cranial CT in emergency departments.

Keywords: Non-traumatic headache, computed tomography, emergency department, cranial CT

RADYOTERAPİDE HİPERTERMİ UYGULAMALARININ KLİNİK ÖNEMİ: RADYASYON DUYARLILIĞINI ARTIRAN KOMBİNE TEDAVİ YAKLAŞIMI

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Özet

Radyoterapi, lokal ileri ve lokalize kanserlerin tedavisinde temel tedavi modalitelerinden biri olmakla birlikte, tümör hücrelerinin radyasyona karşı direnç geliştirmesi tedavi başarısını sınırlayan önemli faktörlerden biridir. Son yıllarda radyoterapinin etkinliğini artırmak amacıyla radyoduyarlaştırıcı yaklaşımlar üzerine yoğun çalışmalar yapılmaktadır. Hipertermi, tümör dokusunun kontrollü olarak ısıtılması prensibine dayanan ve radyoterapinin biyolojik etkilerini artırabilen tamamlayıcı bir tedavi yöntemidir. Bu çalışmanın amacı, radyoterapi ile kombine uygulanan hiperterminin radyobiyolojik mekanizmalarını, klinik sonuçlarını ve güncel tedavi yaklaşımlarındaki yerini değerlendirmektir. Hiperterminin temel etkileri arasında tümör hücrelerinde DNA hasarı onarım kapasitesinin azalması, hipoksik hücrelerin radyasyona duyarlılığının artması, kan akımında değişiklikler meydana gelmesi ve bağışıklık yanıtının aktive edilmesi bulunmaktadır. Özellikle radyasyona dirençli hipoksik tümör bölgelerinde hiperterminin oksijenizasyonu artırarak radyoterapinin etkinliğini desteklediği gösterilmiştir. Ayrıca hiperterminin tümör mikroçevresi üzerinde immünomodülatör etkileri olduğu ve antitümöral bağışıklık yanıtını güçlendirebildiği bildirilmektedir. Klinik çalışmalarda hipertermi ve radyoterapi kombinasyonunun özellikle lokal ileri meme kanseri, serviks kanseri, rektum kanseri, mesane kanseri, baş-boyun kanserleri ve yüzeyel yumuşak doku tümörleri gibi çeşitli malignitelerde araştırıldığı görülmektedir. Randomize klinik çalışmalar, uygun hasta seçimi ve teknik uygulamalar ile hipertermi eklenmesinin lokal kontrol oranlarını artırabileceğini göstermiştir. Bununla birlikte hiperterminin etkinliği; uygulama yöntemi, sıcaklık düzeyi, tedavi süresi, tümör lokalizasyonu ve radyoterapi zamanlaması gibi birçok faktörden etkilenmektedir. Günümüzde teknolojik gelişmeler ile birlikte bölgesel ve lokal hipertermi uygulamalarının daha hassas hale gelmesi, bu tedavi yaklaşımının yeniden önem kazanmasını sağlamıştır. Radyoterapi ile hipertermi kombinasyonu, özellikle radyorezistan tümörlerde tedavi etkinliğini artırma potansiyeline sahip, biyolojik temeli güçlü ve klinik olarak değerli bir yaklaşım olarak değerlendirilmektedir. Sonuç olarak hipertermi, radyoterapinin etkisini güçlendirebilen, multimodal kanser tedavisinde tamamlayıcı rol oynayan önemli bir tedavi seçeneğidir. Gelecekte hasta seçiminin daha iyi yapılması ve kişiselleştirilmiş tedavi stratejilerinin geliştirilmesi ile hiperterminin radyasyon onkolojisindeki kullanım alanının genişlemesi beklenmektedir.

Anahtar Kelimeler: Hipertermi, Radyoterapi, Radyobiyoloji, Kombine Tedavi, Tümör Duyarlılığı

CLINICAL IMPORTANCE OF HYPERTHERMIA APPLICATIONS IN RADIOTHERAPY: A COMBINED TREATMENT APPROACH ENHANCING RADIOSENSITIVITY

Abstract

Radiotherapy is one of the fundamental treatment modalities for localized and locally advanced cancers; however, resistance of tumor cells to radiation remains a major limitation affecting treatment outcomes. In recent years, several radiosensitizing strategies have been investigated to enhance the therapeutic

efficacy of radiotherapy. Hyperthermia is a complementary treatment modality based on controlled heating of tumor tissues and has the potential to increase the biological effects of radiation. The aim of this review is to evaluate the radiobiological mechanisms, clinical outcomes, and current role of hyperthermia combined with radiotherapy. The main effects of hyperthermia include impairment of DNA damage repair mechanisms, increased radiosensitivity of hypoxic tumor cells, alterations in tumor blood flow, and activation of immune responses. Particularly in hypoxic and radioresistant tumor regions, hyperthermia may improve oxygenation and enhance the effectiveness of radiation therapy. In addition, hyperthermia has been reported to have immunomodulatory effects by influencing the tumor microenvironment and stimulating antitumor immune responses. Clinical studies have investigated the combination of hyperthermia and radiotherapy in various malignancies including locally advanced breast cancer, cervical cancer, rectal cancer, bladder cancer, head and neck cancers, and superficial soft tissue tumors. Randomized clinical trials have demonstrated that adding hyperthermia to radiotherapy may improve local control rates in appropriately selected patients. However, the efficacy of hyperthermia depends on several factors including treatment technique, temperature level, duration of heating, tumor location, and synchronization with radiotherapy. With technological advances, modern local and regional hyperthermia techniques have become more precise and reproducible, leading to renewed interest in this treatment approach. The combination of hyperthermia and radiotherapy represents a biologically effective strategy, particularly for radioresistant tumors, by enhancing tumor response while maintaining acceptable toxicity profiles. In conclusion, hyperthermia is an important complementary modality that may increase the effectiveness of radiotherapy and contribute to multimodal cancer treatment strategies. Future studies focusing on patient selection, treatment optimization, and personalized approaches may further expand the role of hyperthermia in radiation oncology.

Keywords: Hyperthermia, Radiotherapy, Radiobiology, Combined Treatment, Tumor Radiosensitivity

RADYOTERAPİ GÖREN KANSER HASTALARINDA SARKOPENİNİN KLİNİK ÖNEMİ: TEDAVİ TOLERANSI, TOKSİSİTE VE ONKOLOJİK SONUÇLARA ETKİSİ

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Özet

Kanser hastalarında vücut kompozisyonundaki değişiklikler, tedavi başarısını ve yaşam kalitesini önemli ölçüde etkileyen klinik faktörler arasında yer almaktadır. Sarkopeni, iskelet kas kütlesi ve kas fonksiyonunda azalma ile karakterize sistemik bir durum olup, özellikle kanser hastalarında artmış morbidite, tedaviye bağlı komplikasyonlar ve kötü klinik sonuçlarla ilişkilidir. Günümüzde yalnızca kilo kaybı ile değerlendirilemeyen beslenme ve metabolik durumun, kas kütlesi ve fonksiyonunun objektif yöntemlerle değerlendirilmesi gerektiği giderek daha fazla kabul edilmektedir. Bu bildirinin amacı, radyoterapi uygulanan kanser hastalarında sarkopeninin önemini ve tedavi sonuçları üzerindeki etkilerini değerlendirmektir. Kanser ilişkili inflamasyon, azalmış fiziksel aktivite, yetersiz beslenme ve tedavi süreçleri kas kaybının temel mekanizmaları arasında yer almaktadır. Radyoterapi alan hastalarda sarkopeni; artmış akut ve geç toksisite oranları, tedavi kesintileri, hastaneye yatış ihtiyacı, düşük yaşam kalitesi ve azalmış genel sağkalım ile ilişkilendirilmiştir. Özellikle baş-boyun, gastrointestinal sistem, akciğer ve pelvik kanserlerde yapılan çalışmalar, düşük kas kütlesine sahip hastaların radyoterapi sürecini daha zor tolere ettiğini göstermektedir. Sarkopeninin değerlendirilmesinde bilgisayarlı tomografi görüntülerinden elde edilen iskelet kas alanı ölçümleri, manyetik rezonans görüntüleme, dual enerji X-ray absorpsiyometri (DXA), biyelektrik impedans analizi ve fiziksel performans testleri kullanılmaktadır. Özellikle rutin evreleme veya tedavi planlama amacıyla çekilen BT görüntülerinin kas değerlendirmesinde kullanılması, ek maliyet oluşturmadan riskli hastaların belirlenmesine olanak sağlamaktadır. Radyasyon onkolojisi pratiğinde hastaya özgü tedavi planlaması ve toksisite riskinin öngörülmesi giderek önem kazanmaktadır. Sarkopenik hastalarda tedavi öncesi erken dönemde beslenme desteği, egzersiz programları ve direnç egzersizlerinin uygulanması, kas kaybını azaltabilecek ve tedavi toleransını artırabilecek stratejiler arasında değerlendirilmektedir. Sonuç olarak sarkopeni, radyoterapi alan kanser hastalarında yalnızca beslenme durumu göstergesi değil, aynı zamanda tedavi başarısını etkileyen önemli bir prognostik ve prediktif faktördür. Gelecekte radyoterapi öncesi rutin sarkopeni değerlendirmesi, kişiselleştirilmiş destek tedavilerinin planlanmasına katkı sağlayarak hasta sonuçlarını iyileştirebilir.

Anahtar Kelimeler: Sarkopeni, Radyoterapi, Kanser Kaşeksisi, Kas Kaybı, Tedavi Toksisitesi

CLINICAL IMPORTANCE OF SARCOPENIA IN CANCER PATIENTS RECEIVING RADIOTHERAPY: IMPACT ON TREATMENT TOLERANCE, TOXICITY, AND ONCOLOGICAL OUTCOMES

Abstract

Changes in body composition have become increasingly recognized as important clinical factors affecting treatment outcomes and quality of life in cancer patients. Sarcopenia is characterized by reduced skeletal muscle mass and impaired muscle function and is associated with increased morbidity, treatment-related complications, and poor clinical outcomes, particularly in oncology patients. This

review aims to evaluate the clinical significance of sarcopenia in cancer patients undergoing radiotherapy and its impact on treatment tolerance and oncological outcomes. Cancer-related inflammation, decreased physical activity, inadequate nutritional intake, and treatment-related metabolic changes are among the major mechanisms contributing to muscle loss. In patients receiving radiotherapy, sarcopenia has been associated with increased acute and late toxicities, treatment interruptions, hospitalization rates, reduced quality of life, and poorer survival outcomes. Studies conducted especially in head and neck, gastrointestinal, lung, and pelvic cancers have demonstrated that patients with low muscle mass may experience greater difficulties during radiotherapy treatment. Assessment of sarcopenia can be performed using several methods, including skeletal muscle area measurements obtained from computed tomography images, magnetic resonance imaging, dual-energy X-ray absorptiometry, bioelectrical impedance analysis, and physical performance tests. The use of routinely acquired computed tomography images for muscle evaluation provides an opportunity to identify high-risk patients without additional cost or radiation exposure. In radiation oncology practice, individualized treatment planning and prediction of toxicity risk are becoming increasingly important. Early nutritional interventions, exercise programs, and resistance training strategies may help prevent further muscle loss and improve treatment tolerance in sarcopenic patients.
In conclusion, sarcopenia is not only an indicator of nutritional status but also an important prognostic and predictive factor influencing outcomes in cancer patients receiving radiotherapy. Routine assessment of sarcopenia before radiotherapy may support personalized supportive care strategies and improve clinical outcomes in the future.

Keywords: Sarcopenia, Radiotherapy, Cancer Cachexia, Muscle Loss, Treatment Toxicity

FÜZYONE ROTASYON ANOMALİSİ OLAN SÜPERNÜMERER BÖBREKTE TAŞ: RETROGRADE İNTRARENAL CERRAHİ

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Özet

Giriş: Süpernümerer böbrek, iki böbrekten daha fazla böbrek bulunması ile tanımlanan son derece nadir bir konjenital anomalidir. Literatürde 100'den az olgu bildirilmiştir. Bu böbreklerin ayrı bir vasküler beslenmesi ve toplayıcı sistemi bulunmaktadır. Taş varlığına bağlı olarak semptomatik hâle gelebilirler.

Olgu Sunumu: 41 yaş erkek hasta, kolik tarzda sol yan ağrısı nedeniyle başvurdu. Ateş, bulantı ve makroskopik hematüri yoktu. Fizik muayenede sol KVAH saptandı. Tam kan sayımı ve BFT normal sınırlarda bulundu. TİT' de eritrosit tespit edildi. BT incelemesinde sağ normal, sol tarafta nativ böbrek ve bu böbreğe füzyone süpernumerer böbrek izlendi. Üstteki böbreğin PKS normal izlenirken (Şekil 1), alttaki böbreğe ait PKS malrotasyon göstermekte ve anterolaterale dönük olarak izlenmekteydi (Şekil 1). Her iki böbreğe ait, aortadan köken alan iki ayrı renal arter ve renal ven mevcuttu. Süpernumerer böbrekte pelvis ve kaliks yerleşimli, en büyüğü 20 × 10 mm boyutlarında olmak üzere dört renal taş ile sol üreter distalde 9 × 7 mm boyutlarında bir taş izlendi(Şekil 1). Süpernumerer böbreğin PKS drene eden ayrı bir üreteri bulunmaktaydı. Her iki sisteme ait üreterlerin, mesaneye tek bir ortak kılıf içerisinde ilerlediği izlendi.

Bilgilendirilmiş onam alındıktan sonra hastaya cerrahi işlem uygulandı. İlk aşamada, sol üreter orifisinin hemen proksimalinde yer alan taş semirijit URS kullanılarak lazer litotripsi ile parçalandı ve fragmanlar çıkarıldı. Sol tarafta iki ayrı üreter orifisi olduğu gözlendi. Lateraldeki orifisten girildiğinde, orifisten yaklaşık 2 cm proksimalde üreterin iki ayrı lümene sahip duplike üreteri görüldü. Lateral üretere bir kılavuz tel bırakılarak URS geri çekildi. Ardından medial orifisten girildi ve orifisten yaklaşık 1 cm proksimalde, medial üreterin daha önce lateral orifisten girilen üreterle aynı lümene açıldığı izlendi (Şekil 2). Lateral üretere access sağlanarak f-URS ile süpernumerer böbrekte yer alan, en büyüğü 20 mm olan üç taş üzerine lazer litotripsi uygulandı ve işlem sonunda JJ stent yerleştirildi. Postoperatif dönemde hastanın klinik durumu iyi olup, kontrol muayenelerinde ağrıda belirgin gerileme izlendi. Postoperatif DÜSG'de 1 × 1 cm boyutlarında rezidü taş saptandı. Rezidü taş için re-RIRS yapıldı.

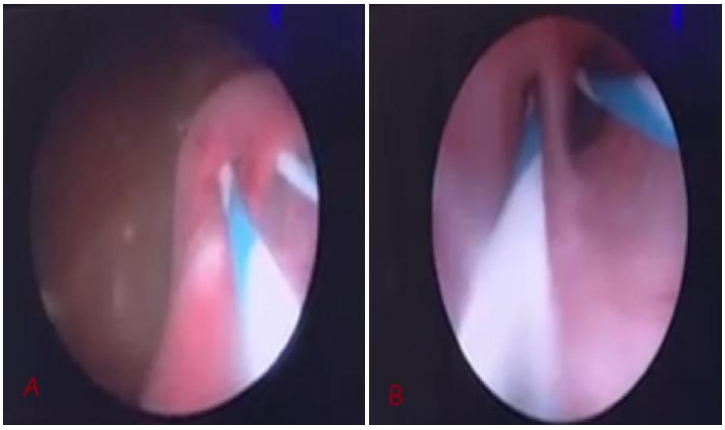
Sonuç: Süpernümerer böbrek, son derece nadir görülen konjenital bir renal anomalidir. Sunulan olgu, rotasyon anomalisi ile birlikte füzyone süpernümerer böbrek bulunması nedeniyle oldukça nadir bir durumdur. Bu tür böbreklerdeki taşlar fleksible üreterorenoskopi (f-URS) ile tedavi edilebilir.

Anahtar kelimeler: Süpernümerer böbrek, Böbrek taşı, RIRS

Şekil 1: Preoperatif Taş protokoll BT görüntüleri

A: Nativ Böbrek Axial Kesit, B: Nativ Böbrek Coronal Kesit, C: Süpernumerer Böbrek Sagital Kesit, D: Süpernumerer Böbrek Axial Kesit

Şekil 2: Çift orifis ve duplike üreter



A: İki üreter orifisi, B: Ortak lümen ve duplike üreter

RENAL STONE IN A FUSED SUPERNUMERARY KIDNEY WITH ROTATIONAL ANOMALY: RETROGRADE INTRARENAL SURGERY

Abstract

Introduction: Supernumerary kidney is an extremely rare congenital anomaly defined as the presence of more than two kidneys. Fewer than 100 cases have been reported in the literature. These kidneys possess a distinct vascular supply and collecting system. They may become symptomatic due to the presence of nephrolithiasis.

Case Presentation: A 41-year-old male presented with colicky left flank pain. Fever, nausea, and macroscopic hematuria were absent. Physical examination revealed left costovertebral angle tenderness. Complete blood count and renal function tests were within normal limits. Urinalysis revealed microscopic hematuria. Computed tomography (CT) evaluation demonstrated a normal right kidney, a native left kidney, and a supernumerary kidney fused to the left native kidney. While the pyelocaliceal system (PCS) of the upper kidney appeared normal (Figure 1), the PCS of the lower kidney exhibited malrotation and was oriented anterolaterally (Figure 1). Two distinct renal arteries originating from the aorta and two distinct renal veins were present for both kidneys. Four renal stones, the largest measuring 20 × 10 mm, were located within the pelvis and calices of the supernumerary kidney, and a stone measuring 9 × 7 mm was detected in the distal left ureter (Figure 1). The supernumerary kidney had a separate ureter draining its PCS. The ureters of both systems progressed toward the bladder within a single common sheath.

After obtaining informed consent, surgical intervention was performed. In the first stage, the stone located just proximal to the left ureteral orifice was fragmented via laser lithotripsy using semi-rigid ureterorenoscopy (URS), and the fragments were extracted. Two separate ureteral orifices were observed on the left side. Upon entering through the lateral orifice, a duplicated ureter with two distinct lumens was observed approximately 2 cm proximal to the orifice. A guidewire was placed into the lateral ureter, and the URS was withdrawn. Subsequently, the medial orifice was entered, and approximately 1 cm proximal to the orifice, the medial ureter was observed to open into the same lumen as the ureter previously entered through the lateral orifice (Figure 2). Access was gained to the lateral ureter, and laser lithotripsy was applied to three stones the largest measuring 20 mm located in the supernumerary kidney via flexible URS (f-URS). A double-J (JJ) stent was placed at the end of the procedure. The patient's clinical status was favorable during the postoperative period, and a significant resolution of pain was observed during follow-up evaluations. A residual stone measuring 1 × 1 cm was detected on postoperative kidney-ureter-bladder (KUB) radiography. Re-retrograde intrarenal surgery (re-RIRS) was performed for the residual stone.

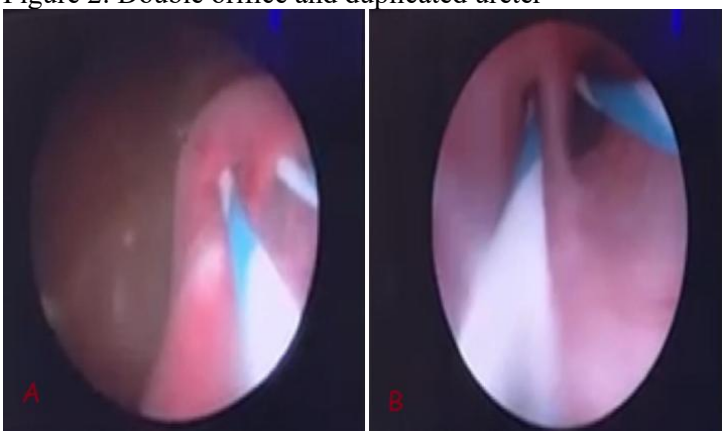
Conclusion: Supernumerary kidney is an exceptionally rare congenital renal anomaly. The presented case is highly unusual due to the coexistence of a fused supernumerary kidney with a rotational anomaly. Stones within such kidneys can be successfully managed with flexible ureterorenoscopy (f-URS).

Keywords: Supernumerary kidney, Kidney stone, RIRS

Figure 1: Preoperative stone protocol CT scans

A: Axial section of the native kidney, B: Coronal section of the native kidney, C: Sagittal section of the supernumerary kidney, D: Axial section of the supernumerary kidney.

Figure 2: Double orifice and duplicated ureter



A: Two ureteral orifices, B: Common lumen and duplicated ureter.

LAPAROSKOPİK SLEEVE GASTREKTOMİ SONRASI MPV DEĞERLERİNDEKİ DEĞİŞİMLER VE ÖNEMİ

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Özet

Amaç: Obezite, kronik inflamasyon ve artmış trombosit aktivasyonu ile ilişkilidir ve bu durum kardiyovasküler riskin artmasına yol açar. Ortalama trombosit hacmi (MPV), trombosit aktivasyonu ve inflamasyonun kolay erişilebilir bir göstergesidir. Bu çalışmanın amacı, laparoskopik sleeve gastrektomi (LSG) uygulanan hastalarda ameliyat sonrası MPV değerlerindeki değişiklikleri değerlendirmek ve bunun klinik önemini araştırmaktır.

Gereç ve Yöntem: Bu retrospektif çalışmaya, Ocak 2022 ile Mayıs 2025 tarihleri arasında Sivas Medicana Hastanesi'nde LSG uygulanan, yaşları 18–65 arasında değişen 30 obez hasta dahil edildi. Hastaların demografik verileri ve hematolojik parametreleri analiz edildi; MPV değerleri ameliyat öncesinde ve ameliyat sonrası 1. ayda ölçülerek karşılaştırıldı.

Bulgular: Çalışmaya LSG uygulanan toplam 30 obez birey dahil edildi. Bireylerin ortalama yaşı 34,5 ± 8,90 yıl olarak belirlenmiş olup, yaş dağılımında istatistiksel olarak anlamlı bir farklılık saptanmamıştır (p=0,385). Bu durum, örneklemin demografik açıdan dengeli olduğunu ve yaş değişkeninin çalışma bulguları üzerinde belirleyici veya karıştırıcı bir etkiye sahip olma olasılığının düşük olduğunu düşündürmektedir.

Çalışmada LSG planlanan bireylerin ameliyat öncesi MPV düzeyleri 9,30 ± 1,71 fL olarak belirlenmiştir (p=0,190). LSG uygulanan ve çalışmaya dahil edilen 30 obez bireyde ameliyattan bir ay sonra ölçülen serum MPV düzeyleri ise 10,6 ± 1,61 fL olarak kaydedilmiştir (p=0,242).

Preoperatif ve postoperatif MPV değerleri karşılaştırıldığında, LSG sonrasında birinci ayda MPV düzeylerinde ortalama 1,30 fL'lik bir artış saptanmış olup, bu artış istatistiksel olarak anlamlı bulunmuştur (p=0,004; p<0,05). Preoperatif ve postoperatif değerler ayrı ayrı değerlendirildiğinde istatistiksel anlamlılık düzeyine ulaşmamış olmasına rağmen (sırasıyla p=0,190 ve p=0,242), eşleştirilmiş analizde MPV değerlerinde anlamlı bir artış gözlenmiştir (p=0,004). Bu bulgu, cerrahi girişimin hematolojik yanıt ile ilişkili olabileceğini düşündürmektedir.

Ayrıca, postoperatif dönemde MPV düzeylerinde preoperatif değerlere kıyasla yaklaşık %14 oranında göreceli bir artış gözlenmiştir. Ortalama 1,30 fL'lik bu artış, LSG sonrasında ortaya çıkabilecek erken dönem inflamasyon veya trombosit aktivasyonunu yansıtan biyolojik bir yanıt olarak değerlendirilebilir.

Sonuç: LSG sonrasında beklenen azalmanın aksine MPV değerlerinde görülen artış, kardiyak riskin düşünüldüğü kadar azalmadığını gösterebilir. Ayrıca cerrahi işlemin strese bağlı olarak riski artırabileceği de düşünülebilir. Bu nedenle, daha kapsamlı çalışmalara ihtiyaç olduğu kanaatindeyiz. MPV, LSG sonrasında metabolik ve kardiyovasküler riskteki değişikliklerin izlenmesinde pratik ve yararlı bir biyobelirteç olabilir.

Anahtar Kelimeler: Sleeve gastrektomi; Obezite; Ortalama trombosit hacmi (MPV); Laparoskopi.

CHANGES AND SIGNIFICANCE OF MPV VALUES AFTER LAPAROSCOPIC SLEEVE GASTRECTOMY

Abstract

Purpose: Obesity is associated with chronic inflammation and increased platelet activation, leading to an increased cardiovascular risk. Mean platelet volume (MPV) is a readily accessible indicator of platelet activation and inflammation. This study aimed to evaluate the changes in MPV values postoperatively in patients undergoing laparoscopic sleeve gastrectomy (LSG) and to investigate its clinical significance.

Materials and Methods: This retrospective study included 30 obese patients aged 18–65 years who underwent LSG at Sivas Medicana Hospital between January 2022 and May 2025. The patients' demographic data and hematological parameters were analyzed, and MPV values were measured and compared preoperatively and at the first postoperative month.

Results: A total of 30 obese individuals who underwent LSG were included in the study. The mean age of the individuals was determined to be 34.5 ± 8.90; the lack of statistically significant differences in the distribution (p=0.385) indicates that the sample is demographically balanced. This result supports the idea that the age variable has a low potential to have a guiding or confounding effect on the study findings.

In preoperative measurements, the MPV levels of individuals scheduled to undergo LSG surgery in the study were determined to be 9.30 ± 1.71 fL (p=0.190).

Serum MPV levels measured one month after surgery in 30 obese individuals who underwent LSG and participated in the study were recorded as 10.6 ± 1.61 fL (p=0.242).

When comparing preoperative and postoperative MPV values, MPV levels increased by an average of 1.30 one month after LSG. This was statistically significant (p=0.004, p<0.05). Although preoperative and postoperative values did not reach statistical significance when evaluated separately (p=0.190 and p=0.242, respectively), a significant increase in MPV values was observed in the paired analysis (p=0.004). This suggests that surgical intervention may be related to hematological response.

Additionally, a relative increase of approximately 14% in MPV levels was observed in the postoperative period compared to preoperative values. This average increase of 1.30 fL can be considered a biological response indicating early inflammation or platelet activation that may occur after LSG.

Conclusion: The increase in MPV values after LSG, instead of the expected decrease, may indicate that the cardiac risk is not as reduced as thought. Furthermore, surgery may even increase the risk of stress. In this respect, we believe that more comprehensive studies are needed. MPV can be a practical and useful biomarker for monitoring changes in metabolic and cardiovascular risk after LSG.

Keywords: Gastrectomy, Sleeve; Obesity; Mean Platelet Volume; Laparoscopy

TEK BÖBREKTE EŞ ZAMANLI ÜÇ FARKLI HİSTOLOJİK ALT TİP RENAL HÜCRELİ KARSİNOM: TANISAL GÖRÜNTÜLEME ZORLUKLARI VE CERRAHİ SONUÇLAR

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Özet

Tek böbrekte birden fazla farklı histolojik alt tipte renal hücreli karsinomun (RHK) eş zamanlı görülmesi son derece nadir bir durumdur. Berrak hücreli, papiller ve kromofob RHK ayrı ayrı iyi tanımlanmış tümör tipleri olmakla birlikte, özellikle yaşlı hastalarda insidental saptandığında aynı organda eş zamanlı bulunmaları önemli tanısal ve radyolojik güçlükler doğurmaktadır.

Yetmiş yedi yaşında erkek hasta, ultrasonografi (USG) ile insidental saptanan böbrek lezyonları nedeniyle değerlendirmeye alındı. İlk USG'de sağ böbrekte Bosniak Tip 2 kist (34×38 mm) ve sol böbrekte minimal Doppler vaskülaritesi gösteren, en büyüğü 54 mm olan çok sayıda izoekoik ekzofitik lezyon izlendi. Kontrol USG'de bilateral kortikal parankim değişiklikleri saptandı. Kontrastlı bilgisayarlı tomografi (BT) sol böbrekte üç ayrı solid lezyon gösterdi: 15 HU'dan 70 HU'ya kontrast tutan 37×52 mm'lik lezyon, 36 HU'dan 53 HU'ya kontrast tutan 40×55 mm'lik lezyon ve santralinde kistik-nekrotik bileşen içeren 26×35 mm'lik lezyon — tüm lezyonlar malignite açısından şüpheli olarak değerlendirildi. Sol radikal nefrektomi uygulandı. Histopatolojik inceleme, en büyüğü 5,5×5×4 cm olan üç eş zamanlı RHK alt tipini ortaya koydu: berrak hücreli RHK (Fuhrman Grade 2), papiller RHK (Fuhrman Grade 2) ve kromofob RHK (Fuhrman Grade 2). Tüm tümörler böbrek içinde sınırlı olup sarkomaoid farklılaşma, nekroz veya cerrahi sınır tutulumu saptanmadı. Evreleme pT1b (AJCC 8. Baskı) olarak belirlendi.

Bu olgu, yaşlı hastalarda multifokal böbrek lezyonlarının radyolojik karmaşıklığını gözler önüne sermektedir; USG bulgularının eş zamanlı malign lezyonların gerçek niteliğini yeterince yansıtamayabileceğini ortaya koymaktadır. Başlangıç USG ve BT bulguları arasındaki uyumsuzluk — özellikle kontrast tutulum paternleri açısından — şüpheli olgularda kesitsel görüntülemenin zorunluluğunu vurgulamaktadır. Tek böbrekte üç farklı RHK histotipinin eş zamanlı varlığı literatürde son derece nadir olup klonal evrim, genetik yatkınlık ve tümör mikro-çevresi etkileşimleri açısından önemli sorular doğurmaktadır. Her üç alt tipin Fuhrman Grade 2 farklılaşma göstermesi, olağandışı histolojik çoğulluğa karşın biyolojik açıdan görece olumlu bir profili düşündürmektedir.

Tek böbrekte üç alt tipli eş zamanlı RHK, tanısal açıdan zorlu ve cerrahi açıdan önem taşıyan nadir bir klinik antitedir. Bu olgu, klinik karar almada çok modlu görüntülemenin rolünü ve nefrektomi sonrası kapsamlı histopatolojik değerlendirmenin önemini bir kez daha ortaya koymaktadır.

Anahtar Kelimeler: renal hücreli karsinom, eş zamanlı tümör, berrak hücreli RHK, radikal nefrektomi, çok modlu görüntüleme, insidental böbrek kitlesi

SYNCHRONOUS TRIPLE HISTOLOGIC SUBTYPES OF RENAL CELL CARCINOMA IN A SINGLE KIDNEY: DIAGNOSTIC IMAGING CHALLENGES AND SURGICAL OUTCOMES

Abstract

Synchronous occurrence of multiple distinct histologic subtypes of renal cell carcinoma (RCC) within a single kidney is an exceedingly rare phenomenon. Clear cell, papillary, and chromophobe RCC are individually well-characterized entities; however, their simultaneous presentation in one organ poses significant diagnostic and radiological challenges, particularly when detected incidentally in elderly patients.

A 77-year-old male patient was referred for evaluation of incidentally detected renal lesions on ultrasonography (USG). Initial USG revealed a Bosniak Type 2 cyst (34×38 mm) in the right kidney and multiple isoechoic exophytic lesions in the left kidney (up to 54 mm), with minimal Doppler vascularity. Follow-up USG confirmed bilateral cortical parenchymal changes. Contrast-enhanced computed tomography (CT) demonstrated three distinct solid lesions in the left kidney: a 37×52 mm lesion with enhancement from 15 HU to 70 HU, a 40×55 mm lesion enhancing from 36 HU to 53 HU, and a 26×35 mm lesion with central cystic-necrotic components — all suspicious for malignancy. Left radical nephrectomy was performed. Histopathological examination revealed three synchronous RCC subtypes: clear cell RCC (Fuhrman Grade 2), papillary RCC (Fuhrman Grade 2), and chromophobe RCC (Fuhrman Grade 2), with the largest tumor measuring 5.5×5×4 cm. All tumors were confined to the kidney with no sarcomatoid differentiation, necrosis, or surgical margin involvement. Staging was classified as pT1b (AJCC 8th Edition).

This presentation highlights the radiological complexity of multifocal renal lesions in elderly patients, where USG findings may underestimate the true nature of coexisting malignancies. The discordance between initial USG and CT findings — particularly contrast enhancement patterns — underscores the necessity of cross-sectional imaging in equivocal cases. The synchronous presence of three distinct RCC histotypes in one kidney is exceptionally rare in the literature, raising questions regarding clonal evolution, genetic susceptibility, and tumor microenvironment interactions. Each subtype demonstrated Fuhrman Grade 2 differentiation, suggesting a favorable biological profile despite the unusual multiplicity of histologic origins.

Synchronous triple-subtype RCC within a single kidney represents a diagnostically challenging and surgically important entity. This presentation emphasizes the role of multimodal imaging in guiding clinical decision-making and the importance of comprehensive histopathological evaluation following nephrectomy.

Keywords: renal cell carcinoma, synchronous tumors, clear cell RCC, radical nephrectomy, multimodal imaging, incidental renal mass

ATNALI VE ROTASYONE BÖBREKTE PERKÜTAN NEFROLİTOTOMİNİN ETKİNLİĞİ VE GÜVENİLİRLİĞİ

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Özet

GİRİŞ: Çeşitli böbrek anomalilerinin insidansi %3-11 oranında bildirilmiştir. At nalı böbrek, çapraz ektopik böbrek, basit ektopik böbrek, pelvik ektopik böbrek ve malrotate böbrek; üreteropelvik bileşkenin daralması veya yüksek üreter insersiyonu gibi anormal anatomiye bağlı idrar drenaj bozukluğu nedeniyle taş hastalığı ile ilişkilidir. Ventral veya ventromedial pozisyondaki böbrekler en yaygın basit malrotasyon tiplerini temsil eder. At nalı böbrek (ANB) en sık görülen renal füzyon anomalisidir ve 600 doğumda 1 görülür. ANB alt kutuplarda böbreklerin füzyonu, buna bağlı olarak böbreklerin yükselememesi ve böbreklerde malrotasyon ile karakterizedir. ANB anomalisine sahip olan hastalarda böbrek taşı insidansı %35'tir. ANB'li hastalarda metabolik anormallikler de taş oluşumuna katkıda bulunabilir ve anormal anatomi taş tedavisini zorlaştırır.

AMAÇ: Bu çalışmada, 2 cm'den büyük taşa sahip ANB ve rotasyone böbreğe sahip olan hastalarda, perkütan nefrolitotominin (PCNL) etkinlik ve güvenilirliğinin değerendirilmesi amaçlanmıştır.

MATERYAL VE METOT: 2015-2025 yılları arasında konvansiyonel PCNL yapılan hastaların verileri retrospektif olarak incelendi. 18 yaşın üzerinde 2 cm'den büyük taşı olan , verilerinde eksiklik olmayan rotasyone böbreği olan 17 hasta ve atnalı böbreği olan 7 hasta çalışmaya dahil edildi. Preoperatif tüm hastalara kontrastsız bilgisayarlı tomografi (BT) çekildi. Tam kan sayımı, biyokimya, koagulasyon parametreleri görüldü.Antikoagulan ve antiagregan tedavi alan hastaların tedavileri gerekli konsültasyonlar yapılarak kesildi. Tüm hastaların operasyon öncesinde idrar kültürleri steril idi. PCNL pron pozisyonda floroskopi yardımıyla triangulasyon tekniği ile yapıldı. 6 Fr Alken guide üzerinden 30 Fr Amplatz dilatatör ile dilatasyon uygulandı. Tüm hastaların böbreklerine operasyon sonunda reentry katater yerleştirildi. Postoperatif 2.saatte hastalardan tam kan sayımı ve biyokimya görüldü. Komplikasyonlar Clavien Dindo sınıflandırması ile değerlendirildi. Operasyon sonrası taşsızlık postoperatif 1.ayda çekilen BT ile araştırıldı. 4 mm'den küçük rezidü taş varlığı taşsızlık olarak kabul edildi. Hastaların yaş, cinsiyet, komorbiditeleri, preoperatif ekstrakorporeal şok dalga litotripsi (ESWL) öyküsü, taşın yönü, yeri,boyutu (mm2), hounsfield unit'i (HU), Guy's nefrometri skoru, ponksiyon yeri, giriş yapılan kaliksi, operasyon süresi, skopi süresi, akses sayısı, kataterin tutulduğu gün, yatış süresi, taşsızlığa dair cerrahın kanısı, BT'de taşsızlığın değerlendirilmesi, komplikasyon (Clavien Dindo sınıflaması), postoperatif 2.saatteki hemoglobin,üre ve kreatinin değerlerindeki değişim kaydedildi.

BULGULAR: Atnalı böbreği olan hastaların bulguları tablo 1'de özetlenmiştir. Hastaların hepsinde üst kalikse subkostal akses yapıldı. Hastaların hiçbirinde postoperatif komplikasyon meydana gelmedi. Rotasyone böbreği olan hastaların bulguları tablo 2'de özetlenmiştir.

SONUÇ: Atnalı veya rotasyon anomalisine sahip 2 cm'den büyük böbrek taşı olan hastalarda PCNL; daha düşük taşsızlık oranlarına rağmen güvenle uygulanabilir bir yöntemdir. Hastalar mutlaka preoperatif dönemde mükerrer girişim gerekliliği konusunda bilgilendirilmelidir.

Anahtar Kelimeler: atnalı böbrek, rotasyone böbrek, böbrek taşı, perkütan nefrolitotomi

Tablo 1:Atnalı Böbrekte PCNL Sonuçlarımız

Atnalı Böbrekte PNL Sonuçlarımız	
Hasta sayısı: (n)	7
Ortalama yaş:	48,1 yıl (24-65)
Cinsiyet: -Erkek (n) (%) -Kadın (n)	 7 (%100) 0
Komorbidite: -HT (n) (%) -DM (n) (%) -KOAH (n) (%)	 1 (%14,3) 1 (%14,3) 1 (%14,3)
PNL yönü: -Sağ (n) (%) -Sol (n) (%)	 4 (%57,1) 3 (%42,9)
Daha önce girişim öyküsü: -ESWL (n) -PNL (n) -Açık cerrahi (n)	 2 1 1
Taşın yeri: -Renal pelvis (n) -Alt kaliks (n) -Orta kaliks (n) -Üst kaliks (n)	 6 6 2 1
Taş boyutu: (mm2)	1040,85 (260-1800)
Ortalama taş HU:	1109 (695-1500)
Guy's nefrometri skoru: -1 (n) (%) -2 (n) (%) -3 (n) (%) -4 (n) (%)	 0 2 (%28,6) 4 (%57,1) 1 (%14,3)
Ortalama operasyon süresi: (dk)	106,4 (55-180)
Ortalama skopi süresi: (sn)	64,1 (40-81)
Ortalama reentry çekilme süresi: (gün)	1,57 (1-3)
Ortalama yatış süresi: (gün)	2,2 (1-5)
Operasyon sırasında cerrahın kanısına göre taşsızlık oranı: (n) (%)	4 (%57,1)
Postoperatif 1.ay BT'de taşsızlık oranı: (n) (%)	3 (%42,9)
Postoperatif 2.saatte hemoglobin değer değişimi: (g/dL)	-2,28
Postoperatif 2.saatte üre değer değişimi: (mg/dL)	+3,428
Postoperatif 2.saatte kreatinin değer değişimi: mg/dL)	+0,128

Tablo 2: Rotasyone böbrekte PCNL Sonuçlarımız

Rotasyone Böbrekte PNL Sonuçlarımız	
Hasta sayısı: (n)	17
Ortalama yaş:	47,4 yıl (18-64)
Cinsiyet: -Erkek (n) (%) -Kadın (n) (%)	 9 (%52,9) 8 (%47,1)
Komorbidite: -HT (n) (%) -DM (n) (%)	 2 (%11,8) 3 (%17,6)
PNL yönü: -Sağ (n) (%) -Sol (n) (%)	 9 (%52,9) 8 (%47,1)
Daha önce girişim öyküsü: -ESWL (n) -PNL (n) -Açık cerrahi (n)	 6 2 4
Taşın yeri: -Renal pelvis (n) -Alt kaliks (n) -Orta kaliks (n) -Üst kaliks (n)	 10 9 5 3
Taş boyutu: (mm2)	741,76 (260-2400)
Ortalama taş HU:	1285 (947-1700)
Guy's nefrometri skoru: -1 (n) (%) -2 (n) (%) -3 (n) (%) -4 (n) (%)	 0 6 (%35,3) 9 (%52,9) 2 (%11,8)
Akses sayısı: - 1 (n) (%) - 2 (n) (%)	 15 (%88,2) 2 (%11,8)
Akses yeri: - Subkostal (n) (%) -11-12.kot arası (n) (%)	 16 (%94,1) 1 (%5,9)
Akses yapılan kaliks: -Alt kaliks (n) -Orta kaliks (n) -Üst kaliks (n)	 14 2 3
Ortalama operasyon süresi: (dk)	83,6 (50-180)
Ortalama skopi süresi: (sn)	49,1 (28-79)
Komplikasyon: (Clavien Dindo sınıflaması) -1 (n) (%) -2 (n) (%)	 1 (%5,9) 1 (%5,9)
Ortalama reentry çekilme süresi: (gün)	1,5 (1-5)
Ortalama yatış süresi: (gün)	2 (1-5)
Operasyon sırasında cerrahın kanısına göre taşsızlık oranı: (n) (%)	13 (%76,5)
Postoperatif 1.ay BT'de taşsızlık oranı: (n) (%)	11 (%64,7)
Postoperatif 2.saatte hemoglobin değer değişimi: (g/dL)	-1,47
Postoperatif 2.saatte üre değer değişimi: (mg/dL)	+0,177
Postoperatif 2.saatte kreatinin değer değişimi: mg/dL)	+0,049

EFFICACY AND SAFETY OF PERCUTANEOUS NEPHROLITHOTOMY IN HORSESHOE AND ROTATIONAL ANOMALIES OF KIDNEY

Abstract

INTRODUCTION: The incidence of various kidney anomalies has been reported to be between 3% and 11%. Horseshoe kidney, crossed ectopic kidney, simple ectopic kidney, pelvic ectopic kidney, and malrotated kidney are associated with stone disease due to impaired urinary drainage caused by abnormal anatomy such as narrowing of the ureteropelvic junction or high ureteral insertion. Kidneys in a ventral or ventromedial position represent the most common types of simple malrotation. Horseshoe kidney (HSK) is the most common renal fusion anomaly, occurring in 1 in 600 births. HSK is characterized by fusion of the kidneys at the lower poles, resulting in inability of the kidneys to ascend

and malrotation of the kidneys. The incidence of kidney stones in patients with HSK anomaly is 35%. In patients with HSK, metabolic abnormalities can also contribute to stone formation, and abnormal anatomy makes stone treatment more difficult.

AIM: This study aimed to evaluate the efficacy and safety of percutaneous nephrolithotomy (PCNL) in patients with HSK and rotated kidney with stones larger than 2 cm.

MATERIAL VE METHOD: Data from patients who underwent conventional PCNL between 2015 and 2025 were retrospectively reviewed. 17 patients with rotated kidney and 7 patients with HSK over 18 years of age, stones larger than 2 cm, and complete data were included in the study. All patients underwent preoperative non-contrast computed tomography (CT). Complete blood count, biochemistry, and coagulation parameters were examined. The treatments of patients receiving anticoagulant and antiplatelet therapy were discontinued after necessary consultations. All patients had sterile urine cultures prior to surgery. PCNL was performed in the prone position using triangulation technique with the aid of fluoroscopy. Dilation was performed using a 30 Fr Amplatz dilator via a 6 Fr Alken guide. All patients had reentry catheters placed in their kidneys at the end of the operation. Complete blood counts and biochemistry tests were performed on patients two hours postoperatively. Complications were evaluated using the Clavien Dindo classification. The stone free status after the operation was investigated with a CT scan taken one month postoperatively. The presence of residual stones smaller than 4 mm was considered stone-free. The following data were recorded for each patient: age, sex, comorbidities, preoperative extracorporeal shock wave lithotripsy (ESWL) history, stone side, location, size (mm2), Hounsfield unit (HU), Guy's nephrometry score, puncture site, calyx of entry, operation time, fluoroscopy time, number of access, catheter retention time, length of hospital stay, surgeon's opinion of stone-free status, CT scan evaluation of stone-free status, complications (Clavien Dindo classification), and changes in hemoglobin, urea, and creatinine levels at 2 hours postoperatively.

RESULTS: The findings for patients with HSK are summarized in Table 1. All patients underwent a subcostal access to the superior calyx. None of the patients experienced postoperative complications. The findings for patients with rotated kidney are summarized in Table 2.

CONCLUSION: In patients with kidney stones larger than 2 cm that have a HSK or rotation anomaly, PCNL is a safe method that can be applied despite lower stone-free rates. Patients must be informed about the need for repeated procedures during the preoperative period.

Keywords: horseshoe kidney, rotated kidney, kidney stone, percutaneous nephrolithotomy

Table 1: Our PNL Results in Horseshoe Kidney

Our PNL Results in Horseshoe Kidney	
Number of patients: (n)	7
Mean age:	48,1 years (24-65)
Sex: -Male (n) (%) -Female (n)	 7 (%100) 0
Comorbidity: -HT (n) (%) -DM (n) (%) -KOAH (n) (%)	| 1 (%14,3) 1 (%14,3) 1 (%14,3)
PNL side: -Right (n) (%) -Left (n) (%)	 4 (%57,1) 3 (%42,9)
Previous intervention history: -ESWL (n) -PNL (n) -Open surgery (n)	 2 1 1
Location of the stone: -Renal pelvis (n) -Lower calyx (n) -Middle calyx (n) -Upper calyx (n)	 6 6 2 1
Stone size: (mm2)	1040,85 (260-1800)
Mean stone HU:	1109 (695-1500)
Guy's nephrometry score: -1 (n) (%) -2 (n) (%) -3 (n) (%) -4 (n) (%)	 0 2 (%28,6) 4 (%57,1) 1 (%14,3)
Mean operation time: (min)	106,4 (55-180)
Mean fluoroscopy time: (sec)	64,1 (40-81)
Mean catheter retention time: (day)	1,57 (1-3)
Mean length of hospital stay: (day)	2,2 (1-5)
Surgeon's opinion of stone-free status during surgery: (n) (%)	4 (%57,1)
Stone-free rate on CT scan at 1 month postoperatively: (n) (%)	3 (%42,9)
Changes in hemoglobin levels at 2 hours postoperatively: (g/dL)	-2,28
Changes in urea levels at 2 hours postoperatively : (mg/dL)	+3,428
Changes in creatinine levels at 2 hours postoperatively : mg/dL)	+0,128

Table 2: Our PNL Results in Rotated Kidney

Our PNL Results in Rotated Kidney	
Number of patients: (n)	17
Mean age:	47,4 years (18-64)
Sex: -Male (n) (%) -Female (n)	 9 (%52,9) 8 (%47,1)
Comorbidity: -HT (n) (%) -DM (n) (%)	 1 (%14,3) 1 (%14,3)
PNL side: -Right (n) (%) -Left (n) (%)	 9 (%52,9) 8 (%47,1)
Previous intervention history: -ESWL (n) -PNL (n) -Open surgery (n)	 6 2 4
Location of the stone: -Renal pelvis (n) -Lower calyx (n) -Middle calyx (n) -Upper calyx (n)	 10 9 5 3
Stone size: (mm2)	741,76 (260-2400)
Mean stone HU:	1285 (947-1700)
Guy's nephrometry score: -1 (n) (%) -2 (n) (%) -3 (n) (%) -4 (n) (%)	 0 6(%35,3) 9 (%52,9) 2 (%11,8)
Mean operation time: (min)	83,6 (50-180)
Mean fluoroscopy time: (sec)	49,1 (28-79)
Complication: (Clavien Dindo classification) -1 (n) (%) -2 (n) (%)	 1 (%5,9) 1 (%5,9)
Mean catheter retention time: (day)	1,5 (1-5)
Mean length of hospital stay: (day)	2 (1-5)
Surgeon's opinion of stone-free status during surgery: (n) (%)	13 (%76,5)
Stone-free rate on CT scan at 1 month postoperatively: (n) (%)	11 (%64,7)
Changes in hemoglobin levels at 2 hours postoperatively: (g/dL)	-1,47
Changes in urea levels at 2 hours postoperatively : (mg/dL)	+0,177
Changes in creatinine levels at 2 hours postoperatively : mg/dL)	+0,049

ST-SEGMENT YÜKSELMELİ MİYOKARD ENFARKTÜSÜ HASTALARINDA HASTANE İÇİ MORTALİTENİN BAĞIMSIZ BİR BELİRLEYİCİSİ OLARAK C-REAKTİF PROTEİN–NÖTROFİL–ALBÜMİN ORANI

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Özet

Amaç: İnflamasyon, ST-segment yükselmeli miyokard enfarktüsünün (STEMI) patofizyolojisi ve prognozunda önemli bir rol oynamaktadır. Sistemik inflamasyon ile beslenme durumunu birlikte yansıtan yeni bir bileşik inflamatuvar belirteç olan C-reaktif protein–nötrofil–albümin (CNA) oranı, potansiyel bir prognostik gösterge olarak öne çıkmıştır. Bu çalışmada, STEMI hastalarında hastane içi mortalitenin öngörülmesinde CNA oranının prognostik değerinin değerlendirilmesi amaçlandı.

Yöntemler: Çalışmaya STEMI tanısı alan toplam 462 hasta retrospektif olarak dahil edildi ve hastalar hastane içi mortalite durumuna göre iki gruba ayrıldı. Başlangıç klinik, laboratuvar ve ekokardiyografik veriler analiz edildi. CNA oranı, C-reaktif protein düzeyinin nötrofil sayısı ile çarpılıp albümin düzeyine bölünmesiyle hesaplandı. Hastane içi mortalitenin bağımsız belirleyicilerini saptamak amacıyla tek değişkenli ve çok değişkenli lojistik regresyon analizleri gerçekleştirildi. CNA oranı ile GRACE skorunun ayırt edici gücü alıcı işletim karakteristiği (ROC) eğrisi analizi ile değerlendirildi. CNA için optimal kesim değeri Youden indeksi kullanılarak belirlendi.

Bulgular: Hastane içi mortalite gelişen hastalar daha ileri yaşta olup, anlamlı derecede daha düşük sol ventrikül ejeksiyon fraksiyonu, daha yüksek kreatinin düzeyleri ve daha belirgin inflamatuvar aktiviteye sahipti. CNA oranı, yaşamını kaybeden hastalarda yaşayanlara göre anlamlı derecede daha yüksekti (1,34 ± 0,62'ye karşı 0,72 ± 0,38; $p < 0,001$). Çok değişkenli analizde CNA oranı (OR: 2,12; %95 GA: 1,34–3,36; $p = 0,001$) ve GRACE skoru (OR: 1,03; %95 GA: 1,01–1,05; $p = 0,002$) hastane içi mortalitenin bağımsız belirleyicileri olarak saptandı. ROC analizinde CNA oranının orta düzeyde ayırt edici güce sahip olduğu görüldü (AUC: 0,743; %95 GA: 0,669–0,816) ve bu performans GRACE skoruna (AUC: 0,765; %95 GA: 0,684–0,845) yakın bulundu. CNA için optimal kesim değeri 0,95 olarak belirlendi; bu değer %68 duyarlılık ve %70 özgüllük sağladı.

Sonuç: CNA oranı, STEMI hastalarında hastane içi mortaliteyi bağımsız olarak öngören, basit ve kolay ulaşılabilir bir biyobelirteçtir. Öngörü performansı GRACE skorundan bir miktar düşük olmakla birlikte, hastaların inflamatuvar durumunu yansıtarak prognostik değerlendirmeye katkı sağlayabilir.

Anahtar Kelimeler: C-Reaktif Protein–Nötrofil–Albümin Oranı, ST-Segment Yükselmeli Miyokard Enfarktüsü, Mortalite.

THE C-REACTIVE PROTEIN–NEUTROPHIL–ALBUMIN RATIO AS AN INDEPENDENT PREDICTOR OF IN-HOSPITAL MORTALITY IN PATIENTS WITH ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION

Abstract

Background: Inflammation plays a pivotal role in the pathophysiology and prognosis of ST-segment elevation myocardial infarction (STEMI). The CRP–neutrophil–albumin (CNA) ratio, a novel composite inflammatory marker integrating systemic inflammation and nutritional status, has emerged as a potential prognostic indicator. This study aimed to evaluate the prognostic value of the CNA ratio for predicting in-hospital mortality in patients with STEMI.

Methods: A total of 462 patients with STEMI were retrospectively enrolled and divided into two groups according to in-hospital mortality. Baseline clinical, laboratory, and echocardiographic data were analyzed. The CNA ratio was calculated as C-reactive protein multiplied by neutrophil count divided by albumin level. Univariate and multivariate logistic regression analyses were performed to identify independent predictors of in-hospital mortality. The discriminative ability of CNA and the GRACE score was assessed using receiver operating characteristic (ROC) curve analysis. The optimal cut-off value of CNA was determined using the Youden index.

Results: Patients with in-hospital mortality were older and had significantly lower left ventricular ejection fraction, higher creatinine levels, and elevated inflammatory markers. The CNA ratio was significantly higher in non-survivors compared to survivors (1.34 ± 0.62 vs. 0.72 ± 0.38, $p < 0.001$). In multivariate analysis, CNA (OR: 2.12, 95% CI: 1.34–3.36, $p = 0.001$) and GRACE score (OR: 1.03, 95% CI: 1.01–1.05, $p = 0.002$) were independent predictors of in-hospital mortality. ROC analysis demonstrated that CNA had a moderate discriminative ability (AUC: 0.743, 95% CI: 0.669–0.816), comparable to the GRACE score (AUC: 0.765, 95% CI: 0.684–0.845). The optimal cut-off value of CNA was 0.95, with a sensitivity of 68% and specificity of 70%.

Conclusion: The CNA ratio is a simple and readily available biomarker that independently predicts in-hospital mortality in patients with STEMI. Although its predictive performance is slightly lower than that of the GRACE score, it may provide additional prognostic information reflecting the inflammatory status of patients.

Keywords: C-Reactive Protein–Neutrophil–Albumin Ratio, ST-Segment Elevation Myocardial Infarction, Mortality

A NEW TECHNIQUE FOR CARDIOPLEGIA DELIVERY: CARDIOPLEGIA DELIVERY FROM HEART LUNG MACHINE

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Abstract

Cardioplegia administration is a fundamental component of myocardial protection during open-heart surgery, providing controlled cardiac arrest and reducing metabolic demand during ischemic periods. Conventional cardioplegia delivery systems typically require dedicated cardioplegia pumps, pressure bags, heat exchangers, and additional circuit components, which may increase equipment requirements, preparation time, and operational complexity. Furthermore, the preparation and handling of separate cardioplegia systems may introduce potential risks related to workflow efficiency and sterility.

This article describes a novel technique for cardioplegia delivery directly from the heart-lung machine (cardiopulmonary bypass system) using existing perfusion circuit components with minor modifications. In this approach, oxygenated blood obtained from the oxygenator and cardioplegia solution are delivered through two independent mini-pumps, combined via a Y-connector, conditioned through a cardioplegia heat-exchanger module, and subsequently administered to the aortic root or coronary ostia. The system enables independent control of blood and crystalloid flow rates, precise temperature regulation, and continuous monitoring of delivery parameters.

The proposed technique offers several practical advantages, including reduced equipment dependency, simplified circuit setup, improved standardization of cardioplegia preparation, enhanced control over cardioplegia composition and temperature, decreased preparation time, and a potentially lower risk of contamination associated with conventional preparation methods. Nevertheless, careful attention must be paid to circuit configuration, stopcock positioning, line fixation, and pressure management to ensure safe clinical application.

Direct cardioplegia delivery from the heart-lung machine represents a practical and cost-effective alternative to conventional cardioplegia systems. With appropriate training and standardized operating protocols, this technique may improve workflow efficiency while maintaining effective myocardial protection during cardiac surgery.

Keywords: Cardiopulmonary Bypass; Heart-Lung Machine; Cardioplegia; Myocardial Protection; Cardioplegia Delivery System; Perfusion.

KARDİYOPLEJİ UYGULAMASINDA YENİ BİR TEKNİK: KALP-AKCİĞER MAKİNESİNDEN KARDİYOPLEJİ VERİLMESİ

ÖZET

Kardiyopleji uygulaması, açık kalp cerrahisinde miyokardın korunmasının temel bileşenlerinden biridir. Kardiyak arrest sağlayarak miyokardın metabolik gereksinimini azaltır ve iskemiye bağlı hasarı en aza indirir. Geleneksel kardiyopleji uygulama sistemleri genellikle ayrı bir kardiyopleji pompası, basınç torbası, ısı değiştirici ve ek devre bileşenleri gerektirir. Bu durum ekipman ihtiyacını artırabilmekte, hazırlık sürecini uzatabilmekte ve operasyonel karmaşıklığa neden olabilmektedir. Ayrıca kardiyopleji solüsyonunun hazırlanması ve uygulanması sırasında sterilitenin korunmasına ilişkin bazı zorluklar ortaya çıkabilmektedir.

Bu makalede, mevcut kardiyopulmoner bypass (kalp-akciğer makinesi) altyapısının küçük modifikasyonlarla kullanıldığı, kardiyoplejinin doğrudan pomptan uygulanmasına yönelik yeni bir teknik tanımlanmaktadır. Bu yöntemde oksijenatörden alınan oksijenlenmiş kan ile kardiyopleji solüsyonu iki bağımsız mini pompa aracılığıyla iletilmekte, bir Y-konnektörde birleştirilmekte, kardiyopleji ısı değiştirici ünitesinden geçirilerek istenen sıcaklığa getirilmekte ve ardından aort kökü veya koroner ostiumlara uygulanmaktadır. Sistem; kan ve kardiyopleji solüsyonunun akış hızlarının bağımsız olarak ayarlanmasına, sıcaklığın hassas şekilde kontrol edilmesine ve uygulama parametrelerinin sürekli izlenmesine olanak sağlamaktadır.

Önerilen teknik; ek ekipman gereksiniminin azaltılması, devre kurulumunun basitleştirilmesi, kardiyopleji hazırlık sürecinin standardize edilmesi, kardiyopleji karışım oranı ve sıcaklığının daha etkin kontrol edilmesi, hazırlık süresinin kısaltılması ve geleneksel yöntemlerde görülebilen kontaminasyon riskinin azaltılması gibi çeşitli avantajlar sunmaktadır. Bununla birlikte, sistemin güvenli kullanımı için devre bağlantılarının doğru kurulması, stopcock pozisyonlarının dikkatle yönetilmesi, hatların güvenli şekilde sabitlenmesi ve basınç kontrolünün titizlikle sağlanması gerekmektedir.

Kalp-akciğer makinesinden doğrudan kardiyopleji verilmesi, geleneksel kardiyopleji sistemlerine pratik ve maliyet etkin bir alternatif olarak değerlendirilebilir. Uygun eğitim, standart uygulama protokolleri ve güvenlik önlemleri ile desteklendiğinde bu yöntem, etkili miyokard korumasını sürdürürken cerrahi ekip için operasyonel verimliliği artırma potansiyeline sahiptir.

Anahtar Kelimeler: Kardiyopulmoner Bypass, Kalp-Akciğer Makinesi, Kardiyopleji, Miyokard Korunması, Kardiyopleji Uygulama Sistemi, Perfüzyon.

KORONER ARTER BAYPAS CERRAHİSİNDE ERKEN MORTALİTE VE MAJÖR KOMPLİKASYONLARIN ÖNGÖRÜLMESİNDE YENİ BİR MAKİNE ÖĞRENMESİ TABANLI MODELİN (MAI SKORU) GELİŞTİRİLMESİ VE VALİDASYONU

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Özet

Koroner arter baypas greft (KABG) cerrahisinde operatif riski belirlemek için yaygın olarak kullanılan EuroSCORE II ve STS skorları, yerel popülasyon dinamiklerini ve sistemik inflamatuar yanıtları tam olarak yansıtamamaktadır. Bu çalışmanın amacı, standart preoperatif klinik değişkenler ile sistemik immün-inflamasyon indeksini (SII) birleştiren, makine öğrenmesi tabanlı yeni bir algoritmik risk modeli olan "MAI Skoru"nu geliştirmek ve erken mortalite, düşük kalp debisi sendromu (LCOS) ile uzamış yoğun bakım yatışını öngörmedeki geçerliliğini EuroSCORE II ile karşılaştırmalı olarak doğrulamaktır. Çalışmada, kliniğimizde izole KABG uygulanan 1733 ardışık hasta retrospektif olarak incelenmiştir. Veri seti, modelin eğitilmesi (%70) ve test edilmesi (%30) amacıyla randomize olarak ikiye ayrılmıştır. Verilerdeki sınıf dengesizliği SMOTE algoritması ile giderilmiştir. Yaş, diyabet (HbA1c düzeyleri), ejeksiyon fraksiyonu (EF), preoperatif kreatinin ve enflamatuar belirteçler (NLR, PLR, SII) dâhil olmak üzere toplam 15 preoperatif değişken analiz edilmiştir. Tahmin modelleri; XGBoost, Random Forest ve Destek Vektör Makineleri (SVM) algoritmaları kullanılarak oluşturulmuştur. MAI Skorunun performansı, Alıcı İşletim Karakteristiği (ROC) Eğrisi Altında Kalan Alan (AUC) değerleri ile değerlendirilmiştir. Bulgular incelendiğinde; geliştirilen XGBoost tabanlı MAI Skoru, erken mortalite tahmini açısından mükemmel bir ayırt edicilik (AUC = 0.88; %95 CI, 0.84-0.92) göstererek geleneksel EuroSCORE II modelini (AUC = 0.76; %95 CI, 0.71-0.81) istatistiksel olarak anlamlı düzeyde geride bırakmıştır ($p<0.001$). Ayrıca, MAI Skoru düşük kalp debisi sendromu (AUC: 0.85) ve uzamış yoğun bakım ünitesi kalışını (AUC: 0.82) tahmin etmede yüksek spesifisite ve sensitivite oranlarına ulaşmıştır. Modelin değişken önem (feature importance) analizinde; preoperatif EF, preoperatif kreatinin ve preoperatif SII değeri en güçlü yordayıcı özellikler olarak ön plana çıkmıştır. Sonuç olarak MAI Skoru, KABG cerrahisinde kişiselleştirilmiş riski yüksek doğrulukla hesaplayan, yenilikçi ve güvenilir bir makine öğrenmesi aracıdır. Enflamatuar indekslerin modele entegre edilmesi, geleneksel skorlama sistemlerinin eksik bıraktığı sistemik fizyopatolojik yanıtın da öngörülmesini sağlayarak cerrahi karar verme sürecini optimize etmektedir.

Anahtar Kelimeler: Koroner Arter Baypas Cerrahisi, Makine Öğrenmesi, EuroSCORE II, Sistemik İmmün-İnflamasyon İndeksi, Erken Mortalite.

DEVELOPMENT AND VALIDATION OF A NOVEL MACHINE LEARNING-BASED PREDICTIVE MODEL (MAI SCORE) FOR EARLY MORTALITY AND MAJOR COMPLICATIONS IN CORONARY ARTERY BYPASS GRAFTING

Abstract

Background: Accurate operative risk stratification in coronary artery bypass grafting (CABG) optimizes surgical strategies. Traditional models like EuroSCORE II rely on linear regression, failing to capture complex clinical relationships and overlooking preoperative systemic inflammation. This study develops and validates the "MAI Score" (Maslan Artificial Intelligence Score), a machine learning-based model integrating standard clinical variables with inflammatory markers (systemic immune-inflammation index [SII], neutrophil-to-lymphocyte ratio, and platelet-to-lymphocyte ratio) to predict early mortality, low cardiac output syndrome (LCOS), and prolonged intensive care unit (ICU) stay in

isolated CABG. Methods: A retrospective study analyzed 1,733 consecutive patients undergoing isolated CABG. The dataset was randomized into training (70%) and validation (30%) cohorts. The Synthetic Minority Over-sampling Technique (SMOTE) addressed early mortality class imbalance. Fifteen preoperative features, including ejection fraction (EF), creatinine, and inflammatory biomarkers, were evaluated. Models were developed using XGBoost, Random Forest, and Support Vector Machine algorithms. Discriminative performance was evaluated using the Area Under the Receiver Operating Characteristic Curve (AUC) and compared against EuroSCORE II. Results: The XGBoost-based MAI Score demonstrated excellent discrimination for 30-day early mortality (AUC=0.88; 95% CI: 0.84-0.92), significantly outperforming EuroSCORE II (AUC=0.76; 95% CI: 0.71-0.81) ($p<0.001$). The MAI Score also accurately predicted LCOS (81% sensitivity, 84% specificity; AUC=0.85) and prolonged ICU stays (AUC=0.82). Feature importance analysis identified preoperative EF, creatinine, and SII as the most robust predictors of adverse operative outcomes. Conclusions: The MAI Score is a highly accurate machine learning tool for personalized operative risk profiling in CABG. Integrating systemic inflammatory indices captures pathophysiological responses neglected by traditional models. This model optimizes surgical decision-making, advancing AI-driven precision medicine in cardiovascular surgery.

Keywords: Coronary Artery Bypass Grafting, Machine Learning, EuroSCORE II, Systemic Immune-Inflammation Index, Early Mortality.

GÖZLEMDEN UYGULAMAYA: SİMÜLATÖR VE VİDEO DESTEKLİ ÖĞRETİMİN HEMŞİRELİK ÖĞRENCİLERİNDE KAN BASINCI ÖLÇME BECERİSİ VE ÖZGÜVEN ÜZERİNE ETKİSİ

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Özet

Giriş: Kan basıncı ölçümü hemşirelik uygulamalarında en sık kullanılan temel klinik becerilerden biridir ve doğru uygulanması hasta bakımının kalitesi açısından kritik öneme sahiptir. Hemşirelik eğitiminde öğrencilerin bilgi, beceri ve özgüven düzeylerini geliştirmek amacıyla farklı öğretim yöntemleri kullanılmaktadır. Günümüzde simülasyon ve video destekli öğretim gibi teknoloji temelli eğitim yaklaşımları, öğrencilerin klinik becerileri güvenli bir ortamda geliştirmelerine olanak sağlamaktadır. Bununla birlikte, bu yöntemlerin temel hemşirelik becerilerinin kazandırılmasındaki göreli etkililiğine ilişkin kanıtlar sınırlıdır. **Amaç:** Bu çalışma, kan basıncı ölçüm eğitiminde kullanılan simülatör destekli öğretim ile video destekli öğretimin hemşirelik öğrencilerinin bilgi düzeyi, psikomotor beceri performansı ve özgüvenleri üzerindeki etkilerini karşılaştırmak amacıyla gerçekleştirilmiştir. **Yöntem:** Araştırma randomize kontrollü yarı deneysel tasarımda yürütülmüştür. Çalışmaya bir hemşirelik fakültesinde öğrenim gören, daha önce kan basıncı ölçümü almamış ve klinik deneyimi bulunmayan toplam 62 öğrenci dahil edilmiştir. Öğrenciler basit rastgele örnekleme yöntemiyle simülatör grubu ve video grubu olmak üzere iki gruba ayrılmıştır. Her iki gruba da standart teorik eğitim verilmiş, ardından öğrenciler kendi gruplarına özgü eğitim yöntemleri ile uygulama yapmıştır. Veri toplama sürecinde kişisel bilgi formu, arteriyel kan basıncı akademik bilgi testi, kan basıncı ölçüm becerisi performans değerlendirme formu ve görsel analog ölçek kullanılmıştır. Veriler, IBM SPSS 22.0 paket programı kullanılarak analiz edilmiştir. **Bulgular:** Her iki eğitim yönteminin de öğrencilerin kan basıncı ölçümüne ilişkin bilgi düzeylerini artırdığı belirlenmiştir. Grup içi değerlendirmelerde hem simülatör hem de video destekli eğitim sonrasında bilgi puanlarında anlamlı artış saptanmıştır ($p<0.001$). Gruplar arası karşılaştırmalarda ise simülatör destekli eğitim alan öğrencilerin bilgi düzeylerinde daha yüksek gelişim gösterdiği belirlenmiştir ($p<0.001$). Psikomotor beceri performanslarının değerlendirilmesinde simülatör grubunun video grubuna göre anlamlı düzeyde daha yüksek performans sergilediği bulunmuştur ($p<0.001$). Benzer şekilde simülatör grubundaki öğrencilerin özgüven düzeyleri video grubuna göre daha yüksek bulunmuştur ($p<0.001$). **Sonuç:** Araştırma sonuçları, her iki öğretim yönteminin de öğrenme çıktıları üzerinde olumlu etkileri olduğunu göstermektedir. Bununla birlikte simülatör destekli öğretim, öğrencilerin bilgi kazanımı, psikomotor beceri gelişimi ve özgüven düzeylerinin artırılmasında video destekli öğretime göre daha etkili görünmektedir. Hemşirelik eğitiminde teknoloji destekli öğretim yöntemlerinin yaygınlaştırılması ve temel klinik beceri eğitimlerinde simülasyon uygulamalarına daha fazla yer verilmesi önerilmektedir.

Anahtar Kelimeler: Arteriyel Kan Basıncı, Hemşirelik Öğrencileri, Psikomotor Beceri, Simülasyon, Video Eğitimi.

FROM OBSERVATION TO PRACTICE: THE EFFECTS OF SIMULATOR- AND VIDEO-ASSISTED TEACHING ON NURSING STUDENTS' BLOOD PRESSURE MEASUREMENT SKILLS AND SELF-CONFIDENCE

Abstract

Introduction: Blood pressure measurement is one of the most frequently used fundamental clinical skills in nursing practice, and its accurate performance is critical for the quality of patient care. Various teaching methods are employed in nursing education to improve students' knowledge, skills, and self-confidence. Today, technology-based educational approaches, such as simulation- and video-assisted teaching, provide students with opportunities to develop clinical skills in a safe learning environment. However, evidence regarding the relative effectiveness of these methods in teaching fundamental nursing skills remains limited. **Aim:** This study aimed to compare the effects of simulator-assisted and video-assisted teaching on nursing students' knowledge levels, psychomotor skill performance, and self-confidence regarding blood pressure measurement. **Methods:** This randomized controlled quasi-experimental study was conducted with 62 nursing students enrolled in a faculty of nursing who had not previously received training in blood pressure measurement and had no clinical experience. Participants were randomly assigned to either a simulator group or a video group using a simple random sampling method. Both groups received standard theoretical instruction, followed by training using their respective educational methods. Data were collected using a Personal Information Form, the Arterial Blood Pressure Academic Achievement test, Arterial Blood Pressure Measurement Skill Performance Form, and a Visual Analog Scale. Data were analyzed using IBM SPSS Statistics version 22.0. **Results:** Both educational methods were found to improve students' knowledge related to blood pressure measurement. Within-group analyses demonstrated significant increases in knowledge scores following both simulator-assisted and video-assisted training ($p<0.001$). Between-group comparisons revealed greater improvement in knowledge levels among students who received simulator-assisted training ($p<0.001$). Evaluation of psychomotor skill performance showed that the simulator group achieved significantly higher performance scores than the video group ($p<0.001$). Similarly, self-confidence levels were significantly higher among students in the simulator group compared with those in the video group ($p<0.001$). **Conclusion:** The findings indicate that both teaching methods have positive effects on learning outcomes. However, simulator-assisted teaching appears to be more effective than video-assisted teaching in enhancing knowledge acquisition, psychomotor skill development, and self-confidence among nursing students. The wider integration of technology-supported teaching methods and simulation-based applications into fundamental nursing skills education is recommended.

Keywords: Arterial Blood Pressure, Nursing Students, Psychomotor Skill, Simulation, Video-Assisted Education.

YENİDOĞAN HİPERBİLİRUBİNEMİSİNDE GÜNLÜK YAŞAM AKTİVİTELERİ MODELİNE DAYALI BÜTÜNCÜL HEMŞİRELİK BAKIMI: OLGU SUNUMU

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Özet

Yenidoğan hiperbilirubinemisi, serum total bilirubin düzeyinin patolojik düzeyde yükselmesi sonucu ortaya çıkan ve yenidoğan döneminde hastaneye yatışların en sık nedenlerinden birini oluşturan önemli bir klinik tablodur. Fizyolojik mekanizmalarla gelişebilmekle birlikte erken tanılanmadığında akut bilirubin ensefalopatisi ve kernikterus gibi ciddi nörolojik komplikasyonlara yol açabilmektedir. Bu bağlamda hiperbilirubinemili yenidoğanların yakından izlenmesi ve bireyselleştirilmiş hemşirelik bakımının zamanında planlanması kritik bir önem taşımaktadır. Bu olgu sunumunda, yenidoğan hiperbilirubinemisi tanısıyla Yenidoğan Yoğun Bakım Ünitesi'nde izleme alınan bir yenidoğanın bakım sürecinde Günlük Yaşam Aktiviteleri Modeli doğrultusunda uygulanan bütüncül hemşirelik yaklaşımı incelenmiştir. Olgu, 37. gestasyon haftasında 3000 gram ağırlığında vajinal yolla doğan ve postnatal üçüncü günde deri ve sklerada sararma gelişmesi üzerine hastaneye getirilen bir erkek yenidoğandır. Yapılan değerlendirmede total serum bilirubin düzeyi yüksek saptanmış ve yenidoğan yoğun bakım ünitesine yatışı gerçekleştirilmiştir. Hemşirelik bakım sürecinde veri toplamanın ardından Günlük Yaşam Aktiviteleri Modeli doğrultusunda kapsamlı bir değerlendirme yapılmıştır. Değerlendirme sonucunda "Sıvı Elektrolit Dengesizliği, Beslenmede Yetersizlik, Etkisiz Emzirme, Etkisiz Termoregülasyon Riski, Cilt Bütünlüğünde Bozulma, Gastrointestinal Motilite Değişikliği Riski, Havayolu Temizliğinde Bozulma Riski, Aile Sürecinde Değişim Riski, Ailenin Bilgi Eksikliği ve Enfeksiyon Riski" hemşirelik tanıları belirlenmiştir. Yenidoğanın tedavisine yönelik günlük 18 saatlik fototerapi uygulanmış, intravenöz sıvı desteği sağlanmış, beslenme ile alınan çıkarılan sıvı takibi sürdürülmüş, emzirme süreci desteklenmiş ve gerekli durumlarda formül mama takviyesine başvurulmuştur. Ayrıca fototerapiye bağlı gelişebilecek komplikasyonlar açısından yakın izlem gerçekleştirilmiş, aileye hastalık süreci, emzirme, anne sütünün önemi ve evde bakım uygulamaları konusunda eğitim verilmiştir. Olgu kapsamında yalnızca yenidoğanın fizyolojik gereksinimleri değil, annenin emzirme güçlüğü, ailenin bilgi gereksinimi ve psikososyal uyum süreci de bütüncül ve aile merkezli bir yaklaşımla ele alınmıştır. Bu olgu, Günlük Yaşam Aktiviteleri Modeli'nin yenidoğan hiperbilirubinemisinde sistematik hemşirelik değerlendirmesi ve bakım planlaması açısından etkili ve işlevsel bir rehber niteliği taşıdığını ortaya koymaktadır. Model çerçevesinde sunulan bütüncül hemşirelik bakımının komplikasyonların önlenmesine, yeterli beslenmenin sağlanmasına, aile katılımının güçlendirilmesine ve genel bakım kalitesinin yükseltilmesine anlamlı katkılar sağladığı düşünülmektedir.

Anahtar Kelimeler: Yenidoğan hiperbilirubinemisi, Günlük Yaşam Aktiviteleri Modeli, bütüncül hemşirelik bakımı, fototerapi, olgu sunumu

HOLISTIC NURSING CARE BASED ON THE ACTIVITIES OF DAILY LIVING MODEL IN NEONATAL HYPERBILIRUBINEMIA: CASE REPORT

Abstract

Neonatal hyperbilirubinemia is a significant clinical condition resulting from a pathologically elevated level of serum total bilirubin and is one of the most common causes of hospitalization during the neonatal period. Although it can develop through physiological mechanisms, if not diagnosed early, it can lead to serious neurological complications such as acute bilirubin encephalopathy and kernicterus. In this context, close monitoring of newborns with hyperbilirubinemia and the timely planning of individualized nursing care are of critical importance. In this case report is examined the holistic nursing approach applied in accordance with the Activities of Daily Living Model during the care of a newborn admitted to the Neonatal Intensive Care Unit with a diagnosis of neonatal hyperbilirubinemia. The case involves a male newborn born vaginally at 37 weeks' gestation weighing 3,000 grams, who was admitted to the hospital on the third postnatal day due to the development of jaundice in the skin and sclera. During the evaluation, elevated total serum bilirubin levels were detected, and the infant was admitted to the neonatal intensive care unit. Following data collection during the nursing care process, a comprehensive assessment was conducted in accordance with the Activities of Daily Living Model. As a result of the assessment, the following nursing diagnoses were identified: Fluid and Electrolyte Imbalance, Imbalanced Nutrition, Ineffective Breastfeeding, Risk for Ineffective Thermoregulation, Impaired Skin Integrity, Risk for Dysfunctional Gastrointestinal Motility, Risk for Ineffective Airway Clearance, Risk for Interrupted Family Processes, Deficient Family Knowledge, and Risk for Infection. The newborn received 18 hours of daily phototherapy as part of treatment, intravenous fluid support was provided, fluid intake and output were monitored, breastfeeding was supported, and formula supplementation was used when necessary. Additionally, close monitoring was conducted for potential complications related to phototherapy, and the family was educated on the disease process, breastfeeding, the importance of breast milk, and home care practices. Within the scope of this case, not only the newborn's physiological needs but also the mother's breastfeeding difficulties, the family's information needs, and the psychosocial adaptation process were addressed through a holistic and family-centered approach. This case demonstrates that the Activities of Daily Living Model serves as an effective and functional guide for systematic nursing assessment and care planning in neonatal hyperbilirubinemia. It is believed that the holistic nursing care provided within the framework of the model makes meaningful contributions to the prevention of complications, ensuring adequate nutrition, strengthening family involvement, and improving overall care quality.

Keywords: Neonatal hyperbilirubinemia, Activities of Daily Living Model, holistic nursing care, phototherapy, case report

PEDİATRİ HEMŞİRELİĞİ DERSİ ALAN ÖĞRENCİLERİN PEDİATRİ HEMŞİRELİĞİ YETERLİLİKLERİ İLE ÇOCUKLARDA İLAÇ UYGULAMALARINA YÖNELİK ÖZ-YETERLİLİK DÜZEYLERİ ARASINDAKİ İLİŞKİNİN İNCELENMESİ

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Özet

Bu araştırma, pediatri hemşireliği dersi alan hemşirelik öğrencilerinin pediatri hemşireliği yeterlilikleri ile çocuklarda ilaç uygulamalarına yönelik öz-yeterlilik düzeyleri arasındaki ilişkiyi incelemeyi amaçlamıştır. Bu tanımlayıcı ve ilişki arayıcı araştırma, bir üniversitenin hemşirelik bölümünde pediatri hemşireliği dersini alan 196 öğrenci ile gerçekleştirilmiştir. Araştırma verileri, öğrencilerin tanımlayıcı özelliklerine ilişkin soru formu, Hemşirelik Öğrencileri İçin Pediatri Hemşireliği Yeterlilik Ölçeği ve Hemşirelik Öğrencileri İçin Çocuklarda İlaç Uygulamaları Öz-Yeterlilik Ölçeği aracılığıyla toplanmıştır. Çalışmaya katılan öğrencilerin Pediatri Hemşireliği Yeterlilik Ölçeği toplam puan ortalaması 148.46 ± 18.65, Çocuklarda İlaç Uygulamaları Öz-Yeterlilik Ölçeği toplam puan ortalaması ise 57.89 ± 11.23 olarak belirlenmiştir. Tanımlayıcı özelliklere göre yapılan karşılaştırmalarda; kadın öğrencilerin, 4. sınıfta öğrenim görenlerin, pediatri klinik uygulama deneyimine sahip olanların, klinik uygulamalarda çocuklarda ilaç uygulama deneyimi bulunanların, çocuklarda ilaç hatası yapma veya hata yapma riskiyle karşılaşmayanların ve mezuniyet sonrasında pediatri/çocuk hemşireliği alanında çalışmayı düşünenlerin Pediatri Hemşireliği Yeterlilik Ölçeği ile Çocuklarda İlaç Uygulamaları Öz-Yeterlilik Ölçeğinden aldıkları puan ortalamalarının diğer gruplara göre istatistiksel olarak anlamlı düzeyde yüksek olduğu belirlenmiştir ($p<0.05$). Pediatri Hemşireliği Yeterlilik Ölçeği ile Çocuklarda İlaç Uygulamaları Öz-Yeterlilik Ölçeği arasında pozitif yönde, orta düzeyde ve istatistiksel olarak anlamlı bir ilişki saptanmıştır ($r=0.551$; $p<0.001$). Çoklu doğrusal regresyon analizi sonucunda, Çocuklarda İlaç Uygulamaları Öz-Yeterlilik Ölçeği ile ilişkili faktörlerin birlikte değerlendirildiği modelin anlamlı olduğu belirlenmiştir ($F=24.618$, $p<0.001$). Model, çocuklarda ilaç uygulamalarına yönelik öz-yeterlilik puanlarındaki varyansın %32.6'ını açıklamaktadır ($AdjR^2=0.326$). Regresyon modelinde klinik uygulamada çocuklarda ilaç uygulama deneyimi ($\beta=0.169$, $p=0.008$) ve Pediatri Hemşireliği Yeterlilik Ölçeği toplam puanı ($\beta=0.458$, $p<0.001$) çocuklarda ilaç uygulamalarına yönelik öz-yeterliliğin anlamlı yordayıcıları olarak belirlenmiştir. Sonuç olarak, öğrencilerin pediatri hemşireliği yeterlilik düzeyleri arttıkça çocuklarda ilaç uygulamalarına yönelik öz-yeterlilik düzeylerinin de arttığı saptanmıştır. Araştırma bulguları doğrultusunda, öğrencilerin çocuklarda ilaç uygulamalarına yönelik öz-yeterliliklerini artırmak amacıyla pediatri klinik uygulamalarının güçlendirilmesi, ilaç hazırlama ve uygulama becerilerine yönelik uygulamalı ve simülasyon temelli eğitimlerin yaygınlaştırılması ve pediatrik ilaç güvenliğine ilişkin eğitim modüllerinin hemşirelik müfredatında daha kapsamlı şekilde ele alınması önerilmektedir.

Anahtar Kelimeler: Hemşirelik öğrencisi, ilaç uygulamaları, pediatri hemşireliği, pediatrik ilaç uygulamaları, öz-yeterlilik, yeterlilik.

EXAMINING THE RELATIONSHIP BETWEEN PEDIATRIC NURSING COMPETENCIES AND SELF-EFFICACY LEVELS REGARDING MEDICATION ADMINISTRATION IN CHILDREN AMONG STUDENTS TAKING A PEDIATRIC NURSING COURSE

Abstract

This study aims to examine the relationship between the pediatric nursing competencies of nursing students enrolled in a pediatric nursing course and their levels of self-efficacy regarding medication

administration in children. This descriptive and correlational study was conducted with 196 students enrolled in a pediatric nursing course at a university's nursing department. Research data were collected using a questionnaire regarding the students' demographic characteristics, the Pediatric Nursing Competency Scale for Nursing Students, and the Medication Administration Self-Efficacy Scale in Children for Nursing Students. The mean total score on the Pediatric Nursing Competency Scale for Nursing Students participating in the study was 148.46 ± 18.65, while the mean total score on the Medication Administration Self-Efficacy Scale in Children for Nursing Students was 57.89 ± 11.23. In comparisons based on demographic characteristics, female students, fourth-year students, those with pediatric clinical practice experience, those with experience administering medication to children during clinical practice, those who had not encountered medication errors or the risk of errors in children, and those planning to work in pediatrics/ pediatric nursing after graduation had statistically significantly higher average scores on the Pediatric Nursing Competency Scale and the Medication Administration in Children Self-Efficacy Scale compared to other groups ($p<0.05$). A positive, moderate, and statistically significant correlation was found between the Pediatric Nursing Competency Scale and the Medication Administration Self-Efficacy Scale in Children ($r = 0.551$; $p < 0.001$). The results of the multiple linear regression analysis indicated that the model, which simultaneously assessed factors associated with the Medication Administration Self-Efficacy Scale in Children for Nursing Students, was statistically significant ($F=24.618$, $p<0.001$). The model explained 32.6% of the variance in self-efficacy scores regarding medication administration in children ($AdjR^2=0.326$). In the regression model, clinical experience in administering medication to children ($\beta=0.169$, $p=0.008$) and the total score on the Pediatric Nursing Competency Scale for Nursing Students ($\beta=0.458$, $p<0.001$) were identified as significant predictors of self-efficacy regarding medication administration in children. Based on the research findings, it is recommended that pediatric clinical practices be strengthened to enhance students' self-efficacy regarding medication administration in children that hands-on and simulation-based training on medication preparation and administration skills be expanded; and that educational modules on pediatric medication safety be incorporated more comprehensively into the nursing curriculum.

Keywords: Nursing student, medication administration, pediatric nursing, pediatric medication admin

SANTRAL JUGULER VEN KATETER LÜMEN TUTUCU TASARIMI VE ERGONOMİK KULLANIMININ DEĞERLENDİRİLMESİ

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Özet

Bu araştırma santral juguler ven kateter lümenlerinin sarkmasını önlemeye yönelik santral juguler ven kateter lümen tutucu aparatının geliştirilmesi ve ergonomik kullanımının değerlendirilmesi amacı ile yapılmıştır. Araştırma iki aşamada gerçekleştirilmiştir. Araştırmanın birinci basamağını santral juguler ven kateter lümen tutucu aparatının geliştirilmesi, ikinci basamağını ise klinik simülasyon laboratuvarında hasta odası simüle edilerek yapılan çapraz randomize kontrollü çalışma oluşturmuştur. Çalışmaya, 20 müdahale-kontrol, 20 kontrol-müdahale grubu olmak üzere toplam 40 sağlıklı gönüllü katılmıştır. Çapraz randomizasyon doğrultusunda, her iki grupta kendi uygulama sırasına göre hem aparatsız (kontrol) hem de aparatlı (müdahale) uygulama deneyimlemiştir. Veri toplamada "Sağlıklı Gönüllülerin Tanımlayıcı Özellikleri Bilgi Formu", "Santral Juguler Ven Kateteri Değerlendirme Formu", "Quebec Yardımcı Teknoloji Kullanıcı Memnuniyeti Değerlendirme Anketi", "Sistem Kullanılabilirlik Ölçeği" ve "Görüş Bildirim Formu" kullanılmıştır. Veriler kontrol (n=40) ve müdahale (n=40) uygulamalarının karşılaştırılması ile elde edilmiştir. Çalışmaya katılan sağlıklı gönüllülerin tanıtıcı özellikler yönünden benzer olduğu bulunmuştur. Müdahale grubunda konfor ve baş boyun hareket kolaylık durumunun kontrol grubuna göre anlamlı derecede yüksek, kateter pozisyon sarkma durumunun ise daha düşük olduğu bulunmuştur ($p<0.001$). Geliştirilen santral juguler ven kateter lümen tutucu aparatından memnuniyetin (medyan:4,38, IQR: 4-4,75) ve kullanılabilirliğin (84,19 ±15,33) yüksek olduğu tespit edilmiştir. Bu sonuçlara göre geliştirilen santral juguler ven kateter lümen tutucu aparatının lümen sarkmalarını önlemeye yönelik etkili ve kullanılabilir olduğu değerlendirilmiştir.

Anahtar kelimeler: hemşirelik, juguler ven, kullanılabilirlik, santral kateterizasyon, tasarım, yardımcı cihaz

EVALUATION OF CENTRAL JUGULAR VEIN CATHETER LUMEN HOLDER DESIGN AND ERGONOMIC USE

Abstract

This research was conducted to develop a central jugular vein catheter lumen holder apparatus to prevent sagging of central jugular vein catheter lumens and to evaluate its ergonomic use. Research was carried out in two phases. The first step was the development of a central jugular vein catheter lumen holder apparatus, and the second step was a cross-randomized controlled study conducted by simulating a patient room in a clinical simulation laboratory. A total of 40 healthy volunteers (20 intervention-control and 20 control-intervention groups) participated in the study. In line with cross-randomization, both groups experienced both without apparatus (control) and with apparatus (intervention) in their own order of application. Data were collected using the "Descriptive Characteristics of Healthy Volunteers Information Form", "Central Jugular Vein Catheter Evaluation Form", "Quebec Assistive Technology User Satisfaction Assessment Questionnaire", "System Usability Scale" and " Opinion Form". Data were obtained by comparing the control (n=40) and intervention (n=40) treatments. Healthy volunteers

participating in the study were found to be similar in terms of identifying characteristics. In the intervention group, comfort and head and neck mobility were significantly higher and catheter position sagging was lower than in the control group ($p<0.001$). Satisfaction with the developed central jugular vein catheter lumen holder apparatus (median: 4.38, IQR: 4-4.75) and usability (84.19 ±15.33 were found to be high. According to these results, it was evaluated that the developed central jugular vein catheter lumen holder apparatus was effective and usable to prevent lumen prolapse.

Keywords: nursing, jugular vein, usability, central catheterization, design, assistive device

TREACHER COLLINS SYNDROME

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Abstract

Treacher Collins syndrome (TCS), also known as mandibulofacial dysostosis, is one of the most readily recognizable craniofacial disorders in clinical genetics. Its characteristic features include downward-slanting palpebral fissures, malar and zygomatic hypoplasia, mandibular hypoplasia, lower eyelid coloboma, auricular malformations, as well as developmental abnormalities of the external and middle ear structures. During the neonatal period, the most serious and life-threatening complication is upper airway obstruction. Severe micrognathia and mandibular hypoplasia result in glossoptosis, leading to oropharyngeal obstruction.

We would like to present the following clinical case observed at the Scientific Research Institute of Pediatrics. Patient O. was admitted at the age of 26 days. The infant was born from the first pregnancy and first delivery. The pregnancy was uneventful; however, the mother experienced several episodes of acute respiratory viral infection during gestation. The parents were non-consanguineous. The child was delivered at term by cesarean section with a birth weight of 3200 g. The Apgar score was 7–8 points. In the maternity hospital, feeding was provided via a nasogastric tube, and humidified binasal oxygen support was administered when necessary.

Upon admission, the patient's general condition was assessed as moderately severe. Consciousness was clear. The infant was receiving artificial feeding through a feeding tube. The skin and visible mucous membranes were pale pink and clean. Characteristic craniofacial abnormalities were noted, including downward-slanting palpebral fissures, hypoplasia of the middle and lower facial regions, micrognathia, microtia, absence of the external auditory canal, and cleft palate. Respiration was spontaneous and rhythmic. Auscultation revealed equal breath sounds bilaterally. Heart sounds were muffled. Abdominal distension was present. Urine output was adequate.

A comprehensive laboratory and instrumental evaluation were performed. The patient was examined by a pediatrician, neurologist, ophthalmologist, and otorhinolaryngologist. Based on the clinical and diagnostic findings, a diagnosis of Treacher Collins syndrome was established. The infant remained under dynamic follow-up by a pediatrician, neurologist, and ophthalmologist.

At present, the child is 4 months old and weighs 4900 g. No delays in physical growth or psychomotor development have been observed. Surgical intervention has been planned by the otorhinolaryngologist for the age of 12 months.

In conclusion, timely and appropriate intervention in patients with Treacher Collins syndrome can significantly improve their quality of life and long-term outcomes.

Keywords: Treacher Collins syndrome, dysostosis, newborn

PERCEPTION OF MALE NURSES AMONG NURSING STUDENTS AT THE UNIVERSITY OF PRISHTINA

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Abstract

Aim: Nursing has traditionally been perceived as a female profession in many societies. However, the growing participation of men in nursing has contributed to changing these traditional views. This study aims to examine the perceptions and attitudes of nursing students toward male nurses and their role within the profession.

Methods: This descriptive cross-sectional study was conducted among first-, second-, and third-year students enrolled in the Department of Nursing at the Faculty of Medicine, University of Prishtina. Data were collected using a structured questionnaire consisting of socio-demographic questions and items related to perceptions of male nurses. The data were analyzed using descriptive statistical methods.

Results: The findings indicate that most students believe nursing should be regarded as a profession open to both men and women. Participants generally expressed positive attitudes toward male nurses and considered their presence beneficial for the development and professional image of nursing. Students also reported that competence, professional skills, and quality of care are more important than gender in determining a nurse's effectiveness. Although some traditional gender stereotypes remain present, they were less pronounced among the surveyed students.

Conclusion: Nursing students at the University of Prishtina demonstrate a predominantly positive perception of male nurses and support gender equality within the nursing profession. The results suggest a gradual shift away from traditional gender-based views of nursing and highlight the increasing acceptance of men as valuable members of the nursing workforce.

Keywords: Male nurse, perception, nursing students, gender equality, nursing profession, University of Prishtina.

IMPLICATIONS FOR LEARNING AND PERFORMANCE IN SPORT SCIENCES IN THE DIGITAL ERA

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Abstract

The integration of digital technologies into educational environments has significantly transformed pedagogical practices in sport sciences. Hybrid learning, combining face-to-face instruction with digital tools, has emerged as a promising approach to enhance both learning processes and performance outcomes. In sport sciences, where practical engagement is central, the integration of technologies such as wearable devices, learning management systems, and video-based instruction offers new opportunities for optimizing training and education.

This study aims to analyze the role of digital technologies within hybrid learning environments and to examine their implications for learning and performance in sport sciences.

This research adopts a narrative review approach, synthesizing findings from peer-reviewed studies indexed in major scientific databases such as Web of Science and Scopus. The analysis focuses on studies investigating the integration of digital tools within hybrid or blended learning models in sport and physical education contexts.

The findings suggest that digital technologies in hybrid learning environments may contribute to improved skill acquisition, enhanced student engagement, and better monitoring of physical performance. Wearable devices and digital platforms appear to support individualized learning pathways, while video-based feedback enhances motor learning. However, challenges remain regarding technological accessibility, pedagogical integration, and methodological rigor in existing studies.

Hybrid learning supported by digital technologies represents a promising paradigm for sport sciences education, offering a bridge between theoretical knowledge and practical performance. Future research should focus on developing integrated pedagogical models and conducting more robust experimental studies to strengthen the evidence base.

Keywords: Blended Learning; Digital Technologies; Hybrid Learning; Performance; Sport Sciences.

HEART RATE VARIABILITY IN ELITE FOOTBALL: AN INTEGRATED APPROACH TO MONITORING TRAINING LOAD, RECOVERY, AND COMPETITIVE READINESS

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Abstract

Background: Football is characterized by a congested competitive calendar with high physical and psychological demands. Heart rate variability (HRV) is a non-invasive marker of autonomic nervous system regulation and is increasingly used to monitor training load, recovery, stress, and readiness in elite athletes.

Objective: This systematic review aimed to examine HRV as an integrated monitoring tool in professional football, focusing on its relationships with training load, recovery status, pre-competitive anxiety, non-functional overreaching (NFOR), and performance outcomes.

Methods: A systematic search was conducted in PubMed, Scopus, Web of Science, and SPORTDiscus (2010–2025) following PRISMA guidelines. Studies involving professional or semi-professional football players with HRV measurements during training or competition were included. Data extraction focused on HRV indices, protocols, and physiological or performance outcomes.

Results: Twenty-eight studies (~1,050 players) were included. Three main domains emerged: training load monitoring, recovery/NFOR, and competitive stress. Higher parasympathetic activity (RMSSD, SDNN, HF) was associated with better fitness, improved recovery, and higher competitive level, whereas reduced HRV reflected increased load, fatigue, and pre-competitive anxiety. Individual factors such as age, body composition, and playing level influenced HRV responses.

Conclusion: HRV is a valuable integrative biomarker for monitoring physiological and psychological responses in elite football, supporting individualized training and recovery strategies.

Keywords: Heart rate variability; football; soccer; training load; recovery; performance monitoring.

FRAILTY TRIAD IN DEMENTIA: SLEEP, APPETITE AND PHYSICAL ACTIVITY FROM A HOME-CARE PERSPECTIVE

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ABSTRACT

Dementia is frequently accompanied by a range of non-cognitive manifestations, among which appetite decline, sleep disturbances and reduced physical activity occupy an important place. Appetite and sleep disturbances have often been grouped together within behavioral symptom clusters in dementia, while appetite decline and reduced physical activity also overlap conceptually with core components of the frailty phenotype described in the older population more broadly.

Sleep disturbances have been associated with an increased risk of subsequent neurodegenerative disease, with some studies reporting elevated risk up to 15 years before disease onset, suggesting that sleep problems may not be solely a consequence of dementia but could also contribute to its development. Reduced appetite has been linked to malnutrition and muscle loss, and has been described in some studies as related to disease progression, while decreased physical activity is associated with functional decline and social isolation. The co-occurrence of these symptoms may reflect a self-reinforcing pattern, in which decline in one domain contributes to deterioration in the others, although the underlying mechanisms remain incompletely understood.

From a clinical standpoint, these associations support the value of including sleep, appetite and physical activity in routine assessment of people with dementia, as a coherent set of indicators relevant to functional vulnerability, rather than as isolated aspects. Interventions addressing these dimensions together, such as sleep hygiene, individualized nutritional support and encouragement of light but regular physical activity, may have a greater impact on quality of life than measures targeting a single domain, although this remains to be confirmed through dedicated intervention studies.

This paper synthesizes the existing literature on the relationship between appetite, sleep and physical activity in dementia, with attention to how these associations can inform routine screening practices and the design of home-based care strategies for people with dementia.

Keywords: dementia; behavioral symptoms; sleep disturbances; appetite; physical activity; frailty; home care

EFFECTS OF RAMADAN FASTING ON DIETARY INTAKE AND ANTHROPOMETRIC PARAMETERS AMONG SUB-SAHARAN IMMIGRANTS IN EL JADIDA, MOROCCO

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Abstract

Background: Ramadan fasting represents a major religious and sociocultural practice among Muslims. However, its potential health benefits may be limited by unfavorable lifestyle behaviors, particularly in terms of dietary patterns and physical activity. This study aimed to investigate the effects of Ramadan fasting on dietary intake and anthropometric indicators among Sub-Saharan immigrants living in El Jadida, Morocco. **Methods:** A cross-sectional study was conducted among 107 Sub-Saharan immigrants residing in El Jadida during Ramadan 2018. Dietary data were collected using a 24-hour dietary recall, while sociodemographic information was obtained through a structured questionnaire. **Results:** The findings indicated higher energy intake among women compared to men, with no significant differences across age groups. Socioeconomic factors were associated with both general and central obesity. During Ramadan, participants reported a reduction in meal frequency, along with a redistribution of carbohydrate intake across meals compared to the non-Ramadan period. A decrease in physical activity was observed among women, whereas fat intake increased overall. Additionally, a significant rise in blood pressure was noted during Ramadan. **Conclusion:** The findings suggest that certain lifestyle changes during Ramadan may contribute to an increased risk of overweight and chronic diseases. These results highlight the need for culturally adapted nutritional education strategies to promote healthier practices during this period.

Keywords: Ramadan fasting; Dietary patterns; Sub-Saharan immigrants; Anthropometry; Morocco

PROBLEMATIC SCREEN USE, SLEEP DISTURBANCES AND DEPRESSION IN ADOLESCENTS: A LITERATURE REVIEW AND PREVENTION STRATEGIES

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Abstract

Excessive use of digital devices, particularly in the evening and before bedtime, has been consistently associated in the literature with reduced sleep duration and the emergence of sleep disturbances in adolescents, partly due to blue light exposure and the cognitive stimulation associated with digital content. Sleep disturbances, in turn, represent a well-documented risk factor for the development of depressive symptoms during this period of life, forming a relationship in which problematic screen use, sleep problems and depressive states may reinforce one another.

From a clinical perspective, early identification of this pattern is important, as associated physical symptoms (fatigue, headaches, changes in appetite or weight) and behavioral signs (irritability, withdrawal, neglect of previously valued activities) may go unnoticed or be attributed to other causes. The literature suggests that interventions focused on sleep hygiene, limiting screen exposure in the evening hours, and increasing time spent in alternative physical or social activities may help improve both outcomes. Cognitive behavioral therapy has shown short-term effectiveness in reducing video game dependence and associated depressive symptoms, although evidence for long-term benefits remains limited.

Family involvement plays an essential role in both prevention and intervention, not through a complete ban on technology access, which has proven ineffective, but through setting clear limits, modeling behavior, and offering attractive alternative activities.

This paper synthesizes existing evidence on the relationship between problematic screen use, sleep disturbances and depression in adolescents, with attention to its practical implications for screening in primary care and for health education programs aimed at families and schools.

Keywords: adolescents, problematic screen use, sleep disturbances, depression, behavioral interventions

THE MEDIATING ROLE OF PERSONALITY RESILIENCE IN MODERATING PERCEIVED STRESS AND SLEEP QUALITY IN WOMEN WITH CHRONIC DISEASES: A META-ANALYTIC STUDY

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Abstract

The present study aimed to investigate the mediating role of personality resilience in explaining the relationship between perceived stress and sleep quality in women with chronic diseases through meta-analysis. Given the complexity of psychological constructs in the management of chronic diseases, this study systematically searched and combined the findings of previous empirical studies in reliable databases. The findings from the statistical combination showed that perceived stress has a significant negative correlation with sleep quality and acts as a major predictor of sleep disorders in this group of women. In addition, the analysis of possible paths in the aggregate data indicates that personality resilience significantly moderates the direct effect of stress on sleep quality and, through its mediating role, neutralizes the negative consequences of stress. The results show that resilience, beyond a personality trait, acts as a protective factor and, by promoting resilience, changes the path of stress's impact on physiological sleep functions. From a theoretical perspective, these findings redefine traditional models of the stress-illness relationship by introducing moderating and mediating variables. From a practical perspective, this study emphasizes the necessity of integrating resilience-enhancing protocols into psychological-medical care programs to improve sleep health in women with chronic diseases. 1- Is there a significant relationship between perceived stress and sleep quality in women with chronic diseases? 2- Does personality resilience mediate the relationship between perceived stress and sleep quality? The findings of the study indicate that there is a negative and significant relationship between perceived stress and sleep quality in women with chronic diseases. Personality resilience plays a significant mediating role in the relationship between perceived stress and sleep quality.

Keywords: Personality resilience, perceived stress adjustment, sleep quality, women, chronic diseases.

FACTORS ASSOCIATED WITH HPV VACCINE HESITANCY AMONG PARENTS OF ADOLESCENT GIRLS

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Abstract

Human papillomavirus (HPV) vaccination is an effective preventive measure against several cancers, particularly cervical cancer. However, vaccine coverage remains limited due to hesitancy among some parents of adolescent girls. This hesitancy is influenced by several factors that must be identified to improve vaccine uptake. The objective of this study is to determine the factors associated with HPV vaccine hesitancy among parents of adolescent girls in primary healthcare facilities, specifically the El Maroua and El Hank health centers. The study is based on a level I descriptive quantitative approach within a conceptual framework. Data were collected from parents of adolescent girls attending the El Maroua and El Hank health centers. A non-probability accidental sampling method was used. Data collection was carried out using a self-administered questionnaire distributed to 100 participants. All questionnaires were recovered (100 questionnaires), representing a response rate of 100%. The results of the study show that 35% of parents are between 20 and 30 years old, while 38% have a secondary education level. The studied population is predominantly female (76%). Furthermore, 64% of parents report not knowing about HPV. Information regarding vaccination is mainly obtained from healthcare professionals in 55.26% of cases. Regarding perceptions, 61% of parents express concerns related to the adverse effects of the HPV vaccine, while 67% believe that their daughters are still too young to receive it. Additionally, 70% of parents indicate that the COVID-19 pandemic influenced their perception of HPV vaccination. Finally, 74% of participants consider that the cost of the vaccine does not constitute a major barrier to vaccination. In summary, this research highlighted the main factors associated with HPV vaccine hesitancy among parents of adolescent girls. Based on the results obtained, targeted recommendations were formulated to strengthen awareness campaigns and promote better adherence to HPV vaccination.

Keywords: Human papillomavirus, Vaccine hesitancy, HPV vaccine, Cervical cancer.

AI, TELEMEDICINE, AND ROBOTS: WHERE IS MEDICINE HEADING?

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Abstract

Over the past decades, medicine has undergone a major transformation driven by digital technologies. The traditional paternalistic model of care, in which the physician held the central role in decision-making, is gradually evolving toward a more collaborative approach that encourages patient involvement and shared responsibility. Easy access to medical information, mobile health applications, wearable devices, and telemedicine platforms has changed the way patients relate to illness, treatment, and healthcare professionals.

At the same time, artificial intelligence, robotic surgery, and digital monitoring systems are reshaping clinical practice. These technologies contribute to faster diagnosis, improved precision, minimally invasive interventions, and better long-term monitoring of patients. Telemedicine has also expanded access to healthcare, particularly for patients with chronic conditions or limited access to medical services, while wearable technologies support prevention and early detection through continuous monitoring of physiological parameters.

Beyond the technological advantages, these developments also raise important ethical and human challenges. Increasing reliance on algorithms, concerns regarding data privacy, and the risk of reducing interpersonal interaction in healthcare have generated ongoing debates about the future of medical practice. In this rapidly changing context, maintaining empathy, communication, and the human dimension of care remains essential.

Through this presentation, we aim to highlight the major changes generated by the implementation of digital technologies in medicine, their impact on the physician–patient relationship and clinical practice, as well as the need to preserve humanism, empathy, and ethical responsibility within an increasingly technologized healthcare system.

Keywords: artificial intelligence (AI), telemedicine, digitalization, medical ethics

ARTIFICIAL INTELLIGENCE AND TELEMEDICINE IN THE SERVICE OF HEALTH EQUITY

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Abstract

Equity in access to healthcare remains an unresolved goal in many regions, with rural populations, low-income groups, older adults and individuals with limited education or digital literacy facing significant barriers to timely care. Artificial intelligence and telemedicine are increasingly proposed as tools to bridge these gaps, compensating for shortages of specialized personnel and extending diagnostic and monitoring services to underserved communities. These efforts align with the UN Sustainable Development Goals, particularly SDG 3 and SDG 10, which call for healthy lives for all and narrower disparities between countries.

Recent literature suggests that artificial intelligence tools can support triage, imaging interpretation and risk assessment where access to specialists is limited, while telemedicine platforms enable remote consultations that reduce costs and travel burdens. At the same time, several studies point to a real risk that these technologies may widen rather than narrow existing inequalities if not designed with equity in mind. Access to devices, connectivity and digital skills remains unevenly distributed, and artificial intelligence models trained on unrepresentative data may perform less reliably for underrepresented groups.

Beyond technical design, the sustainability of these solutions depends on the economic and policy environment in which they are implemented. Without dedicated funding programs, digital health and AI-based initiatives risk remaining isolated pilot projects rather than integrated components of healthcare systems, particularly where public health budgets are constrained. We investigated data from rural and resource-limited settings to examine when these tools genuinely advance health equity, considering both the design choices shaping their use and the funding mechanisms needed to sustain them.

The discussion is intended for researchers and practitioners in health equity, public health, health information systems and policy, offering a perspective on the potential, limitations and requirements for digital technology to reduce disparities in healthcare access and support progress toward the Sustainable Development Goals.

Keywords: Artificial intelligence, telemedicine, health equity, digital health, Sustainable Development Goals.

VIRTUAL MATERNAL HEALTH CARE TRENDS, BENEFITS AND LIMITATIONS FROM WOMEN'S PERSPECTIVE

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Abstract

The way maternal healthcare is delivered – prenatal and postpartum – has been revolutionized by virtual care especially after the onset of the COVID-19 pandemic when digital healthcare services became more popular and commonplace globally. This literature review explores the trends, positives and negatives of the virtual maternal healthcare from a woman's perspective, including prenatal consultations using telehealth, mobile health (mHealth) apps, remote monitoring systems and hybrid prenatal care models. The review's goal is to assess the impact of these digital interventions on accessibility, patient satisfaction, clinical safety, quality of care, and maternal health equity. A structured literature review was performed with the help of the database PubMed, Google Scholar, and ScienceDirect. Studies included were published between 2020 and 2026, peer- reviewed, in English language, and open access. The chosen studies included pregnant and postpartum women and health care providers in different levels of resources. Data were analyzed and patterns emerged with respect to adoption, technological innovation, clinical outcomes, women's experiences, and barriers to implementation. Research shows that virtual maternal care can help women access care, through decreased travel times, transportation expenses, childcare responsibilities, and scheduling issues, particularly in underserved and rural areas. Virtual services also enhanced continuity of care, self-monitoring, health education and follow-up for routine maternal conditions. However, there are still many challenges to overcome, such as the lack of emotional support, difficulty in conducting physical examinations, unreliable remote fetal monitoring, digital illiteracy, privacy matters and less developed technological infrastructure. These barriers were more evident in disadvantaged and low resource populations. The evidence indicates that virtual maternal care is best used in conjunction with face-to-face maternal care. Future maternal health care delivery should be through a hybrid of virtual and in- person care models, which is the most balanced, equitable and clinically safe way to provide care.

Keywords: Virtual maternal care, Telehealth, mHealth, Hybrid care model, Maternal health

EVALUATING THE EFFECTIVENESSS OF A CUSTOMIZED CHATGPT-BASED VIRTUAL ASSISTANT IN PROMOTING CONTRACEPTIVE AWARENESS

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Abstract

Contraceptive awareness is essential for understanding reproductive health and the effective use of family planning methods. Despite the availability of various contraceptive methods, misconceptions regarding side effects, infertility, and long-term health consequences remain common among women in Saudi Arabia. İnadequate counseling and reliance on informal sources of information may negatively influence contraceptive knowledge and utilization. Artificial intelligence (AI) has recently emerged as a promising tool for delivring accessible, personalized, and evidence-based health education. However, limited evidence exists regarding the effectiveness of AI-powerd virtual assistant in improving contraceptive awareness among Saudi women.

This study aims to evaluate the effectiveness of a customized ChatGPT-based virtual assisstant in promoting contarceptive awareness among women of reproductive age in Saudia Arabia. A quasi-experimental one-group pre-test/post-test design will be employed among women aged 18-45 years attending healthcare services in Jeddah, Saudi Arabia. Participants will complete a baseline assessment befor interacting with the AI-powerd virtual assistant for five consecutive dayes. Following the intervention, participants will complete a post-test assessment to evaluate changes in awareness and misconceptions.

The study is expected to improve contraceptive awareness, enhance understanding of contraceptive side effects, and reduce common misconeptions. Findings may contribute to the integration of AI-based educatinal interventions into nursing practice and reproductive health promotion, supporting digital health transformation initiatives under Saudi Vision 2030

Keywords: Artificial Intelligence, Contraceptive Awareness, Women's Health, Reproductive Health, Health Education, Nursing

THE ROLE OF MACHINE LEARNING ALGORITHMS IN THE DETECTION AND CLASSIFICATION OF HPV INFECTIONS

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ABSTRACT

Human Papillomavirus (HPV) infection is one of the most common sexually transmitted infections worldwide and represents a major risk factor in the development of cervical cancer and other oncological diseases. Early detection and accurate classification of HPV types are essential for preventing complications and implementing effective treatment and monitoring strategies.

In recent years, the development of digital technologies and artificial intelligence has opened new perspectives in the field of medical diagnostics. Among these technologies, Machine Learning algorithms have stood out due to their ability to analyze large volumes of data, identify complex patterns, and generate highly accurate predictions. The application of these algorithms in HPV testing contributes to improving the infection detection process, automating result classification, and assessing the risk of progression to precancerous or cancerous lesions.

By utilizing clinical, genetic, and imaging data, machine learning models can support healthcare professionals in medical decision-making, reducing the time required for result interpretation and minimizing human errors. In this context, the integration of machine learning algorithms into HPV screening and diagnostic programs represents a promising direction for increasing the efficiency of healthcare systems and improving patient clinical outcomes.

This paper aims to analyze the role and applications of machine learning algorithms in the detection and classification of HPV infections, highlighting the advantages, limitations, and future development prospects of these technologies in modern medicine.

Keywords: Human Papillomavirus infection, digital technologies and artificial intelligence

AUTISM PREDICTION USING MACHINE LEARNING: A COMPARATIVE STUDY OF SUPERVISED CLASSIFICATION MODELS FOR EARLY ASD SCREENING

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Abstract

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by persistent challenges in social communication, interaction, and restricted or repetitive behavioral patterns. Early screening is essential for timely intervention, yet conventional assessment procedures are often time-intensive and dependent on specialist availability. This paper presents a machine learning-based autism prediction framework using behavioral and demographic attributes derived from a screening dataset. Four supervised learning algorithms - Logistic Regression, K-Nearest Neighbors (KNN), Support Vector Machine (SVM), and Random Forest - were implemented and comparatively evaluated.

The proposed framework includes preprocessing of missing and inconsistent values, categorical encoding, feature scaling, train-test splitting, and performance evaluation using accuracy, precision, recall, F1-score, confusion matrix analysis, and cross-validation. Experimental results show that Logistic Regression achieved the best overall performance, with 85% accuracy and 0.85 F1-score, outperforming KNN, SVM, and Random Forest on the given dataset. The study also highlights the importance of interpretable models in healthcare screening applications and discusses scalability toward web-based deployment.

The findings suggest that lightweight and interpretable machine learning models can provide meaningful support for ASD screening when trained on structured questionnaire-based data. This work contributes to AI-assisted healthcare by demonstrating a practical and reproducible approach for automated autism prediction.

Keywords: Autism Spectrum Disorder, ASD screening, machine learning, Logistic Regression, Random Forest, Support Vector Machine, KNN, healthcare AI

EFViT-XAI: A MULTIMODAL EXPLAINABLE FEDERATED VISION TRANSFORMER FRAMEWORK FOR PRIVACY-PRESERVING PNEUMONIA SEVERITY ASSESSMENT IN SMART HEALTHCARE ENVIRONMENTS

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Abstract

The growing incidence of pneumonia continues to challenge healthcare systems by increasing hospitalization rates and clinical resource demands. Accurate assessment of disease severity is essential for timely clinical intervention and improved patient management. Despite notable advances in deep learning-driven medical image analysis, prevailing pneumonia assessment approaches depend heavily on centralized data repositories, which hinder large-scale clinical deployment due to concerns surrounding patient privacy, data ownership, and regulatory compliance. Despite notable advancements in deep learning-based medical image analysis, prevailing pneumonia assessment frameworks remain dependent on centralized data repositories, limiting their scalability and clinical adoption due to concerns surrounding patient privacy, data governance, regulatory compliance, and secure inter-institutional data exchange. In addition, the limited transparency of conventional deep learning models hinders their widespread adoption in clinical practice. A privacy-aware multimodal framework, termed EFViT-XAI, is developed to address these challenges through decentralized learning and explainable prediction mechanisms. The proposed framework synergistically combines the superior representation learning capability of Vision Transformers (ViTs) with a federated learning architecture, facilitating privacy-preserving and decentralized collaborative training among multiple healthcare institutions without requiring the exchange of sensitive patient information. Furthermore, a multimodal fusion mechanism integrates imaging biomarkers with clinically relevant parameters, including age, oxygen saturation (SpO_2), respiratory rate, body temperature, and white blood cell count, to capture comprehensive patient-specific characteristics. To enhance model transparency and clinical reliability, the framework incorporates Explainable Artificial Intelligence (XAI) techniques, namely Gradient-weighted Class Activation Mapping (Grad-CAM) and SHapley Additive exPlanations (SHAP), which provide both visual localization of pathological regions and quantitative interpretation of clinical feature contributions. The proposed framework performs multi-class severity stratification into four clinically meaningful categories: Normal, Mild, Moderate, and Severe pneumonia. Extensive experimental evaluation demonstrates the superiority of EFViT-XAI over state-of-the-art convolutional, transformer-based, and federated learning models. The framework achieves an overall accuracy of 98.42% precision of 98.11%, recall of 97.93%, F1-score of 98.02%, and an area under the receiver operating characteristic curve (AUC) of 99.15%. Ablation studies further validate the effectiveness of multimodal feature fusion, federated optimization, and explainability modules in enhancing predictive performance and interpretability. The obtained results highlight the potential of EFViT-XAI as a robust, scalable, and clinically trustworthy decision-support framework for next-generation smart healthcare ecosystems and Internet of Medical Things (IoMT)-enabled medical applications.

Keywords: Pneumonia Severity Assessment, Vision Transformer, Federated Learning, Explainable Artificial Intelligence, Multimodal Learning, Grad-CAM, SHAP, Chest X-ray Analysis, Clinical Decision Support, Smart Healthcare.

AI-DRIVEN CYBERSECURITY FRAMEWORK FOR ENHANCING HEALTHCARE INFRASTRUCTURE SECURITY AND PATIENT DATA PROTECTION IN THE UNITED STATES

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Abstract

The healthcare sector in the United States has become increasingly dependent on digital technologies, including Electronic Health Records (EHRs), cloud-based healthcare systems, telemedicine platforms, and Internet of Medical Things (IoMT) devices. While these innovations have improved healthcare delivery and operational efficiency, they have also expanded the attack surface for cybercriminals. Healthcare organizations continue to face sophisticated threats such as ransomware attacks, phishing campaigns, insider threats, and unauthorized access to sensitive patient information, resulting in financial losses, operational disruptions, and risks to patient safety.

This study proposes an Artificial Intelligence (AI)-driven cybersecurity framework designed to strengthen the security and resilience of the U.S. healthcare ecosystem. The framework integrates machine learning algorithms, real-time anomaly detection, behavioral analytics, predictive threat intelligence, and automated incident response mechanisms to proactively identify and mitigate cyber threats. Additionally, the proposed model incorporates Zero Trust Security Architecture and Explainable Artificial Intelligence (XAI) to improve transparency, accountability, and regulatory compliance.

The research examines how AI-powered cybersecurity solutions can enhance healthcare infrastructure protection, improve threat detection accuracy, reduce response times, and safeguard critical medical systems against evolving cyberattacks. Furthermore, the study discusses implementation challenges, including data privacy concerns, adversarial AI risks, regulatory compliance requirements, and ethical considerations associated with automated decision-making.

The findings suggest that the strategic integration of AI and cybersecurity can significantly improve healthcare security posture, strengthen patient data protection, and support the development of a resilient, secure, and technology-driven healthcare system in the United States. The proposed framework provides practical insights for healthcare administrators, cybersecurity professionals, policymakers, and researchers seeking to address emerging cyber risks in modern healthcare environments.

Keywords: Artificial Intelligence, Cybersecurity, Healthcare Security, Electronic Health Records, HIPAA Compliance, Machine Learning, Threat Intelligence, Patient Data Protection, Zero Trust Architecture, U.S. Healthcare.

GENERATIVE AI AND DRUG DISCOVERY IN DEVELOPING NATIONS: OPPORTUNITIES VS PRACTICAL BARRIERS

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Abstract

In the process improving the time it takes to generate molecules, anticipate targets, and repurpose drugs from years to months, generative artificial intelligence has revolutionized early-stage drug research. Adoption in developing countries is still inconsistent, despite major pharmaceutical companies reporting that AI-designed candidates are starting clinical trials. The dual panorama of opportunity and limitation is examined in this paper. Opportunities include the possibility of addressing neglected tropical diseases with less economic incentive, lower R&D expenditures, and access to open-source models like AlphaFold. Practical obstacles still exist, though, including a dearth of high-quality biological information, a lack of computer infrastructure, a scarcity of pharmaceutical scientists with AI training, and ambiguous regulatory pathways for compounds created by AI. We examine national initiatives, public-private partnerships, and limitations in capacity-building using Brazil, Kenya, and India as case studies. According to research, generative AI can democratize drug discovery, but achieving its advantages would need funding for data infrastructure, curricular change, and South-South partnerships. A methodology for fair AI inclusion in pharmaceutical R&D for environments with restricted resources is presented in the study.

Keywords: AI design, Clinical trial, Pharmaceutical R& D, Biological information

MULTISCALE IMAGE SEGMENTATION USING WATERSHED METHOD FOR MEDICAL IMAGES

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ABSTRACT

Medical image segmentation plays a crucial role in computer-aided diagnosis, treatment planning, and disease monitoring. However, accurate segmentation remains challenging due to noise, intensity in homogeneity, weak boundaries, and the complex anatomical structures present in medical images. This paper presents a multiscale image segmentation approach based on the watershed transformation for the effective extraction of regions of interest from medical images. The proposed method first applies image preprocessing techniques to reduce noise and enhance image quality. A multiscale representation is then generated using Gaussian filtering at different scales to capture both fine and coarse image details. Gradient magnitude images are computed at each scale, and marker-controlled watershed segmentation is performed to reduce over-segmentation. The segmentation results obtained from multiple scales are subsequently fused to produce a final, refined segmentation map. Experimental evaluation on various medical imaging modalities, including MRI and CT images, demonstrates that the proposed approach effectively preserves anatomical boundaries while minimizing noise-induced artifacts. Compared with conventional single-scale watershed segmentation, the multiscale framework achieves improved segmentation accuracy, robustness and boundary localization. The results indicate that the proposed method is a reliable and efficient tool for medical image analysis and can support clinical decision-making by providing accurate delineation of tissues, organs and pathological regions.

Keywords: Medical Image Segmentation, Multiscale Analysis, Watershed Transformation, Marker-Controlled Watershed, MRI, CT Imaging, Image Processing, Computer-Aided Diagnosis.

EARLY CANCER DETECTION AND CLASSIFICATION THROUGH DEEP LEARNING-BASED MULTI-MODAL DATA ANALYSIS

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ABSTRACT

Cancer remains a leading cause of global mortality, where early and precise diagnosis significantly dictates patient survival rates. Traditional diagnostic methods often depend on single-modality data, which may limit overall predictive accuracy. This study proposes a robust multi-modal deep learning framework planned to integrate heterogeneous medical data sources—specifically histopathology images, genomic expression profiles, and clinical patient records—for enhanced cancer detection and classification. The suggested architecture leverages Convolutional Neural Networks (CNNs) alongside Vision Transformers (ViTs) for high-dimensional spatial feature extraction from tissue biopsies, while Deep Neural Networks (DNNs) process tabular clinical and genomic data. By fusing these diverse data modalities, the model aims to minimize false-positive and false-negative rates compared to single-modality approaches. Furthermore, the integration of Layer-wise Relevance Propagation (LRP) ensures an Explainable AI (XAI) framework, offering interpretable clinical decision support. Preliminary conceptual evaluation suggests that this unified multi-modal strategy substantially improves classification metrics, providing a scalable, reliable tool to assist oncologists in rapid therapeutic decision-making.

Keywords: Multi-Modal Deep Learning, Cancer Diagnostics, Vision Transformers, Genomic Data Fusion, Explainable AI

ILF NEUROFEEDBACK: AN INNOVATIVE APPROACH TO BRAIN-BASED TREATMENT

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ABSTRACT

Background: Infra-Low Frequency (ILF) Neurofeedback is a non-invasive, EEG-based brain training modality targeting cortical oscillations below 0.1 Hz — a frequency domain associated with global brain regulation, thalamo-cortical connectivity, and autonomic nervous system function. Developed within the Othmer Method framework, ILF neurofeedback operates at the foundational regulatory layer of cortical activity, distinguishing it from conventional symptom-focused protocols. No comprehensive review has previously synthesized the evidence base across neurological and psychiatric indications within a unified regulatory framework.

Methods: A review of peer-reviewed literature was conducted using PubMed and Scopus (search terms: neurofeedback, ILF neurofeedback, EEG biofeedback; 2000–2024). Studies reporting quantitative clinical outcomes across diagnosed conditions were included, prioritizing randomized controlled trials and meta-analyses. Data were extracted on study design, population, sample size, and reported efficacy. Neurophysiological mechanisms were reviewed through convergent EEG, fMRI, and autonomic function literature.

Results: Published neurofeedback research grew sixteen-fold between 2000 and 2024 (210 to 3,400 publications/year). Across seven conditions reviewed, efficacy ranged from 50% to 76% symptom reduction. Strongest evidence was found for ADHD (Level 4 AAP classification, comparable to pharmacotherapy), with significant outcomes also documented for PTSD, depression, epilepsy, ASD, and TBI. ILF protocols showed particular advantages in treatment-resistant cases and conditions involving autonomic dysregulation.

Conclusions: ILF neurofeedback represents a clinically meaningful paradigm shift from symptom suppression to fundamental brain self-regulation, with a favorable safety profile relative to pharmacological alternatives. Limitations include protocol heterogeneity and small sample sizes in non-ADHD indications. Future priorities include large-scale RCTs, AI-assisted optimization, remote delivery validation, and predictive biomarker research.

Keywords: ILF neurofeedback, infra-low frequency, EEG biofeedback, brain self-regulation, neuroplasticity, Othmer method

THE NATURE OF DREAMING: PHYSIOLOGICAL MECHANISMS OF VISUAL HALLUCINATIONS

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Abstract

Traditionally associated with REM sleep, dreaming is now recognized as a complex process occurring in both REM and NREM stages. This phenomenon is deeply linked to neuroplasticity and the mesocortical-mesolimbic dopaminergic system. Research in Parkinson's disease reveals a negative correlation between dopamine levels and dream bizarreness, suggesting that dopamine imbalances—as seen in schizophrenia—underlie dopaminergic hallucinations.

Anatomical structures play distinct roles: hippocampal volume correlates with emotional intensity, while the left amygdala influences cognitive complexity. EEG data confirms that sleep activates the same neural networks used for daytime information processing. Oneiric processes rely on two primary systems: the posterior network, responsible for color and motion, and the anterior system(medial and ventromedial prefrontal cortex). Bilateral damage to the latter results in anoneria (Charcot-Wilbrand syndrome), whereas medial prefrontal lesions can cause anoneirognosis, or excessive dreaming. This neurobiological link is structurally and clinically confirmed by neuroimaging data from the Department of Neurology and Laboratory of Neuroscience, IRCCS Istituto Auxologico Italiano.

While dreaming serves as an adaptive simulation of reality, the boundary between sleep and hallucination depends on the direction of neural signaling. Unlike the "bottom-up" sensory processing of wakefulness, dreaming employs a "top-down" mechanism, directing signals from higher memory centers like the hippocampus to the primary visual cortex.

Hallucinations dominate when this internal generation is activated during wakefulness. Specifically, PGO waves can trigger endogenous images that are perceived as objective reality, explaining vivid hallucinations even in cases of vision loss. Ultimately, dreams and hallucinations share a neurobiological foundation rooted in cortical activation and neurotransmitter regulation.

Keywords: neurobiology of dreaming, visual hallucinations, dopaminergic system, top-down processing, neuroplasticity, PGO waves, hippocampus, amygdala, REM sleep, NREM sleep.

A STAGE-STRUCTURED COMPARTMENTAL MODEL FOR HIV/AIDS TRANSMİSSİON AND CONTROL

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Abstract:

Despite the availability of medical advancements, HIV/AIDS remains a critical public health crisis in low- and middle-income nations, exacerbated by limited healthcare access, delayed diagnoses, and socioeconomic barriers. This study introduces a novel deterministic mathematical model to analyze HIV transmission dynamics under the concurrent influence of preventive measures and antiretroviral therapy (ART). We establish the model's mathematical validity by proving the positivity and boundedness of its solutions. Utilizing the next-generation matrix method, we derive the basic reproduction number (R_0) and rigorously evaluate the local and global stability of the system's equilibria, applying the Castillo-Chavez method to confirm the global asymptotic stability of the disease-free equilibrium. Furthermore, bifurcation analysis reveals a forward bifurcation at $R_0 = 1$, highlighting this threshold as the definitive target for eradication. A sensitivity analysis pinpointed the parameters most critical to disease spread. Finally, applying Pontryagin's Maximum Principle, we develop optimal time-dependent control strategies to balance infection suppression with intervention costs, backed by a cost-effectiveness analysis to guide resource allocation. Numerical simulations are presented to validate our theoretical insights and demonstrate the efficacy of integrated intervention strategies.

Key Words: Non-linear dynamics, HIV/AIDS, Reproduction number, Sensitivity analysis, Optimal control, Dynamical behavior.

MINIMAL GENERATING SET EXCHANGE PHENOMENA IN FINITE LEFT ALMOST GROUPS

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Abstract

Generating sets play a central role in understanding the structure of algebraic systems. In finite group theory, recent attention has been given to the minimal generating set exchange property, which formalizes when minimal generating sets admit controlled replacement behavior. This property has been shown to impose strong structural restrictions on finite groups.Left Almost Groups (LA-groups) form an important class of non-associative algebraic structures characterized by the left invertive law and the existence of a left identity and left inverses. Despite their algebraic richness, the theory of generating sets in finite LA-groups has not been systematically developed.This thesis investigates minimal generating set exchange phenomena in finite Left Almost Groups. We formulate an exchange property adapted to the non-associative setting, analyze structural obstructions arising from the left invertive law, and examine the role of maximal sub-LA-groups in generation theory. Explicit examples and counterexamples are constructed to illustrate when exchange properties hold or fail. We also introduce weakened forms of exchange suitable for non-associative contexts.The results provide new insight into generation theory beyond associative algebra and establish a foundation for further study of generating sets in LA-groups and related structures.

Keywords: Generating set, Minimal Generating set, Exchange property, Exchange Phenomena, Left Almost groups, Left invertive law, Maximal sub-LA-groups, Counterexamples etc.

MULTISCALE WATERSHED-BASED IMAGE SEGMENTATION FOR ACCURATE MEDICAL IMAGE ANALYSIS

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Abstract

Medical image segmentation plays a crucial role in computer-aided diagnosis, treatment planning, and disease monitoring. However, accurate segmentation remains challenging due to noise, intensity in homogeneity, weak boundaries, and the complex anatomical structures present in medical images. This paper presents a multiscale image segmentation approach based on the watershed transformation for the effective extraction of regions of interest from medical images. The proposed method first applies image preprocessing techniques to reduce noise and enhance image quality. A multiscale representation is then generated using Gaussian filtering at different scales to capture both fine and coarse image details. Gradient magnitude images are computed at each scale, and marker-controlled watershed segmentation is performed to reduce over-segmentation. The segmentation results obtained from multiple scales are subsequently fused to produce a final, refined segmentation map. Experimental evaluation on various medical imaging modalities, including MRI and CT images, demonstrates that the proposed approach effectively preserves anatomical boundaries while minimizing noise-induced artifacts. Compared with conventional single-scale watershed segmentation, the multiscale framework achieves improved segmentation accuracy, robustness and boundary localization. The results indicate that the proposed method is a reliable and efficient tool for medical image analysis and can support clinical decision-making by providing accurate delineation of tissues, organs and pathological regions. Quantitative analysis shows that the proposed method achieves a Dice Similarity Coefficient (DSC) of **94.2%**, Jaccard Index of **89.5%**, Precision of **93.8%**, Recall of **94.7%**, and segmentation Accuracy of **96.1%**, outperforming conventional single-scale watershed segmentation.

Keywords: Medical Image Segmentation, Multiscale Analysis, Watershed Transformation, Marker-Controlled Watershed, MRI, CT Imaging, Image Processing, Computer-Aided Diagnosi

HUNTİNGTON KORESİ VE YÜKSEK RİSKLİ PULMONER HASTADA REJYONEL ANESTEZİ ALTINDA GELİŞEN ÇİMENTO İMPLANTASYONU SENDROMU: OLGU SUNUMU

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Özet

Çimento İmplantasyon Sendromu (ÇİS), ortopedik girişimler sırasında kemik çimentosu (polimetilmetakrilat, PMMA) uygulanması sonrasında gelişen ve kardiyovasküler kollaps ile karakterize nadir ancak yaşamı tehdit eden bir komplikasyondur. Pulmoner rezervi kısıtlı, nörolojik hastalığa eşlik eden komorbiditeleri bulunan yaşlı hastalarda bu tablo özellikle yönetimi güç bir klinik tablo oluşturmaktadır. Bu olgu sunumunda; Huntington koresi, ağır kronik obstrüktif akciğer hastalığı (KOAH) ve hipertansiyonu olan, rejyonel anestezi altında omuz artroskopisi geçiren ve intraoperatif dönemde ani kardiyovasküler kollaps ile sonuçlanan bir hastanın yönetimi sunulmaktadır.

Altmış sekiz yaşında erkek hasta, omuz artroskopisi amacıyla ameliyathaneye kabul edildi. Hastanın özgeçmişinde hipertansiyon, ev tipi oksijen konsantratörü gerektiren ileri evre KOAH ve Huntington koresi tanıları mevcuttu. Preoperatif göğüs hastalıkları konsültasyonunda yüksek pulmoner risk bildirilmişti. Hasta duloksetin ve gabapentin kullanmaktaydı.

Preoperatif değerlendirmede kan basıncı 180/90 mmHg, kalp tepe atımı 80/dk ve periferik oksijen satürasyonu %92 idi. Elektrokardiyografide amfizematöz görünüm ve sağ dal bloğu saptandı. Ekokardiyografide ejeksiyon fraksiyonu %50-55, sol ventrikül çapları normal sınırlarda, hafif-orta triküspit yetmezliği (PAB: 25 mmHg) ve hafif mitral yetmezliği izlendi. Huntington koresi nedeniyle hastada belirgin istemsiz ve düzensiz hareketler mevcuttu.

Yüksek pulmoner risk nedeniyle genel anesteziden kaçınılarak rejyonel anestezi planlandı. Preoperatif dönemde interscalen brakiyal pleksus bloğu ve yüzeyel servikal blok başarıyla uygulandı; cerrahi bölgede tam anestezi sağlandı. İstemsiz hareketlerin kontrolü amacıyla deksmedetomidin infüzyonu başlandı. 1 mg midazolam ve 25 mcg fentanil ile sedasyon desteği sağlanan hasta şezlong pozisyonuna alınarak cerrahiye teslim edildi.

İntraoperatif yaklaşık 60. dakikada cerrahi ekip tarafından kemik çimentosu uygulandığı bildirildi. Çimento implantasyonunun ardından kısa süre içinde ani hipotansiyon (SAB: 40/20 mmHg) ve bradikardi (KTA: 35/dk) gelişti. Deksmedetomidin infüzyonu durduruldu; 10 mg efedrin ve 1 mg atropin uygulandı, ancak yanıt alınamadı. Glasgow Koma Skalası'nda gerileme üzerine cerrahi işlem durduruldu. Hasta acil orotrakeal entübe edildi ve 1 mg adrenalin uygulandı; ardından sistolik arter basıncı ve nabızda artış gözlendi. Noradrenalin infüzyonu ve steroid tedavisi eklendi. Hemodinami inotrop desteği ile stabilize edilen hasta yoğun bakım ünitesine transfer edildi.

Çimento İmplantasyon Sendromu, artroplasti cerrahisi sırasında polimetilmetakrilat (PMMA) kemik çimentosunun uygulanmasıyla gelişen, hipoksemi, hipotansiyon, kardiyak aritmi, artmış pulmoner vasküler direnç ve nadir olgularda kardiyak arrest ile karakterize potansiyel olarak hayatı tehdit eden klinik bir tablodur. İleri yaş, yüksek ASA sınıfı, KOAH, hipertansiyon ve osteoporoz önemli risk faktörleri olarak tanımlanmıştır. Özellikle pulmoner hipertansiyonu, düşük kardiyak rezervi ve ileri KOAH gibi komorbiditeleri bulunan olgularda fatal seyredebilmektedir. Olgumuzda gözlenen ani kardiyovasküler kollapsın temel mekanizması bu patofizyoloji ile uyumludur.

Hastanın nörolojik profili nedeniyle rejyonel anestezi yönetimi seçilmiştir. Huntington koresinde görülen istemsiz hareketler hem pozisyon güvenliğini hem de intraoperatif cerrahiyi güçleştirmekte; deksmedetomidin gibi alfa-2 agonistlerin tercih edilmesini zorunlu kılmaktadır. Ancak bu ajanlara bağlı

bradikardi ve hipotansiyon, ÇİS'in hemodinamik etkilerini derinleştirebilir; bu sinerjik etkileşime dikkat edilmesi gerekmektedir.

Genel anestezi yerine interscalen blok tercih edilmesi, pulmoner rezervi son derece kısıtlı bu hastada entübasyona bağlı komplikasyonlardan korunmayı sağlamış; bununla birlikte kardiyovasküler kollaps gelişince acil entübasyona zorunlu kalınmıştır. Bu durum, yüksek riskli olgularda zor hava yoluna hazırlıklı olunması ve çimento uygulaması öncesinde hemodinamik izlemin yoğunlaştırılması gerektiğini vurgulamaktadır.

Bu olgu; Huntington koresi, ileri KOAH ve kardiyak komorbiditelerin bir arada bulunduğu yüksek riskli bir hastada çimento implantasyon sendromunun nadir ve dramatik bir sunumunu ortaya koymaktadır. Ortopedik girişimlerde kemik çimentosu kullanılması planlandığında, tüm ekibin ÇİS farkındalığına sahip olması, çimento öncesinde hemodinamik stabilizasyonun güçlendirilmesi ve vazoaktif ajan hazırlığının eksiksiz yapılması yaşam kurtarıcı olabilir. Kompleks komorbiditeli hastalarda multidisipliner preoperatif planlamanın önemi bu vakada bir kez daha belirginleşmektedir.

Anahtar Kelimeler: Çimento implantasyon sendromu, Huntington koresi, rejyonel anestezi, interscalen blok, omuz artroskopisi, KOAH, yüksek riskli anestezi

BONE CEMENT IMPLANTATION SYNDROME UNDER REGIONAL ANESTHESIA IN A HIGH-RISK PULMONARY PATIENT WITH HUNTINGTON'S CHOREA: A CASE REPORT

Abstract

Bone Cement Implantation Syndrome (BCIS) is a rare but life-threatening complication characterized by cardiovascular collapse following the application of bone cement (polymethylmethacrylate, PMMA) during orthopedic procedures. This condition poses a particularly challenging clinical scenario in elderly patients with limited pulmonary reserve and neurological comorbidities. We present the perioperative management of a 68-year-old male patient with Huntington's chorea, severe chronic obstructive pulmonary disease (COPD), and hypertension, who underwent shoulder arthroscopy under regional anesthesia and developed intraoperative acute cardiovascular collapse.

The patient was admitted to the operating room for shoulder arthroscopy. His medical history was significant for hypertension, advanced-stage COPD requiring home oxygen supplementation, and Huntington's chorea. Preoperative pulmonary consultation documented high pulmonary risk. His current medications included duloxetine and gabapentin.

Preoperative assessment revealed a blood pressure of 180/90 mmHg, heart rate of 80 bpm, and peripheral oxygen saturation of 92%. Electrocardiography demonstrated an emphysematous pattern and right bundle branch block. Echocardiography revealed an ejection fraction of 50–55%, normal left ventricular dimensions, mild-to-moderate tricuspid regurgitation (estimated pulmonary artery pressure: 25 mmHg), and mild mitral regurgitation. The patient exhibited prominent involuntary and irregular movements secondary to Huntington's chorea.

Given the high pulmonary risk, regional anesthesia was planned to avoid general anesthesia. Preoperatively, an interscalene brachial plexus block and superficial cervical plexus block were successfully performed, achieving complete anesthesia of the surgical field. A dexmedetomidine infusion was initiated to manage involuntary movements. Sedation was supplemented with 1 mg midazolam and 25 mcg fentanyl, and the patient was positioned in the beach chair position for surgical handover.

Approximately 60 minutes into the procedure, the surgical team reported the application of bone cement. Shortly thereafter, acute hypotension (systolic blood pressure: 40/20 mmHg) and bradycardia (heart rate: 35 bpm) developed. The dexmedetomidine infusion was discontinued, and 10 mg ephedrine and 1 mg atropine were administered; however, no hemodynamic response was observed. Due to a decline in

the Glasgow Coma Scale score, the surgical procedure was halted. Emergency orotracheal intubation was performed, and 1 mg of epinephrine was administered, followed by an improvement in systolic arterial pressure and pulse rate. Norepinephrine infusion and corticosteroid therapy were added. Hemodynamic stabilization was achieved with inotropic support, and the patient was transferred to the intensive care unit.

Bone Cement Implantation Syndrome is a potentially life-threatening clinical entity that develops following the application of PMMA bone cement during arthroplasty surgery and is characterized by hypoxemia, hypotension, cardiac arrhythmias, increased pulmonary vascular resistance, and, in rare cases, cardiac arrest. Advanced age, high ASA classification, COPD, hypertension, and osteoporosis have been identified as significant risk factors. The syndrome may follow a fatal course particularly in patients with pulmonary hypertension, reduced cardiac reserve, and advanced COPD. The acute cardiovascular collapse observed in our patient is consistent with this pathophysiological mechanism.

Regional anesthesia was selected as the anesthetic technique in view of the patient's neurological profile. The involuntary movements associated with Huntington's chorea compromise both patient positioning and intraoperative surgical safety, necessitating the use of alpha-2 agonists such as dexmedetomidine. However, bradycardia and hypotension attributable to these agents may potentiate the hemodynamic effects of BCIS; this synergistic interaction warrants careful attention.

The preference for an interscalene block over general anesthesia served to minimize intubation-related complications in a patient with severely compromised pulmonary reserve; nevertheless, emergency endotracheal intubation became unavoidable following the onset of cardiovascular collapse. This case underscores the necessity of preparedness for a difficult airway in high-risk patients and the importance of intensifying hemodynamic monitoring prior to cement application.

This case represents a rare and dramatic presentation of bone cement implantation syndrome in a high-risk patient with coexisting Huntington's chorea, advanced COPD, and cardiac comorbidities. When the use of bone cement is anticipated in orthopedic procedures, universal team awareness of BCIS, hemodynamic optimization prior to cement application, and comprehensive preparation of vasoactive agents may be lifesaving. This case further highlights the critical importance of multidisciplinary preoperative planning in patients with complex comorbidities.

Keywords: Bone cement implantation syndrome, Huntington's chorea, regional anesthesia, interscalene block, shoulder arthroscopy, COPD, high-risk anesthesia

ARONYA (ARONİA MELANOCARPA) SUYU TÜKETİMİNE BAĞLI İZOLE PT-INR YÜKSEKLİĞİ: AKCİĞER REZEKSİYONU YAPILAN BİR OLGUDA PERİOPERATİF YÖNETİM

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Özet

Giriş: Aronia melanocarpa (aronya/çoban üzümü), antosiyanin, prosiyanidin ve diğer polifenolik bileşiklerden zengin içeriği nedeniyle son yıllarda giderek daha fazla tüketilen bir fonksiyonel gıdadır. Antioksidan, antiinflamatuvar ve kardiyovasküler sistem üzerine olumlu etkileri nedeniyle yaygın olarak tercih edilmektedir. Bununla birlikte, aronya polifenollerinin hemostaz ve koagülasyon sistemi üzerindeki etkileri tam olarak aydınlatılamamıştır. İn vitro çalışmalarda aronya ekstraktlarının plazma pıhtılaşma süresini uzattığı, fibrin polimerizasyonunun maksimal hızını azalttığı ve trombin ile plazminin amidolitik aktivitelerini inhibe ettiği gösterilmiştir. Buna karşın, aronya tüketimi ile ilişkili klinik koagülasyon bozukluğu veya perioperatif kanama riski bildirimleri son derece sınırlıdır.

Olgu: Sol üst lob akciğer tümörü nedeniyle mediastinoskopi ve torakotomi ile rezeksiyon planlanan 57 yaşında erkek hasta preoperatif değerlendirmeye alındı. Laboratuvar incelemelerinde izole protrombin zamanı uzaması ve INR yüksekliği saptandı (PT: 26,6 sn, INR: 2,7). Trombosit sayısı, hemoglobin düzeyi, aktive parsiyel tromboplastin zamanı ve biyokimyasal parametreler normal sınırlardaydı. Hastanın antikoagülan veya antiagregan ilaç kullanımı, karaciğer hastalığı, koagülopati öyküsü ya da yakın dönemde kemoterapi alma öyküsü bulunmuyordu. Ayrıntılı anamnezde son 15–20 gündür düzenli olarak taze sıkılmış aronya suyu tükettiği öğrenildi. Cerrahi öncesinde uygulanan taze donmuş plazma (TDP) replasmanı sonrasında INR değeri 1,01'e geriledi ve planlanan operasyon gerçekleştirildi. Ancak hasta postoperatif yoğun bakım ünitesine kabul edildiğinde INR değerinin yeniden yükseldiği (1,96) görüldü. Ek TDP tedavisi sonrasında INR normale döndü ve izleyen günlerde 0,9–1,0 aralığında stabil seyretti. Aronya tüketiminin kesilmesiyle birlikte koagülasyon parametrelerinde tekrar bozulma gözlenmedi.

Sonuç: Bu olgu, açıklanamayan izole INR yüksekliği bulunan hastalarda ayrıntılı beslenme alışkanlıkları ve bitkisel ürün kullanım öyküsünün sorgulanmasının önemini göstermektedir. Aronya polifenollerinin deneysel çalışmalarda bildirilen antikoagülan etkileri, olgumuzdaki laboratuvar bulgularını açıklayabilecek potansiyel bir mekanizma sunmaktadır. Perioperatif dönemde doğal ve zararsız olarak değerlendirilen fonksiyonel gıdaların koagülasyon üzerine klinik açıdan anlamlı etkiler gösterebileceği akılda tutulmalıdır. Elektif cerrahi planlanan hastalarda bu tür ürünlerin kullanımı sorgulanmalı ve gerekli durumlarda operasyon öncesinde kesilmesi değerlendirilmelidir. Bilgimiz dahilinde bu olgu, aronya suyu tüketimi ile ilişkili perioperatif izole INR yüksekliğini tanımlayan ilk klinik bildirimlerden biridir.

Anahtar Kelimeler: Aronia melanocarpa; çoban üzümü; PT-INR; koagülopati; bitkisel ürün etkileşimi; perioperatif yönetim; polifenol.

ISOLATED PT-INR ELEVATION DUE TO ARONIA (ARONIA MELANOCARPA) JUICE CONSUMPTION: PERIOPERATIVE MANAGEMENT IN A PATIENT UNDERGOING LUNG RESECTION

Abstract

Introduction: *Aronia melanocarpa* (black chokeberry) is a functional food that has gained increasing popularity in recent years due to its high content of anthocyanins, procyanidins, and other polyphenolic compounds. It is widely consumed because of its reported antioxidant, anti-inflammatory, and cardioprotective properties. However, its effects on hemostasis and the coagulation system have not been fully elucidated. In vitro studies have demonstrated that aronia polyphenols prolong plasma clotting time, reduce the maximal rate of fibrin polymerization, and inhibit the amidolytic activities of thrombin and plasmin. Despite these findings, clinical reports describing coagulation abnormalities or perioperative bleeding risk associated with aronia consumption remain extremely limited.

Case Presentation: A 57-year-old male patient with a left upper lobe lung tumor was scheduled for mediastinoscopy followed by thoracotomy and surgical resection. Preoperative laboratory evaluation revealed isolated prolongation of prothrombin time and an elevated international normalized ratio (PT: 26.6 s, INR: 2.7). Platelet count, hemoglobin level, activated partial thromboplastin time, and routine biochemical parameters were within normal limits. The patient had no history of anticoagulant or antiplatelet drug use, liver disease, inherited or acquired coagulopathy, or recent chemotherapy. Detailed history taking revealed regular consumption of freshly squeezed aronia juice during the preceding 15–20 days. Following administration of fresh frozen plasma (FFP), the INR decreased to 1.01, allowing the planned surgical procedure to be performed. However, upon admission to the intensive care unit in the immediate postoperative period, the INR was found to be elevated again (1.96). Additional FFP administration resulted in normalization of coagulation parameters, and subsequent INR measurements remained stable within the normal range (approximately 0.9–1.0). No further coagulation abnormalities were observed after discontinuation of aronia juice consumption.

Conclusion: This case highlights the importance of obtaining a detailed dietary and herbal supplement history in patients presenting with otherwise unexplained isolated INR elevation. The experimentally demonstrated anticoagulant properties of aronia polyphenols provide a plausible mechanism for the laboratory findings observed in our patient. Functional foods commonly perceived as natural and harmless may exert clinically significant effects on coagulation and potentially increase perioperative bleeding risk. Therefore, the use of such products should be routinely assessed before elective surgical procedures, and discontinuation should be considered when appropriate. To the best of our knowledge, this case represents one of the first clinical reports describing perioperative isolated INR elevation potentially associated with aronia juice consumption.

Keywords: Aronia melanocarpa; black chokeberry; PT-INR; coagulopathy; herbal product interaction; perioperative management; polyphenols.

YAYGIN DEĞİŞKEN İMMÜN YETMEZLİK, DEKSTROKARDİ VE GEÇİRİLMİŞ SAĞ PNÖMONEKTOMİ ÖYKÜSÜ OLAN BİR HASTADA TAM İMPLANTE EDİLEBİLİR VENÖZ ERİŞİM CİHAZININ YERLEŞTİRİLMESİ: ZOR BİR OLGU

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Özet

Yaygın değişken immün yetmezlik (CVID), semptomatik primer immün yetmezlikler arasında en sık karşılaşılanlardan biridir ve bozulmuş antikor üretimi ile tekrarlayan sinopulmoner enfeksiyonlarla karakterizedir. Yaşam boyu immünglobulin replasman tedavisi yönetimin temelini oluşturur ve güvenilir bir venöz erişim gerektirir. Tam implante edilebilir venöz erişim cihazları (TİVEC veya "port") bu erişimi sağlar; ancak kateter ilişkili kan dolaşımı enfeksiyonu (KİKDE) ve mekanik yetmezlik gibi komplikasyonlar taşır. Bu girişimler, normal torasik ve santral venöz anatominin konjenital kardiyak malpozisyon ve geçirilmiş torasik cerrahi nedeniyle değiştiği durumlarda belirgin şekilde zorlaşır. Burada, bakteriyemiyi düşündüren ve infüzyon sonrası tekrarlayan ateş nedeniyle port kateter değişimi gereken; CVID, dekstrokardi ve sağ pnömonektomi öyküsü bulunan bir hastayı sunuyoruz.

Olgu Sunumu: 40 yaşında bir kadın hasta (vücut ağırlığı 45 kg, boy 160 cm; vücut kitle indeksi 17,6 kg/m^2), yedi aylıktan itibaren tekrarlayan enfeksiyonlar geçirmiş ve dört yaşında CVID tanısı almıştı. 2010 yılından bu yana üç haftada bir intravenöz immünglobulin (IVIG) almaktadır. Öyküsünde, dekstrokardi (situs solitus) ve 2006 yılında sağ pnömonektomi gerektiren ağır bronşektazi dikkat çekmekte idi. Dekstrokardi ve bronşektazi birlikteliği başlangıçta Kartagener sendromu düşünülse de primer siliyer diskinezi dışlandı ve bronşektazi, hastanın immün yetmezliğine bağlı tekrarlayan enfeksiyonlara bağlanıldı. Mevcut başvurudan beş yıl önce, immünglobulin tedavisi için sağ taraflı bir port kateter yerleştirilmişti.

Takip sürecinde, altı haftalık bir dönem boyunca IVIG uygulamasının ardından tekrarlayan ateş görülmekte idi ve bu durum kateter ilişkili bakteriyemi şüphesi oluşturdu. Tekrarlayan infüzyon sonrası ateş ve kateter kaynaklı bir odak şüphesi ile port değişimi gerçekleştirildi. Bulunan sağ taraflı kateter çıkarıldı ve sedoanaljezi altında, ultrasonografi eşliğinde sol internal juguler venden yeni bir cihaz yerleştirildi.

Girişim, dekstrokardi ve sağ pnömonektomi sonrasında bozulmuş torasik anatomi nedeniyle teknik açıdan zorluydu. Kateter ucunun uygun konumu floroskopi ile doğrulandı. Hasta işlemi iyi tolere etti ve immünglobulin tedavisine yeni cihaz aracılığıyla sorunsuz biçimde devam edildi.

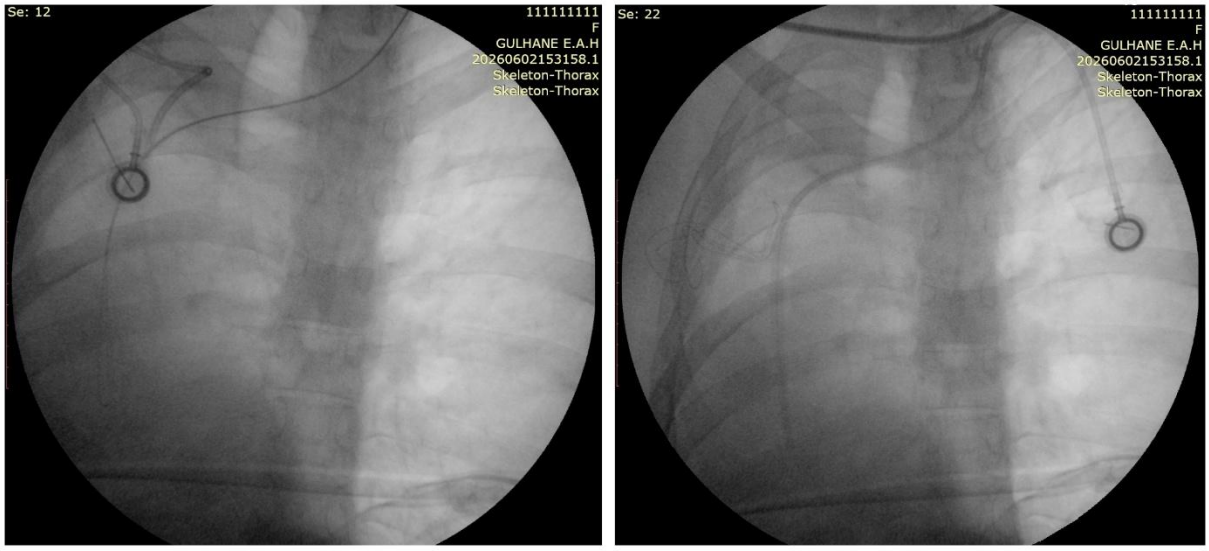
Tartışma: Bu olgu, hem yaşam boyu intravenöz tedaviye bağımlı olan hem de karmaşık konjenital ve cerrahi sonrası anatomiye sahip bir hastada santral venöz erişimin korunmasındaki güçlüğü ortaya koymaktadır. IVIG'e bağımlı CVID'de venöz erişim hayatidi. Kateter ilişkili enfeksiyonlar hem hastanın acil güvenliğini hem de erişim bölgelerinin uzun vadeli kullanılabilirliğini tehdit eder.

Bu hastada dekstrokardi izole nitelikteydi ve situs solitus eşlik ettiğinden sistemik venöz dönüş normaldi. Bununla birlikte sağ pnömonektomi mediastinal anatomik işaretleri bozduğundan, güvenli kanülasyon ve kateter ucu konumunun doğrulanması açısından görüntüleme yerleştirme esastı; bu da malpozisyona bağlı tromboz veya aritmi riskini azaltmaktadır. Sol internal juguler ven, sağ taraflı port kateteri enfeksiyonu şüphesi nedeniyle tercih edildi.

Sonuç: CVID, dekstrokardi ve geçirilmiş pnömonektomisi olan bir hastada port kateterin değiştirilmesi mümkün olmakla birlikte teknik açıdan zordur. Görüntüleme eşliğinde uygulanan teknik, anormal anatominin öngörülmesi ve venöz erişim bölgelerinin titizlikle korunması, bu kırılgan hasta grubunda kesintisiz immünglobulin tedavisinin sürdürülmesinde belirleyicidir.

Anahtar Kelimeler: Yaygın değişken immün yetmezlik; Tam implante edilebilir venöz erişim cihazı; Dekstrokardi; Pnömonektomi; Kateter ilişkili kan dolaşımı enfeksiyonu.

Figür 1: Intraoperatif Floroskopik Görüntüler



Situs solitus dekstrokardisi ve geçirilmiş sağ pnömonektomisi olan hastada, tam implante edilebilir venöz erişim cihazının (port) değişimi sırasında elde edilen intraoperatif floroskopik görüntüler. Konjenital kardiyak malpozisyon ve pnömonektomi sonrası hacim kaybının birlikte etkisiyle kalp ve büyük damarlar belirgin biçimde sağ hemitoraksa yer değiştirmiştir. Radyoopak port haznesi ve kateterin damar içi seyri görülmektedir; bu bozulmuş anatomide karina gibi alışılmış işaretler güvenilir olmadığından kateter ucu konumu floroskopi ile doğrulanmıştır.

IMPLANTATION OF A TOTALLY IMPLANTABLE VENOUS ACCESS DEVICE IN A PATIENT WITH COMMON VARIABLE IMMUNODEFICIENCY, DEXTROCARDIA, AND PREVIOUS RIGHT PNEUMONECTOMY: A CHALLENGING CASE

Abstract

Introduction: Common variable immunodeficiency (CVID) is one of the most frequently encountered symptomatic primary immunodeficiencies and is characterized by defective antibody production and recurrent sinopulmonary infections. Lifelong immunoglobulin replacement therapy is the mainstay of management and requires reliable venous access. Totally implantable venous access devices (TIVADs, or “ports”) provide such access but carry complications, including catheter-related bloodstream infection (CRBSI) and mechanical failure. These procedures become considerably more demanding when normal thoracic and central venous anatomy is altered by congenital cardiac malposition and previous thoracic surgery. We report a patient with CVID, dextrocardia, and prior right pneumonectomy who required port catheter replacement for recurrent post-infusion fevers suggestive of bacteremia.

Case Report: A 40-year-old woman (body weight 45 kg, height 160 cm; body mass index 17.6 kg/m²) had suffered recurrent infections from the age of seven months and was diagnosed with CVID at four years of age. Since 2010 she has received intravenous immunoglobulin (IVIG) every three weeks. Her history was notable for dextrocardia with situs solitus and for severe bronchiectasis that had necessitated pneumonectomy with complete removal of the right lung in 2006. Although the combination of dextrocardia and bronchiectasis initially raised the possibility of Kartagener syndrome, primary ciliary dyskinesia was excluded, and the bronchiectasis was attributed to recurrent infections secondary to her

immunodeficiency. Five years before the current presentation, a right-sided TIVAD had been implanted for immunoglobulin therapy.

During follow-up she developed repeated episodes of fever following IVIG administration over a six-week period, raising strong suspicion of catheter-related bacteraemia. Given recurrent post-infusion fevers and strong clinical suspicion of a catheter-related source, port exchange was performed: the indwelling right-sided catheter was removed, and a new device was implanted via the left internal jugular vein under ultrasonographic guidance with sedoanalgesia.

The intervention was technically challenging owing to the dextrocardia and the distorted thoracic anatomy following right pneumonectomy. Despite this, cannulation of the left internal jugular vein was achieved successfully, with fluoroscopic confirmation of an appropriate catheter-tip position. The patient tolerated the procedure well, and immunoglobulin therapy was resumed uneventfully through the new device.

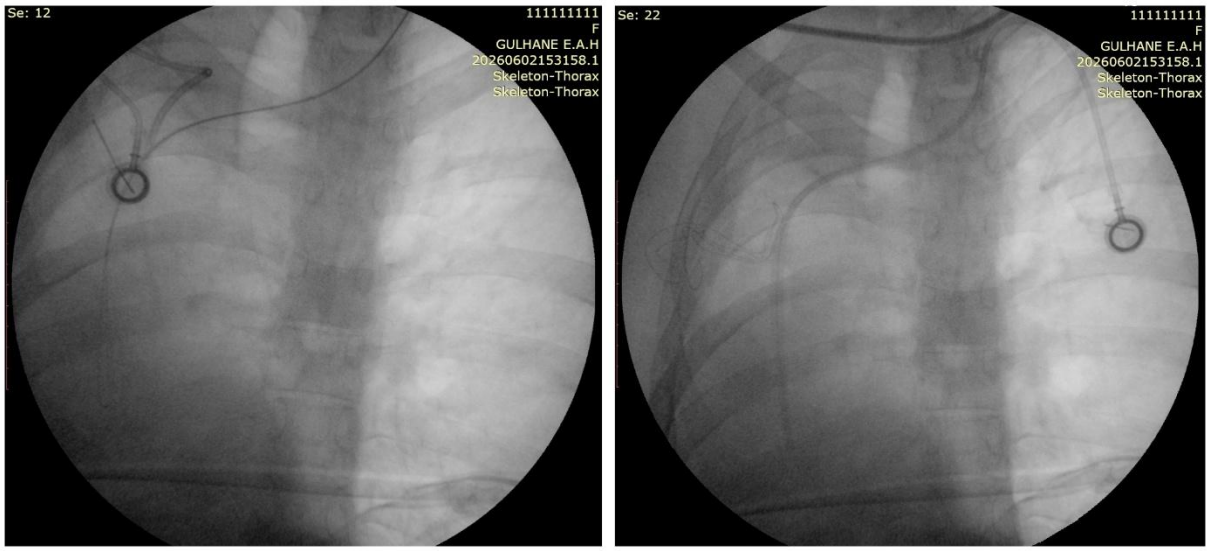
Discussion: This case illustrates the difficulty of preserving central venous access in a patient who is both dependent on lifelong intravenous therapy and burdened by complex congenital and post-surgical anatomy. In IVIG-dependent CVID, vascular access is effectively a lifeline; catheter-related bloodstream infection threatens both immediate safety and the long-term availability of access sites.

In this patient the dextrocardia was isolated, with situs solitus, so the systemic venous return remained normally arranged. Right pneumonectomy nonetheless distorts mediastinal landmarks, so image-guided placement with fluoroscopy was essential for safe cannulation and for verifying catheter tip position, thereby reducing the risk of malposition-related thrombosis or arrhythmia. The left internal jugular vein was selected due to suspected right-sided device infection.

Conclusion: Replacing a port catheter in a patient with CVID, dextrocardia and previous pneumonectomy is feasible but technically demanding. Image-guided technique, anticipation of anomalous anatomy and vigilant preservation of venous access sites are decisive in maintaining uninterrupted immunoglobulin therapy in this vulnerable group.

Keywords: Common variable immunodeficiency; Totally implantable venous access device; Dextrocardia; Pneumonectomy; Catheter-related bloodstream infection.

Figure 1: Intraoperative Fluoroscopic Images



Intraoperative fluoroscopic images obtained during exchange of the totally implantable venous access device (port) in a patient with situs solitus dextrocardia and prior right pneumonectomy. The heart and great vessels are markedly displaced into the right hemithorax owing to the combined effect of the congenital cardiac malposition and post-pneumonectomy volume loss. The radiopaque port reservoir

and the intravascular course of the catheter are demonstrated; because conventional landmarks such as the carina were unreliable in this distorted anatomy, catheter-tip position was confirmed under fluoroscopy.

GÜNLÜK KAHVE TÜKETİMİNİN DENGE ÜZERİNE ETKİSİ

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Özet

Amaç: Bu çalışmanın amacı, sağlıklı genç yetişkinlerde günlük kahve tüketiminin denge performansını ne kadar etkilediği incelemektir. Kahve tüketim miktarına göre oluşturulan düşük, orta ve yüksek tüketim grupları oluşturulmuştur. Yapılan değerlendirmeler sonucunda elde edilen bilgilere göre bu tüketim grupları arasındaki farklar incelenmiştir. Sonuçların statik ve dinamik denge parametreleri açısından karşılaştırılması hedeflenmiştir.

Gereç ve Yöntemler: Çalışmamıza 18-24 yaş aralığındaki beden kitle indeksi <25 kg/m²'nin altında olan, sigara kullanmayan, nörolojik, vestibüler, ortopedik veya kardiyopulmoner hastalığı bulunmayan, düzenli kahve tüketen ve çalışmaya gönüllü olarak katılan bireyler dahil edildi. Araştırma Hamdiye Sağlık Bilimleri Üniversitesi Hamdiye Sağlık Bilimleri Fakültesi Fizyoterapi ve Rehabilitasyon Bölümü laboratuvarında gerçekleştirildi. Toplam 32 sağlıklı üniversite öğrencisi dahil edildi. Katılımcıların yaş ortalaması= 21,66 ± 1,21 yıl olarak bulundu (Min=18, Max=24). Katılımcıların cinsiyet dağılımına göre= %15,6'sı (5 kişi) erkek, %84,4'ü (27 kişi) kadındır. Katılımcılar düşük kahve tüketimi (0-100 mg/gün, 0-1fincan kahve), orta kahve tüketimi (100-300 mg/gün, 1-3 fincan kahve), yüksek kahve tüketimi (>300 mg/gün, 3 fincandan fazla kahve) yapanlar olmak üzere üç gruba ayrıldı. Katılımcılara Y Balance Testi, Tandem Yürüme Testi, Timed Up and Go Testi ve gözler açık ve kapalı olacak şekilde Tek Ayak Duruş Testi yapıldı. Berg Denge Ölçeği uygulandı. Yapılan testler sonucunda günlük kahve tüketimleri farklı gruplardan olan katılımcıların statik ve dinamik dengeleri ve postüral kontrol becerileri değerlendirildi.

Bulgular: Kahve tüketim grupları arasında Y Denge Testi'nin anterior, posteromedial ve posterolateral uzanma mesafeleri açısından istatistiksel olarak anlamlı farklılık bulunmadı (p>0,05). Tek Ayak Duruş Testi göz açık ve göz kapalı sonuçlarında da gruplar arasında anlamlı fark saptanmadı (p>0,05). Tandem Yürüyüş Testi performansları ve süreleri incelendiğinde, düşük, orta ve yüksek kahve tüketen bireyler

arasında istatistiksel olarak anlamlı farklılık gözlenmedi (p>0,05). Timed Up and Go (TUG) testi sonuçlarında orta düzey kahve tüketen bireylerin ortalama performanslarının daha yüksek olduğu görülse de bu fark istatistiksel anlamlılık düzeyine ulaşamadı (p=0,054).

Tartışma:Düşük, orta ve yüksek düzeyde kahve tüketen gruplar arasında, değerlendirdiğimizparametrelerin hiçbirinde istatistiksel olarak anlamlı bir farklılık bulamadık. Birkaç değişkende elde ettiğimiz p değerleri anlamlılık sınırına oldukça yakındı. Buna dayanarak daha fazla katılımcı eşliğinde yapılacak olan bir araştırmanın sonuçları değiştirebileceğini düşünebiliriz. Ancak bizim bulgularımız bu hipotezi desteklemeye yeterli bulunamadı.

Sonuç: Farklı düzeylerde kahve tüketen bireylerin denge testlerinden elde edilen sonuçları benzer bulundu. Bu nedenle günlük kahve tüketiminin genç ve sağlıklı bireylerde denge performansını belirgin şekilde değiştirmediği düşünülmekte.

Anahtar Kelimeler: Kahve, denge, postüral kontrol, Y Balance, TUG, Tandem.

THE EFFECT OF DAILY COFFEE CONSUMPTION ON BALANCE

Abstract

Aim: The aim of this study is to examine the effect of daily coffee consumption on balance performance in healthy young adults. Low, medium, and high consumption groups were formed according to the amount of coffee consumption. According to the information obtained as a result of the evaluations, the differences between these consumption groups were examined. It was aimed to compare the results in terms of static and dynamic equilibrium parameters.

Materials and Methods: Our study included individuals aged 18-24 years with a body mass index <25 kg/m², who were non-smokers, had no neurological, vestibular, orthopedic, or cardiopulmonary diseases, regularly consumed coffee, and voluntarily participated in the study. The research was conducted in the laboratory of the Physiotherapy and Rehabilitation Department, Faculty of Health Sciences, Hamdiye Health Sciences University. A total of 32 healthy university students were included. The average age of the participants was 21.66 ± 1.21 years (Min=18, Max=24). According to the gender distribution of the participants, 15.6% (5 people) were male and 84.4% (27 people) were female. Participants were divided into three groups based on coffee consumption: low (0-100 mg/day, 0-1 cup of coffee), moderate (100-300 mg/day, 1-3 cups of coffee), and high (>300 mg/day, more than 3 cups of coffee). Participants underwent the Y Balance Test, Tandem Walking Test, Timed Up and Go Test, and Single Leg Stance Test with eyes open and closed. Berg balance scale was applied. As a result of these tests, the static and dynamic balance and postural control skills of participants from different daily coffee consumption groups were evaluated.

Results: No statistically significant differences were found between coffee consumption groups in terms of anterior, posteromedial, and posterolateral reach distances of the Y Balance Test (p>0.05). Similarly, no significant difference was found between groups in the results of the One Leg Stance Test with eyes open and eyes closed (p>0.05). When examining the performance and duration of the Tandem Walking Test, no statistically significant differences were observed between individuals consuming low, medium, and high amounts of coffee (p>0.05). While individuals consuming moderate amounts of coffee showed higher average performance in the Timed Up and Go (TUG) test, this difference did not reach statistical significance (p=0.054).

Discussion: We found no statistically significant differences in any of the parameters we evaluated between groups consuming low, medium, and high levels of coffee. The p-values we obtained for several variables were quite close to the significance level. Based on this, we might consider that a study with a larger number of participants could change the results. However, our findings were not sufficient to support this hypothesis.
Conclusion: The results obtained from balance tests were similar for individuals consuming different levels of coffee. Therefore, it is thought that daily coffee consumption does not significantly alter

balance performance in young and healthy individuals.
Keywords: Coffee consumption, caffeine, balance, postural control, Y Balance Test, Timed Up and Go Test (TUG), Tandem walking test, Single Leg Stance Test.

PHYSIOLOGICAL EFFECTS OF SCREEN TIME ON THE REWARD SYSTEM, SYNAPTIC PLASTICITY, AND NEUROADAPTATION

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Abstract

With the widespread use of digital technologies, increased screen time has emerged as a significant factor influencing brain function at multiple neurophysiological levels. This review examines the effects of screen-based stimuli on the mesolimbic reward system, synaptic plasticity, and neuroadaptive processes associated with addiction-like behaviours. Digital environments characterized by social media, gaming, and short-form high-intensity content enhance dopaminergic activity through variable reinforcement schedules and continuously activate reward prediction error signalling. Over time, this may lead to dopaminergic dysregulation, receptor-level adaptations, and alterations in synaptic plasticity mechanisms such as long-term potentiation (LTP) and long-term depression (LTD). Converging evidence suggests that chronic screen exposure is associated with reduced sensitivity to natural rewards, increased compulsive usage patterns, and cognitive as well as developmental impairments. In conclusion, screen time should be considered a neurophysiological exposure capable of inducing synaptic, molecular, and system-level adaptations rather than a purely behavioural phenomenon.

Keywords: Screen time, Reward system, Dopamine, Synaptic plasticity, Neuroadaptation, Addiction

PREMATÜRE RETİNOPATİSİNDE ÇOKLU DUYUSAL STİMÜLASYON MÜDAHALELERİNİN ETKİLERİ: SİSTEMATİK BİR DERLEME

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Özet

Giriş: Prematüre retinopatisi (ROP), prematüre ve düşük doğum ağırlığı ile ilişkili, çocukluk çağı körlüğünün en önemli nedenlerinden biri olan anormal vasküler proliferatif bir retina hastalığıdır. ROP taramaları sırasında kullanılan göz kapağı açıcılar, sklera kompresyonu gibi yöntemler bebeklerde ağrı, stres ve fizyolojik parametreler üzerinde olumsuz etkiye neden olmaktadır. Bu uyaranların etkisini azaltmak amacıyla çoklu duyusal stimülasyon (işitsel, dokunsal, görsel, vestibüler) gibi non-farmakolojik yaklaşımlar literatürde ön plana çıkmaktadır. Bu çalışmanın amacı ROP'lu bebeklere uygulanan çoklu duyusal stimülasyon müdahalelerin ağrı ve fizyolojik yanıtlar üzerindeki etkinliğini araştırmaktır.

Yöntem: Aralık 2016 ile Haziran 2026 tarihleri arasında PubMed, Web of Science ve Scopus veri tabanlarında "prematüre retinopatisi", "prematüre", "bebek", "motor", "duyusal" ve "ağrı" anahtar kelimeleri kullanılarak literatür taraması yapıldı. İncelememize toplamda 9 makale dahil edildi ve çalışma kalitesini değerlendirmek için PEDro ölçeği kullanıldı. Bir çalışma orta, yedi çalışma iyi ve bir tanesi ise yüksek kalite olarak değerlendirildi. Dahil etme ve hariç tutma kriterleri tüm çalışmalarda iyi bir şekilde rapor edildi. Çalışmalarda başlangıç karşılaştırılabilirliği vardı ve operatörlerden hiçbiri körleştirilemedi, çünkü uygulamanın doğası gereği operatörün bebeklere yapılan müdahaleyi bilmesi gerekiyordu. Çalışmalardaki sonuç ölçütlerinin, geçerlik ve güvenirliği kanıtlanmış ölçme araçlarıyla değerlendirilmiş olmasına dikkat edildi.

Bulgular: İncelemeye dahil edilen çalışmaların sekizinde uygulanan müdahalelerin (manyetik auriküler akupunktur, nazik insan dokunuşu, beyaz gürültü, klasik müzik, anne sütü, sükroz, anne sesi ve nazik masaj, glikoz) rutin bakım veya kontrol gruplarına kıyasla ağrı skorlarında anlamlı iyileşmeler sağladığı görüldü ($p<0,05$). Sadece ten tene temasın incelendiği bir çalışmada ağrı skorları açısından anlamlı bir fark bulunamadı ($p>0,05$).

Tartışma: Çalışmamız görme, işitme, dokunma ve tat duyusunu birleştiren çoklu duyusal uyaran yaklaşımları ile anne sesi, masaj ve glikozu entegre eden 3T (tat, işitsel ve dokunsal uyarım) yöntemlerinin ağrı üzerinde anlamlı iyileşmeler sağladığını göstermektedir. Benzer şekilde klasik müzik, beyaz gürültü ve akupresür gibi yöntemlerin ağrı yönetiminde etkili olduğu görülse de müzik dinletiminin bazı durumlarda fizyolojik parametrelere pozitif etki göstermediği bulundu. Ayrıca incelememize dahil edilen çalışmaların zamanlama bakımından farklılık göstermesi ve protokollerin standart olmaması nedeniyle çalışmamız metodolojik bir heterojenlik göstermektedir.

Sonuç: Çoklu duyusal müdahaleler, ağrıyı hafifletmek ve fizyolojik parametreleri stabilize etmek için etkili, güvenli ve uygulanabilir yöntemlerdir. Bu yöntemlerin rutin yenidoğan yoğun bakım pratiklerine dahil edilmesi önerilmektedir. Gelecekteki araştırmalar; müdahale parametrelerinin standardizasyonuna odaklanmalıdır.

Anahtar Kelimeler: Prematüre retinopatisi, prematüre bebekler, duyusal, ağrı

THE EFFECTIVENESS OF MULTISENSORY STIMULATION INTERVENTIONS IN PREMATURE RETINOPATHY: A SYSTEMATIC REVIEW

Abstract

Introduction: Retinopathy of prematurity (ROP) is an abnormal vascular proliferative retinal disease associated with prematurity and low birth weight, and is one of the leading causes of childhood blindness. Methods used during ROP screenings, such as eyelid openers and scleral compression, negatively affect pain, stress, and physiological parameters in infants. Non-pharmacological approaches such as multisensory stimulation (auditory, tactile, visual, vestibular) are gaining prominence in the literature to reduce the effects of these stimuli. The aim of this study is to investigate the effectiveness of multisensory stimulation interventions applied to infants with ROP on pain and physiological responses.

Method: A literature search was conducted between December 2016 and June 2026 using the keywords "retinopathy of prematurity", "premature", "infant", "motor", "sensory", and "pain" in PubMed, Web of Science, and Scopus databases. Our review included a total of 9 articles, and the PEDro scale was used to assess study quality. One study was rated as moderate, seven as good, and one as high quality. Inclusion and exclusion criteria were well-reported in all studies. There was baseline comparability in the studies, and none of the operators were blinded, as the nature of the procedure required the operator to be aware of the intervention being performed on the infants. Care was taken to ensure that the outcome measures in the studies were assessed using validated and reliable measurement tools.

Results: In eight of the studies included in the review, the interventions applied (magnetic auricular acupuncture, gentle human touch, white noise, classical music, breast milk, sucrose, mother's voice, and gentle massage) were found to significantly improve pain scores compared to routine care or control groups ($p<0.05$). Only one study that examined skin-to-skin contact found no significant difference in pain scores ($p>0.05$).

Discussion: Our study demonstrates that multisensory stimulation approaches combining sight, hearing, touch, and taste, along with 3T (taste, auditory, and tactile stimulation) methods integrating maternal voice, massage, and glucose, provide significant improvements in pain management. Similarly, while methods such as classical music, white noise, and acupressure have been shown to be effective in pain management, music therapy was found not to have a positive effect on physiological parameters in some cases. Furthermore, our study exhibits methodological heterogeneity due to the differing timing of the studies included and the lack of standardization of protocols.

Conclusion: Multisensory interventions are effective, safe, and feasible methods for alleviating pain and stabilizing physiological parameters. Their inclusion in routine neonatal intensive care practices is recommended. Future research should focus on standardizing intervention parameters.

Keywords: Retinopathy of prematurity, premature infants, sensory, pain

RUMİNANTLARDA ABORTUSLARA NEDEN OLAN *Chlamydia spp., Brucella spp. ve Campylobacter spp.* ETKENLERİNİN MULTİPLEKS PCR METODU İLE EŞ ZAMANLI TESPİTİ

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Özet

Ruminantlarda abortus, hayvancılık işletmelerinde önemli ekonomik kayıplara neden olan ve sürü verimliliğini olumsuz etkileyen başlıca sağlık problemlerinden biridir. Abortus vakalarının etiyolojisinde bakteriyel, viral, fungal ve paraziter birçok enfeksiyöz etken rol almakla birlikte, özellikle *Chlamydia* spp., *Brucella* spp. ve *Campylobacter* spp. dünya genelinde yaygın olarak görülen ve önemli zoonotik potansiyele sahip bakteriyel abort etkenleri arasında yer almaktadır. Bu etkenlerin neden olduğu enfeksiyonların klinik belirtilerinin birbirine benzer olması ve konvansiyonel tanı yöntemlerinin zaman alıcı olması nedeniyle hızlı, güvenilir ve ekonomik tanı yöntemlerine ihtiyaç duyulmaktadır. Bu çalışmada, ruminantlarda abortusa neden olan *Chlamydia* spp., *Brucella* spp. ve *Campylobacter* spp. etkenlerinin tek bir reaksiyon içerisinde eş zamanlı olarak tespit edilmesini sağlayan bir multipleks polimeraz zincir reaksiyonu (mPCR) yönteminin geliştirilmesi amaçlanmıştır. Çalışma kapsamında her bir etken için literatürde özgüllüğü ve duyarlılığı doğrulanmış primer çiftleri seçilmiş sırasıyla *Chlamydia* spp. için *23S rRNA*, *Brucella* spp. için *16S rRNA* ve *Campylobacter* spp. için *C412* gen bölgeleri hedef alınmıştır. Öncelikle her primer çifti tekli PCR koşullarında optimize edilmiş ve amplifikasyon performansları değerlendirilmiştir. Daha sonra gradient PCR ile 53–59°C aralığında farklı bağlanma sıcaklıkları test edilerek multipleks reaksiyon için en uygun koşullar belirlenmiştir. Ardından primer konsantrasyonlarının optimizasyonu için 0,6-0,8-1,0 µl primerler denenmiştir ve bağlanma süresinin optimizasyonu için ise 30-45-60 sn sürelerde yapılmıştır. Yapılan optimizasyon çalışmaları sonucunda tüm primer çiftlerinin etkin amplifikasyon sağlayabildiği optimum bağlanma sıcaklığı, kullanılan primerlerinin konsantrasyonları ve bağlanma aşamasının süresi tespit edilmiştir. Geliştirilen mPCR yöntemi, pozitif kontrol olarak kullanılan ve ilgili etkenler açısından doğrulanmış ruminant abortuslarından elde edilen örneklerde uygulanmıştır. Agaroz jel elektroforezi sonuçlarında *Chlamydia* spp. için 356 bp, *Campylobacter* spp. için 816 bp ve *Brucella* spp. için 905 bp büyüklüğünde beklenen amplikon bantları elde edilmiştir. Bantların birbirinden net şekilde ayrıldığı ve herhangi bir nonspesifik amplifikasyon oluşmadığı gözlenmiştir. Elde edilen bulgular, geliştirilen mPCR yönteminin yüksek özgüllükte ve güvenilir sonuçlar verebildiğini ortaya koymuştur. Sonuç olarak bu çalışmada geliştirilen mPCR yöntemi, ruminant abortuslarının etiyolojik tanısında birden fazla bakteriyel etkenin tek reaksiyonda hızlı ve eş zamanlı olarak belirlenmesine olanak sağlayarak laboratuvar iş yükünün, analiz süresinin ve maliyetlerin azaltılmasına katkı sağlayabilecek önemli bir moleküler tanı yaklaşımı olarak değerlendirilmektedir. Aynı zamanda laboratuvarımıza optimize edilmiş metot olarak kullanılacaktır.

Anahtar Kelimeler: Abortus, *Brucella* spp., *Campylobacter* spp., *Chlamydia* spp., Moleküler Tanı, Multipleks PCR, Ruminant

SIMULTANEOUS DETECTION OF *Chlamydia* spp., *Brucella* spp. AND *Campylobacter* spp. ASSOCIATED WITH ABORTION IN RUMINANTS USING THE MULTIPLEX PCR METHOD

Abstract

Abortion in ruminants represents one of the foremost health challenges confronting livestock enterprises, contributing to substantial economic losses and exerting a detrimental impact on overall herd productivity. Although the etiology of abortion cases encompasses a broad spectrum of infectious agents including bacterial, viral, fungal, and parasitic pathogens *Chlamydia* spp., *Brucella* spp., and *Campylobacter* spp. are particularly noteworthy as bacteriological abortion agents of global prevalence and considerable zoonotic significance. Given the marked clinical similarity among infections attributable to these organisms, compounded by the inherently protracted nature of conventional diagnostic approaches, there exists a pressing need for diagnostic methodologies that are rapid, dependable, and economically viable. The present study aimed to develop a multiplex polymerase chain reaction (mPCR) assay capable of facilitating the simultaneous detection of *Chlamydia* spp., *Brucella* spp., and *Campylobacter* spp. the principal bacterial causative agents of abortion in ruminants within a single reaction vessel. In the course of this investigation, primer pairs with previously validated specificity and sensitivity in the published literature were selected for each target pathogen, with the 23S rRNA gene region designated for *Chlamydia* spp., the 16S rRNA gene region for *Brucella* spp., and the C412 gene region for *Campylobacter* spp. Each primer pair was initially subjected to optimization under singleplex PCR conditions, and amplification efficiency was rigorously assessed. Gradient PCR was subsequently employed to evaluate a range of annealing temperatures spanning 53–59°C, thereby determining the optimal thermal parameters for the multiplex reaction. Further optimization encompassed primer concentration, tested at 0.6, 0.8, and 1.0 µl, as well as annealing duration, examined at intervals of 30, 45, and 60 seconds. Through these systematic optimization procedures, the optimal annealing temperature, primer concentrations, and annealing duration yielding efficient and reproducible amplification across all three primer pairs were successfully established. The developed mPCR assay was subsequently applied to specimens derived from microbiologically confirmed ruminant abortion cases, which served as positive controls. Agarose gel electrophoresis revealed discrete amplicon bands of the anticipated sizes: 356 bp for *Chlamydia* spp., 816 bp for *Campylobacter* spp., and 905 bp for *Brucella* spp. All target bands demonstrated clear resolution without evidence of inter-band overlap or non-specific amplification. Collectively, these findings substantiate the high specificity and diagnostic reliability of the developed multiplex PCR assay. In conclusion, the mPCR method described herein constitutes a robust and efficient molecular diagnostic tool for the etiological investigation of ruminant abortions, enabling the concurrent identification of multiple bacterial pathogens within a single reaction. This approach holds considerable promise for reducing laboratory workload, shortening turnaround time, and minimizing analytical costs in both field and reference laboratory settings. It will also be used as an optimized method in our laboratory.

Keywords: Abortion, *Brucella* spp., *Campylobacter* spp., *Chlamydia* spp., Molecular Diagnosis, Multiplex PCR, Ruminant

HAYVANDAN İNSANA ORGAN NAKLİNİN (KSENOTRANSPLANTASYON) VETERİNER ANATOMİ YÖNÜNDEN İNCELENMESİ

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Özet

Ksenotransplantasyon, kronik organ yetmezliği çeken hastalar için organ bağışı yetersizliğine dönüştürücü bir çözüm sunma potansiyeline sahiptir. Bu prosedürde, anatomik, fizyolojik ve genetik benzerlikleri nedeniyle özellikle sus (domuz) en uygun donör adayı olarak öne çıkmaktadır. Bu bildirinin amacı; hayvandan insana organ nakli süreçleri veteriner anatomi disiplini çerçevesinde değerlendirmek; hedef organların morfolojisi, damar varyasyonları ve topografik anatomik uyumlulukları yönünden incelemektir. Ksenotransplantasyonun başarısı, yalnızca immünolojik engellerin aşılmasına değil, aynı zamanda donör ve alıcı arasındaki makroskobik ve mikroskobik anatomik uyuma bağlıdır. Veteriner anatomi yönünden yapılan incelemelerde şu temel bulgular öne çıkmaktadır: 1-Üriner Sistem (Ren): Domuz böbreği, insan böbreği gibi *multilober* (çok loblu) içyapıya ve pürüzsüz bir dış yüzeye sahiptir. İdrar süzme kapasitesi ve pelvis renalis anatomisi insanla yüksek uyum gösterirken, *arteria renalis*'in dallanma açısı ve uzunluğu operatif süreçte dikkatle hesaplanmalıdır. 2-Kardiyovasküler Sistem (Cor): Domuz kalbinin hacmi, sol ventrikül duvar kalınlığı ve ana damar çıkışları (truncus brachiocephalicus dallanmaları) insan anatomisine büyük oranda benzerlik gösterir. Ancak, *sinus coronarius* yerleşimi ve kapakçıkların lifli yapısındaki mikroskobik farklılıklar cerrahi anastomoz (damar dikimi) sırasında özel teknikler gerektirmektedir. 3-Gastrointestinal Destek Organları (Hepar): Domuz karaciğeri loblu yapısı nedeniyle insandan morfolojik olarak ayrılsa da, segmental damar mimarisi ve safra kanalları (*ductus choledochus*) yönünden fonksiyonel benzerlik taşır. Ancak organın büyüme hızı ve hacimsel uyumsuzluğu (greft-alıcı boyutsal uyumsuzluğu) anatomik bir sınırlandırma oluşturmaktadır. Sonuç ve Öneriler: Veteriner anatomi verileri, ksenotransplantasyonda kullanılacak donör hayvanların seçiminde ve cerrahi haritalandırmada kritik bir rol oynamaktadır. Donör organların vasküler (damarsal) varyasyonlarının pre-operatif olarak tomografik yöntemlerle incelenmesi, insan anatomisine cerrahi adaptasyonu kolaylaştıracaktır. Sonuç olarak, veteriner anatomi bilimi, ksenotransplantasyonun klinik başarıya ulaşmasında tıp cerrahisi ile köprü vazifesi gören temel bir unsur konumundadır.

Anahtar Kelimeler: Ksenotransplantasyon, Veteriner Anatomi, Domuz, Morfoloji, Organ Nakli.

ANATOMICAL EVALUATION OF XENOTRANSPLANTATION (ANIMAL-TO-HUMAN ORGAN TRANSPLANTATION) FROM THE PERSPECTIVE OF VETERINARY ANATOMY

Abstract

Xenotransplantation holds transformative potential as a solution to the critical shortage of human organ donations for patients suffering from chronic organ failure. Due to its anatomical, physiological, and genetic similarities, the swine (pig) stands out as the most suitable donor candidate. The aim of this paper is to evaluate the processes of organ transplantation from animals to humans within the framework of veterinary anatomy, and to examine target organ morphology, vascular variations, and topographic anatomical compatibility. The success of xenotransplantation depends not only on overcoming immunological barriers but also on the macroscopic and microscopic anatomical harmony between the donor and the recipient. From a veterinary anatomy perspective, the following key findings come to the

forefront: 1-Urinary System (Ren): Like the human kidney, the porcine kidney possesses a smooth external surface and a *multilobar* (multilobed) internal structure. While its filtration capacity and the anatomy of the *pelvis renalis* are highly compatible with humans, the branching angle and length of the *arteria renalis* must be carefully calculated during the operative planning. 2-Cardiovascular System (Cor): The volume of the porcine heart, left ventricular wall thickness, and the configurations of the major great vessels (such as the branching of the *truncus brachiocephalicus*) share a high degree of similarity with human anatomy. However, microscopic differences in the fibrous structure of the valves and the localization of the *sinus coronarius* require specialized surgical techniques during anastomosis (vascular suturing). 3-Gastrointestinal Accessory Organs (Hepar): Although the porcine liver differs morphologically from the human liver due to its distinctly lobed structure, it shares functional similarities in segmental vascular architecture and bile duct systems (*ductus choledochus*). Nevertheless, the rapid growth rate of the organ and volumetric mismatch (graft-to-recipient size disparity) pose notable anatomical constraints. Conclusion and Recommendations: Veterinary anatomical data plays a critical role in donor animal selection and surgical mapping for xenotransplantation. Pre-operative tomographic evaluation of the vascular variations in donor organs will facilitate smoother surgical adaptation to human anatomy. Ultimately, the discipline of veterinary anatomy serves as a fundamental bridge connecting veterinary science and human medicine to achieve clinical success in xenotransplantation.

Keywords: Xenotransplantation, Veterinary Anatomy, Pig, Morphology, Organ Transplantation.

VETERİNER ANATOMİDE E12 EPOKSİ PLASTİNASYON TEKNİĞİ: ŞEFFAF-OPAK VÜCUT KESİTLERİNİN MORFOLOJİK VE DİJİTAL GÖRÜNTÜLEME EĞİTİMİNDEKİ DEĞERİ

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Özet

Modern veteriner anatomi eğitimi, makroskobik diseksiyonların yanı sıra klinik görüntüleme tekniklerine (BT, MRG) temel oluşturacak kesitsel anatomi verilerine ihtiyaç duymaktadır. Bu bağlamda, biyolojik dokuların sıvı polimerlerle yer değiştirmesi esasına dayanan plastinasyon yöntemleri arasında E12 epoksi tekniği, yüksek çözünürlüklü ve milimetrik vücut dilimleri elde etmede altın standart olarak kabul edilir. Bu bildiride, evcil ve yaban hayvanı kadavralarına uygulanan E12 epoksi plastinasyonunun metodolojik aşamaları, doku fiksasyonundaki hassasiyeti ve veteriner morfoloji eğitimindeki özgün katkıları incelenmiştir. E12 epoksi yöntemi, özellikle lokomotor sistem, kafa ve gövde gibi karmaşık anatomik bölgelerin topografik ilişkilerini tek bir düzlemde sabitleyen, dayanıklı ve şeffaf-opak arası optik özelliklere sahip kesitler üretir. Güncel literatür ışığında derlenen teknik süreç şu basamakları kapsamaktadır: 1-Pre-operatif Hazırlık ve Dondurma: Kadavra veya spesifik organlar, anatomik pozisyonları bozulmadan -20 °C ile -70 °C arasında derin dondurma işlemine tabi tutulur. 2-Hassas Dilimleme (Slicing): Donmuş materyal, endüstriyel şerit testereler vasıtasıyla veteriner anatomide standart kabul edilen 2 mm ile 4 mm kalınlığında, sagittal, transversal veya frontal düzlemlerde dilimlenir. 3-Dehidratasyon ve Yağ Uzaklaştırma: Kesitler, -20 °C altındaki soğuk asetonda kademeli olarak dehidre edilir. Ardından, epoksi reçinenin dokuya tam nüfuz edebilmesi için oda sıcaklığında aseton veya diklormetan kullanılarak sert kemik içi yağ dokuları ve lipitler uzaklaştırılır. 4- Zorlu Emdirme ve Kürleme: Vakum odasında, doku gözeneklerindeki aseton buharlaştırılarak yerine E12 epoksi reçine karışımı emdirilir. Sonuç olarak E12 epoksi plastinasyonu ile üretilen kesitler; kas, kemik, damar ve sinir ağlarının doğal sınırlarını milimetrik hassasiyetle korur. Bu numuneler, veteriner fakültesi öğrencilerinin üç boyutlu oryantasyon yeteneğini geliştirirken, radyolojik kesitlerin (BT/MRG) hatasız yorumlanmasında kusursuz birer referans materyalidir. Yüksek hammadde maliyeti ve iş gücü gereksinimine rağmen, anatominin ve karmaşık topoğrafyanın uzun ömürlü sergilenmesi açısından veteriner anatomi anabilim dallarında E12 altyapısının yaygınlaştırılması büyük önem arz etmektedir.

Anahtar Kelimeler: E12 Tekniği, Epoksi Plastinasyon, Kesitsel Anatomi, Veteriner Morfoloji, Kadavra Dilimleme.

THE VALUE OF E12 EPOXY PLASTINATION TECHNIQUE IN VETERINARY ANATOMY: EVALUATION OF TRANSPARENT-OPAQUE BODY SECTIONS IN MORPHOLOGICAL AND DIGITAL IMAGING EDUCATION

Abstract

Modern veterinary anatomy education requires cross-sectional anatomical data to form the basis for clinical imaging techniques (CT, MRI), in addition to macroscopic dissections. In this context, among plastination methods based on the replacement of biological tissues with liquid polymers, the E12 epoxy technique is considered the gold standard for obtaining high-resolution and millimeter-accurate body slices. This paper examines the methodological steps of E12 epoxy plastination applied to domestic and wild animal cadavers, its sensitivity in tissue fixation, and its unique contributions to veterinary

morphology education. The E12 epoxy method produces durable sections with transparent-to-opaque optical properties that fix the topographic relationships of complex anatomical regions, such as the locomotor system, head, and trunk, in a single plane. The technical process, compiled in light of current literature, includes the following steps: 1-Pre-operative Preparation and Freezing: The cadaver or specific organs are subjected to deep freezing at temperatures between -20 °C and -70 °C without altering their anatomical positions. 2-Precise Slicing: Frozen material is sliced using industrial band saws to a thickness of 2 mm to 4 mm, standard in veterinary anatomy, in sagittal, transversal, or frontal planes. 3-Dehydration and Fat Removal: Sections are gradually dehydrated in cold acetone below -20 °C. Then, hard intraosseous fat tissues and lipids are removed using room temperature acetone or dichloromethane to allow complete penetration of the epoxy resin into the tissue. 4-Challenging Impregnation and Curing: In a vacuum chamber, acetone is evaporated from the tissue pores and replaced with an E12 epoxy resin mixture. As a result, sections produced by E12 epoxy plastination preserve the natural boundaries of muscle, bone, vascular, and nerve networks with millimeter precision. These specimens improve the three-dimensional orientation skills of veterinary students and serve as flawless reference materials for the accurate interpretation of radiological sections (CT/MRI). Despite high raw material costs and labor requirements, the widespread adoption of E12 infrastructure in veterinary anatomy departments is of great importance for the long-term display of anatomia and complex topography.

Keywords: E12 Technique, Epoxy Plastination, Sectional Anatomy, Veterinary Morphology, Cadaver Slicing.

TEHLİKELİ BİSFENOL ANALOĞU: BPAF

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Özet

Plastik ve polimer endüstrisinde polikarbonat plastikler ile epoksi reçinelerin üretiminde Bisfenol A'nın (BPA) regülatif olarak kısıtlanmasının ardından, yapısal bir analog olan Bisfenol AF (BPAF) gibi analogları alternatif olarak pazara sürülmüştür. BPAF, moleküler yapısındaki flor atomları sayesinde endüstriyel olarak yüksek termal ve kimyasal kararlılık sağlarken, bozunmaya karşı direncini ve biyoakümülasyon potansiyelini dramatik şekilde artırmaktadır. Son yıllarda yapılan küresel epidemiyolojik çalışmalarda insan idrarı, kan serumu, kordon kanı, amniyotik sıvı ve anne sütünde giderek artan konsantrasyonlarda BPAF tespit edilmesi, bu kimyasalın gizli halk sağlığı tehdidinin boyutlarını gözler önüne sermektedir. Bu derlemenin amacı, güncel bilimsel veri tabanlarında yer alan çalışmalar ışığında BPAF'nin hücresel düzeydeki toksikokinetik özelliklerini, moleküler etki mekanizmalarını ve çoklu organ sistemleri üzerindeki patolojik etkilerini detaylı ve güncel bir perspektifle incelemektir. Mevcut bilimsel literatür analiz edildiğinde, BPAF'nin toksikodinamik profilinin sanılanın aksine BPA'dan çok daha agresif ve tehlikeli olduğu görülmektedir. İn vitro kompetitif bağlanma analizleri, BPAF'nin östrojen reseptörlerine BPA'dan yaklaşık 20 kat daha yüksek bir afinite ile bağlandığını, aynı zamanda androjen ve tiroit reseptörleri üzerindeki antagonist etkiyle çok daha güçlü bir sistemik endokrin bozucu olarak çalıştığını kanıtlamaktadır. Hücresel düzeyde, BPAF maruziyetinin mitokondriyal membran potansiyelini bozarak şiddetli mitokondriyal disfonksiyona yol açtığı, reaktif oksijen türlerinin aşırı üretimiyle birlikte hücresel lipit peroksidasyonunu şiddetle tetiklediği bildirilmiştir. Bu derin oksidatif hasar, hücrenin temel antioksidan savunma mekanizması olan Nrf-2/HO-1 ve glutatyon sinyal yolaklarını baskılamaktadır. Son yayımlanan in vivo kemirgen ve zebra balığı modeli çalışmaları, BPAF'nin kan-testis bariyerini bozarak spermatogenezi inhibe ettiğini ve dişi üreme sisteminde oosit kalitesini düşürerek ciddi üreme toksisitesine neden olduğunu göstermektedir. Buna ek olarak, BPAF'nin lipid metabolizmasını bozduğu ve adipogenezi indükleyerek belirgin bir obezojenik etki sergilediği saptanmıştır. Moleküler toksikoloji ve epigenetik verileri ise, kronik BPAF maruziyetinin DNA metilasyon profillerini değiştirerek gen ekspresyonunda epigenetik sapmalara ve kaspaz-3/9 aracılı hücresel apoptoza zemin hazırladığını vurgulamaktadır. BPAF'nin ayrıca makrofajları aktive edip pro-enflamatuvar sitokinlerin salınımını uyararak karaciğerde ve sinir sisteminde sekonder enflamatuvar doku hasarları oluşturduğu kesinleşmiştir. Bilimsel literatürde tipik bir "üzücü ikame" örneği olarak tanımlanan BPAF, yapısındaki florifikasyon nedeniyle orijinal molekül BPA'ya kıyasla dokularda çok daha kalıcı, biyolojik olarak daha aktif ve hücresel sinyal yolaklarında daha yıkıcı bir ksenobiyotiktir. Nörotoksisite, hepatotoksisite, karsinojenisite ile üreme ve metabolik sistemler üzerindeki bu çok boyutlu moleküler zararlar göz önüne alındığında, BPAF'nin endüstriyel kullanımının uluslararası sağlık ve çevre otoriteleri tarafından acilen yeniden değerlendirilmesi elzemdir. Gelecek klinik ve preklinik çalışmaların, bu florlu analoğun anne karnından itibaren transjenerasyonel etkilerini aydınlatmaya ve hücresel düzeyde oluşturduğu oksidatif/enflamatuvar stresi önleyebilecek potansiyel biyolojik koruyucu ajanların geliştirilmesine odaklanması gerekmektedir.

Anahtar Kelimeler: Bisfenol AF (BPAF), Endokrin Bozucu, Bisfenoller, Toksisite.

HAZARDOUS BISPHENOL ANALOGUE: BPAF

Abstract

Following the regulatory restriction of Bisphenol A (BPA) in the production of polycarbonate plastics and epoxy resins within the plastic and polymer industry, structural analogues such as Bisphenol AF (BPAF) have been introduced to the market as alternatives. While BPAF provides high thermal and chemical stability industrially due to the fluorine atoms in its molecular structure, this dramatically increases its resistance to degradation and its bioaccumulation potential. The detection of BPAF in increasing concentrations in human urine, blood serum, umbilical cord blood, amniotic fluid, and breast milk in recent global epidemiological studies reveals the magnitude of the hidden public health threat posed by this chemical. This review aims to examine the toxicokinetic properties of BPAF at the cellular level, its molecular mechanisms of action, and its pathological effects on multiple organ systems from a detailed and current perspective, in light of studies available in current scientific databases. When the current scientific literature is analyzed, it is observed that the toxicodynamic profile of BPAF is much more aggressive and dangerous than that of BPA, contrary to popular belief. In vitro competitive binding assays demonstrate that BPAF binds to estrogen receptors with an affinity approximately 20 times higher than that of BPA, and it also acts as a much more potent systemic endocrine disruptor through its antagonistic effects on androgen and thyroid receptors. At the cellular level, BPAF exposure has been reported to cause severe mitochondrial dysfunction by disrupting the mitochondrial membrane potential and to strongly trigger cellular lipid peroxidation alongside the excessive production of reactive oxygen species. This profound oxidative damage suppresses the Nrf-2/HO-1 and glutathione signaling pathways, which are the fundamental antioxidant defense mechanisms of the cell. Recently published in vivo rodent and zebrafish model studies indicate that BPAF inhibits spermatogenesis by disrupting the blood-testis barrier and causes severe reproductive toxicity by reducing oocyte quality in the female reproductive system. In addition, BPAF has been found to disrupt lipid metabolism and exhibit a significant obesogenic effect by inducing adipogenesis. Molecular toxicology and epigenetic data emphasize that chronic BPAF exposure alters DNA methylation profiles, paving the way for epigenetic aberrations in gene expression and caspase-3/9-mediated cellular apoptosis. It has also been definitively established that BPAF creates secondary inflammatory tissue damage in the liver and nervous system by activating macrophages and stimulating the release of pro-inflammatory cytokines. Described in the scientific literature as a typical example of a "regrettable substitution," BPAF is a xenobiotic that, due to the fluorination in its structure, is much more persistent in tissues, biologically more active, and more destructive to cellular signaling pathways compared to the original molecule, BPA. Considering these multidimensional molecular damages concerning neurotoxicity, hepatotoxicity, carcinogenicity, and reproductive and metabolic systems, it is imperative that the industrial use of BPAF be urgently re-evaluated by international health and environmental authorities. Future clinical and preclinical studies must focus on elucidating the transgenerational effects of this fluorinated analogue starting from the fetal period and on developing potential biological protective agents capable of preventing the oxidative and inflammatory stress it induces at the cellular level.

Keywords: Bisphenol AF (BPAF), Endocrine Disruptor, Bisphenols, Toxicity.

BIOINFORMATICS AND MACHINE LEARNING IN DRUG DISCOVERY: ACCELERATING THERAPEUTIC INNOVATION

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Abstract

Drug discovery remains one of the most challenging, time-consuming, and expensive processes in modern healthcare, often requiring more than a decade of research and investments exceeding billions of dollars before a therapeutic candidate reaches the market. Recent advances in bioinformatics and machine learning (ML) have transformed the pharmaceutical research landscape by enabling faster target identification, compound screening, lead optimization, and toxicity prediction. This study explores the integration of bioinformatics and machine learning in accelerating therapeutic innovation and improving drug development outcomes. The paper adopts a qualitative review methodology based on the analysis of contemporary peer-reviewed literature, scientific reports, and bioinformatics databases published between 2023 and 2025. The review demonstrates that bioinformatics provides the computational foundation for managing and interpreting large-scale biological datasets generated through genomics, proteomics, transcriptomics, metabolomics, and systems biology. Machine learning algorithms further enhance these capabilities by identifying hidden patterns, predicting molecular interactions, and generating novel therapeutic compounds with improved efficacy and safety profiles. Emerging technologies such as deep learning, graph neural networks, explainable artificial intelligence, and generative AI have significantly reduced the complexity and cost associated with traditional drug discovery pipelines. Furthermore, advances in protein structure prediction, exemplified by AlphaFold and related computational frameworks, have revolutionized target-based drug design and precision medicine initiatives. Despite these achievements, several challenges remain, including data quality issues, algorithmic bias, model interpretability, regulatory uncertainty, and the need for robust validation frameworks. The study concludes that the convergence of bioinformatics and machine learning is reshaping pharmaceutical innovation by improving predictive accuracy, accelerating candidate selection, and supporting personalized therapeutic development. Continued investment in computational infrastructure, interdisciplinary collaboration, and explainable AI frameworks will be critical to maximizing the benefits of these technologies for future healthcare systems.

Keyword: Artificial Intelligence; Bioinformatics; Drug Discovery; Machine Learning.

BUTTERFLY PEA FLOWER WITH MEDICINAL USES AND AI IN DRUG DEVELOPMENT

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Abstract

Sangupoo, scientifically known as Clitoria ternatea and commonly called Butterfly Pea Flower, is a medicinal plant widely used in traditional medicine systems. The flower contains bioactive compounds such as anthocyanins, flavonoids, and antioxidants that provide various health benefits. Sangupoo is used for improving memory, reducing stress, enhancing skin and hair health, controlling blood sugar, and supporting brain function. It also possesses anti-inflammatory, antimicrobial, and anti-diabetic properties. Herbal teas and natural medicines prepared from this flower are becoming popular due to their therapeutic value and natural origin.

In recent years, Artificial Intelligence (AI) has played an important role in studying medicinal plants like Sangupoo for drug discovery and healthcare applications. AI technologies help researchers analyze the chemical compounds present in the plant, predict medicinal properties, and identify potential drug formulations more quickly and accurately. Machine learning and data analysis techniques are used to study the effectiveness of herbal compounds against diseases such as diabetes, cancer, and neurological disorders. Thus, the combination of traditional herbal medicine and AI-based drug research can contribute to the development of safer, faster, and more effective medicines in the future.

Keywords: Sangupoo, Clitoria ternatea, Butterfly Pea Flower, Medicinal Plant, Phytochemicals.

CANCER CHEMOTHERAPY: RECENT ADVANCES

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Abstract

Cancer remains one of the leading causes of morbidity and mortality worldwide, posing a significant challenge to healthcare systems. Chemotherapy has long been a cornerstone in the treatment of various malignancies, functioning by inhibiting the growth and proliferation of rapidly dividing cancer cells. However, conventional chemotherapy is often associated with severe adverse effects, drug resistance, and limited selectivity toward tumor cells. Recent advances in cancer chemotherapy have focused on improving therapeutic efficacy while minimizing toxicity to healthy tissues. The development of targeted chemotherapeutic agents, antibody-drug conjugates, nanotechnology-based drug delivery systems, and combination therapies has significantly enhanced treatment outcomes. Nanocarriers such as liposomes, polymeric nanoparticles, and micelles improve drug bioavailability and facilitate targeted delivery to tumor sites, reducing systemic side effects. Furthermore, advances in molecular biology have enabled the identification of specific genetic and cellular targets, leading to the development of personalized chemotherapy approaches tailored to individual patient profiles. Immunochemotherapy, which combines chemotherapy with immunotherapeutic agents, has also shown promising results in improving survival rates and treatment responses. Additionally, the integration of artificial intelligence and bioinformatics in drug discovery has accelerated the development of novel anticancer agents and optimized treatment strategies. Despite these advancements, challenges such as multidrug resistance, treatment costs, and long-term safety concerns continue to affect clinical outcomes. Ongoing research aims to address these limitations and develop more effective, safer, and patient-centered therapeutic approaches. This review highlights the recent advances in cancer chemotherapy, their clinical significance, and future prospects in cancer management.

Keywords: Cancer Chemotherapy, Targeted Therapy, Nanotechnology, Antibody-Drug Conjugates, Personalized Medicine, Immunochemotherapy, Drug Resistance, Cancer Treatment.

POTENTIAL ROLE OF THYROXINE (T4)-INTEGRIN αvβ3 SIGNALING IN PLATELET TRANSCRIPTOMIC REPROGRAMMING AND THYROID CANCER PROGRESSION

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Abstract

Platelets are increasingly recognized as active regulators of cancer progression beyond their classical role in hemostasis. In the tumor microenvironment, bidirectional interactions between platelets and cancer cells promote immune evasion, angiogenesis, metastasis, and cancer-associated thrombosis. Tumor cells can also induce molecular and functional changes in circulating platelets, giving rise to tumor-educated platelets (TEPs), which exhibit altered secretomes, vesicular release, and transcriptomic profiles.

Recent advances highlight platelet-derived extracellular vesicles (PEVs) as key mediators of intercellular communication, carrying bioactive molecules including proteins, mRNAs, and miRNAs that contribute to tumor progression. In parallel, thyroid hormones—particularly thyroxine (T4)—have been identified as non-genomic regulators of cancer biology through binding to the membrane integrin αvβ3, activating downstream signaling pathways such as MAPK/ERK and PI3K/AKT.

While integrin αvβ3 signaling is well established in tumor and endothelial cells, its role in platelet biology remains poorly characterized. Considering the emerging concept of platelet plasticity and transcriptomic responsiveness, it is plausible that T4-mediated activation of platelet integrin αvβ3 may contribute to platelet reprogramming and influence their interaction with thyroid cancer cells.

This review explores current evidence on platelet–tumor interactions, platelet-derived extracellular vesicles, and tumor-educated platelets, with a specific focus on thyroid cancer. It further proposes a potential mechanistic axis linking T4–integrin αvβ3 signaling to platelet transcriptomic remodeling and tumor progression, highlighting emerging diagnostic and therapeutic perspectives.

Keywords: Platelets; Tumor-educated platelets; Thyroxine (T4); Integrin αvβ3; Thyroid cancer; Extracellular vesicles.

ISOQUINOLINE DERIVATIVES FROM 1,3-DIPOLAR CYCLOADDITIONS: A DFT AND DOCKING APPROACH TOWARD ALZHEIMER'S AND PARKINSON'S TREATMENT

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Abstract

Alzheimer's disease and Parkinson's disease are among the leading neurodegenerative disorders requiring the development of new therapeutic approaches. In this study, a series of isoquinoline derivatives resulting from 1,3-dipolar cycloaddition reactions was investigated using an approach combining density functional theory (DFT) and in silico molecular modeling. DFT calculations were used to evaluate the electronic properties, stability, and reactivity of the compounds. Molecular docking studies were then conducted to analyze their affinity for biological targets involved in neurodegenerative diseases. The results show favorable ligand–protein interactions and a satisfactory preliminary pharmacokinetic profile. These observations suggest that certain isoquinoline derivatives could be promising candidates for the development of new therapeutic agents against Alzheimer's and Parkinson's diseases.

Keywords: Isoquinoline, DFT, molecular docking, in silico modeling, Alzheimer's, Parkinson's.

EXPLORING NATURAL POLYPHENOLS AS SEROTONIN TRANSPORTER MODULATORS THROUGH IN SILICO APPROACHES

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Abstract

Major depressive disorder (MDD) remains a major global health concern and necessitates the discovery of safer and more effective therapeutic agents. Natural polyphenols represent a rich source of bioactive compounds with potential neuropharmacological activity. In the present study, a library of 36 structurally diverse polyphenols, including flavonoids, phenolic acids, stilbenes, lignans, curcuminoids, and tannins, was investigated for their ability to modulate the serotonin transporter (SERT), a validated target in antidepressant therapy. Molecular docking studies were performed using AutoDock Vina against the fluoxetine-bound LeuBAT SERT homolog (PDB ID: 4MM8), and the docking protocol was validated through re-docking of fluoxetine. Binding interactions of the screened compounds were compared with those of the reference drug using interaction pattern analysis, while promising candidates were further evaluated through in silico ADMET profiling, including assessments of blood–brain barrier permeability, metabolic properties, mutagenicity, and cardiac safety. The investigated compounds exhibited docking scores ranging from −6.1 to −10.8 kcal/mol, with neoeriocitrin and baicalin showing the strongest predicted binding affinities. However, baicalin demonstrated a potential mutagenicity risk, reducing its suitability as a lead candidate. Interaction analysis revealed that several compounds, including neoeriocitrin, naringin, piceid, gallotannins, and matairesinol, shared important binding features with fluoxetine within the SERT active site. Although highly glycosylated polyphenols displayed limited predicted brain penetration, apigenin and luteolin exhibited a favorable balance between binding affinity and pharmacokinetic characteristics. Matairesinol also emerged as a promising candidate, although further investigation of its potential cardiac liability is required. Overall, the findings suggest that apigenin and luteolin represent promising natural scaffolds for future SERT-targeted antidepressant development and demonstrate the usefulness of integrating molecular docking, interaction analysis, and ADMET prediction for the rational prioritization of natural products in early-stage drug discovery.

Keywords: Major depressive disorder; Serotonin transporter (SERT); Natural polyphenols; Molecular docking; ADMET prediction; Antidepressant drug discovery.

OSILODROSTAT-INDUCED ADRENAL VOLUME REDUCTION IN PATIENTS WITH ACTH-DEPENDENT CUSHING'S SYNDROME

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Abstract

Medical therapy is increasingly used in the management of Cushing's syndrome (CS), and osilodrostat, a potent adrenal steroidogenesis inhibitor, has emerged as an effective treatment option. However, prolonged adrenal insufficiency (AI) has occasionally been reported during therapy. This retrospective longitudinal study evaluated whether osilodrostat-induced AI is associated with adrenal gland shrinkage. The study included patients with ACTH-dependent CS treated at Oregon Health and Science University between January 2000 and July 2025. Eligible patients had received osilodrostat for more than three months and had computed tomography (CT) scans available before and after treatment for adrenal volume assessment.Ten patients were included, consisting of five with ectopic CS, four with an unknown ACTH source, and one with Cushing's disease. The mean starting, maximum, and final osilodrostat doses were 7.7 mg/day, 13.8 mg/day, and 5.9 mg/day, respectively, with an average treatment duration of 23 months. Four patients were managed using a block-and-replace regimen, and adrenal insufficiency developed in five patients. Adrenal gland volume was measured using manual CT image segmentation by a board-certified radiologist.Results demonstrated a significant reduction in adrenal gland volume, decreasing by an average of 46.7% from 25.5 ± 9.9 mL to 12.7 ± 6.4 mL over a median period of 19 months ($P < 0.001$). Furthermore, the degree of adrenal volume reduction showed a positive correlation with the maximum osilodrostat dose administered ($r = 0.626$, $P = 0.027$). These findings suggest that osilodrostat can cause marked adrenal gland shrinkage in selected patients with ACTH-dependent CS, regardless of whether adrenal insufficiency develops. Larger studies are needed to confirm these observations and to better understand the relationship between adrenal shrinkage and AI during treatment.

Keywords: Cushing's syndrome; adrenal insufficiency; adrenal steroidogenesis inhibitors; adrenal volume; osilodrostat

HYPERTENSION: CURRENT TRENDS IN MANAGEMENT AND THE ROLE OF PHARMACISTS IN PATIENT CARE

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Abstract

Background: Hypertension is a major global public health problem affecting over 1.28 billion adults worldwide. It is a leading risk factor for cardiovascular diseases, stroke, and kidney failure. Poor medication adherence and inadequate awareness contribute significantly to uncontrolled blood pressure, increasing the risk of severe health complications.

Objective: To review the pathophysiology, classification, and current treatment approaches for hypertension while highlighting the pharmacist's role in patient counselling, medication management, and improving therapeutic outcomes.

Methodology: A review of literature was conducted using standard textbooks, review articles, and published research studies related to hypertension, its management, and pharmacist-led interventions in patient care.

Results: Hypertension is classified into primary and secondary hypertension, with lifestyle factors such as obesity, unhealthy diet, physical inactivity, and stress playing major roles in disease development. Management involves lifestyle modifications and pharmacological treatment using antihypertensive agents such as ACE inhibitors, calcium channel blockers, diuretics, and beta-blockers. Pharmacist involvement in blood pressure monitoring, medication counselling, adverse effect management, and adherence support has been shown to improve treatment outcomes.

Novelty: This review highlights the expanding role of pharmacists in hypertension management, emphasizing their contribution to patient education, early screening, medication adherence, and community awareness programs. It also underlines the importance of involving B.Pharm students in public health initiatives related to hypertension prevention and control.

Conclusion: Effective management of hypertension requires a multidisciplinary approach involving healthcare professionals and patients. Pharmacists play a crucial role in improving disease awareness, promoting adherence to therapy, and supporting blood pressure control, thereby reducing the overall burden of hypertension and its complications.

Keywords: Hypertension, Blood Pressure, Pharmacist, Patient Counselling, Antihypertensive Drugs, Medication Adherence.

DEVELOPMENT AND EVALUATION OF NANOCARRIER-BASED TOPICAL DELIVERY SYSTEMS FOR OZENOXACIN TO IMPROVE THERAPEUTIC EFFECT

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Abstract

Introduction: Impetigo is one of the most prevalent superficial bacterial skin infections globally, with an estimated 162 million children affected at any given time, particularly in resource-limited and tropical settings. The disease is predominantly caused by Staphylococcus aureus (including MRSA) and Streptococcus pyogenes and is associated with serious post-infectious sequelae when inadequately treated. Conventional topical antibiotics such as mupirocin and fusidic acid are facing escalating antimicrobial resistance, while standard cream formulations suffer from poor skin penetration, rapid physical removal, and frequent re-application requirements — all of which compromise clinical outcomes and patient adherence.

Aim of the Study: This study aimed to design and evaluate novel chitosan (CS)-based nanocarrier (NC) systems loaded with ozenoxacin (OZX) — a potent non-fluorinated quinolone with dual inhibition of bacterial DNA gyrase and topoisomerase IV — and to incorporate the optimized nanoparticles into a Carbopol 940 nanogel, with the overarching goal of enhancing dermal bioavailability, skin retention, and therapeutic efficacy of OZX in the topical treatment of impetigo.

Methodology: OZX-loaded CS nanoparticles (OZX-NC) were prepared by ionic gelation with sodium tripolyphosphate (TPP) under mild aqueous conditions. Formulation variables were systematically optimized: CS concentration (0.1–0.3% w/v), TPP volume (1–4 mL), OZX loading (1.5–6 mg), and stirring speed (400–800 rpm). Physicochemical characterization included dynamic light scattering (DLS) for particle size, PDI and zeta potential, UV-Vis spectrophotometry for entrapment efficiency (%EE), and solid-state analysis by DSC, XRD, and FTIR. Scanning electron microscopy (SEM) was used for morphological evaluation. In vitro drug release was studied using the dialysis bag method in PBS pH 7.4 over 24 hours, and release kinetics were modeled using zero-order, first-order, Higuchi, Hixson–Crowell, and Korsmeyer–Peppas equations. In vitro skin permeation was assessed using Franz diffusion cells with Strat-M synthetic membranes. The nanogel was evaluated for viscosity, pH, spreadability, drug content uniformity, and stability over 6 months at 25°C.

Results: The optimized OZX-NC formulation (0.2% CS, 3 mL TPP, 3 mg OZX, 600 rpm) exhibited a mean particle size of 260 ± 36 nm, PDI of 0.33 ± 0.02, zeta potential of +30.1 ± 0.4 mV, and %EE of 86.1 ± 0.5%. SEM confirmed discrete spherical morphology with smooth surfaces. DSC and XRD demonstrated successful amorphization of OZX within the CS-TPP matrix, while FTIR confirmed non-covalent drug–polymer interactions without chemical degradation. In vitro release showed a biphasic profile with 81.5% cumulative release at 24 hours (vs. 43.5% for conventional suspension), best fitting the Higuchi model (R^2 = 0.96) with a Korsmeyer–Peppas exponent n = 0.79 (anomalous transport). Franz diffusion cell studies revealed a cumulative permeation of 154.89 ± 4.34 μg/cm² from the nanogel vs. 63.69 ± 1.89 μg/cm² from the conventional suspension at 6 hours, with a permeation enhancement factor of 2.24 ± 0.15, doubled steady-state flux (19.79 vs. 8.85 μg/cm²/h), and doubled permeability coefficient. The nanogel demonstrated appropriate viscosity (893 cP), physiological pH (6.57), excellent spreadability, and near-100% drug content uniformity. Six-month stability studies confirmed minimal changes in all critical quality attributes.

Conclusion & Scientific Significance: The developed OZX-loaded CS nanogel constitutes a rationally designed, pharmaceutically validated topical delivery platform offering superior skin permeation, controlled drug release, and long-term physicochemical stability compared to conventional formulations. The dual antibacterial mechanism of OZX combined with the bioadhesive, permeation-enhancing, and intrinsic antimicrobial properties of chitosan creates a synergistic system specifically

suited for infected epidermal sites. These results provide a compelling scientific basis for advancing CS-based nanocarrier systems as next-generation topical antibiotics to combat impetigo and address the global challenge of antimicrobial resistance in superficial skin infections, warranting further in vivo validation and clinical translation.

Keywords: Ozenoxacin; Chitosan nanoparticles; Ionic gelation; Nanogel; Impetigo; Topical drug delivery; Skin permeation; Sustained release; Antimicrobial resistance

INNOVATIVE POLYMERIC MICRONEEDLES FOR TARGETED AND SUSTAINED DRUG DELIVERY

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Abstract

Polymeric microneedles (PMNs) have emerged as an innovative and minimally invasive platform for nano-enabled drug delivery, offering an effective alternative to conventional oral and parenteral routes. These micron-sized needle arrays are fabricated from biocompatible and biodegradable polymers such as polyvinylpyrrolidone (PVP), polylactic acid (PLA), polylactic-co-glycolic acid (PLGA), chitosan, and hyaluronic acid. Upon application, polymeric microneedles painlessly penetrate the stratum corneum and create transient microchannels that facilitate enhanced transdermal transport of therapeutic agents without reaching nerve-rich deeper tissues.The integration of nanotechnology with microneedle systems significantly improves drug solubility, stability, and bioavailability. Various nanocarriers including polymeric nanoparticles, solid lipid nanoparticles, liposomes, nanosponges, and nanoemulsions can be incorporated within dissolving or biodegradable microneedle matrices to enable controlled and sustained drug release. This nano-enabled approach is particularly advantageous for delivering poorly water-soluble drugs, peptides, proteins, vaccines, insulin, and phytoconstituents that otherwise face degradation or limited permeability.Depending on their design, polymeric microneedles can be classified as dissolving, hydrogel-forming, biodegradable, or coated systems, each offering distinct release mechanisms and therapeutic benefits. The combination of nanocarriers and microneedles enhances targeting efficiency, reduces systemic side effects, and improves patient compliance due to its painless and self-administrable nature.Overall, polymeric microneedles integrated with nano-based drug delivery systems represent a versatile and promising strategy in advanced therapeutics, with broad applications in vaccination, diabetes management, cancer therapy, and cosmetic dermatology.

Keywords: Polymeric microneedles, Nano-enabled drug delivery, Transdermal drug delivery Nanoparticles, Dissolving microneedles, Biodegradable polymers, Controlled release, Targeted, Nanosponges

NANOTECHNOLOGY IN DRUG DELIVERY SYSTEMS

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Abstract:

High precision, controlled release, and targeted methods of therapeutic substances are provided by nanotechnology-based drug delivery systems for the treatment of a variety of ailments. The potential of nanoparticles as a successful drug delivery method is enormous. It starts out by outlining the increasing demand for sophisticated drug delivery techniques to enhance treatment accuracy and efficacy. We covered current advancements in drug delivery using nanotechnology in this review. Nanotechnology has attracted attention recently as a solution to the delivery of drugs and genes. Drugs that are poorly soluble will be more soluble and bioavailable thanks to the nanosuspensions. The benefits, preparation process, physical attributes, and assessment of drug nanosuspensions are the main topics of this paper. A novel strategy to slow the progression of disease is the use of nanomaterials, such as peptide-based nanotubes, to target the vascular endothelial growth factor (VEGF) receptor and cell adhesion molecules like integrins, cadherins, and selectins. Drug delivery systems based on nanotechnology offer a number of benefits, but they also come with high production costs and clinical difficulties. All things considered, nanotechnology holds the potential to significantly improve patient satisfaction and drug delivery for the treatment of numerous illnesses. Additionally, site-specific drug delivery is made possible by nanotechnology, which lowers side effects and enhances therapeutic results. The potential of several nanocarriers, including liposomes, solid lipid nanoparticles, polymeric nanoparticles, and dendrimers, to improve drug stability and circulation time has been thoroughly studied. By lowering dosage frequency and guaranteeing sustained medication release, these devices improve patient compliance. It is anticipated that ongoing study and technical developments will get past present constraints and increase the clinical uses of nanotechnology in contemporary healthcare.

Key Words: Nanotechnology, Drug delivery system, Nanoparticles, Nanosuspensions, targeted drug delivery, Controlled drug Release, Nanocarriers, therapeutic agents, Bioavailability.

NANOPARTICLE DRUG DELIVERY: THE MAGIC BULLET FOR CHRONIC PULMONARY DISEASES

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Abstract

Chronic Pulmonary Diseases (CPDs) such as Chronic Obstructive Pulmonary Disease (COPD), asthma, cystic fibrosis (CF), idiopathic pulmonary fibrosis (IPF), and lung cancer affect millions of individuals and contribute significantly to global morbidity and mortality. Despite advances in pharmacotherapy, conventional treatments including bronchodilators, corticosteroids, antibiotics, chemotherapeutic agents, and peptide-based therapeutics often show limited efficacy due to poor lung deposition, rapid systemic clearance, low bioavailability, off-target effects, and dose-related toxicity. These limitations necessitate innovative approaches capable of delivering drugs precisely to diseased pulmonary tissues.

Nanoparticle-based drug delivery systems have emerged as promising “Magic Bullet” technology in pulmonary medicine owing to their unique physicochemical properties. By overcoming respiratory barriers, nanoparticles enhance drug stability, improve pharmacokinetics, increase drug accumulation at diseased sites, and reduce systemic side effects, thereby improving therapeutic outcomes.

Recent advances in pulmonary nanomedicine have led to inhalable nanosuspensions, nebulized formulations, and dry powder inhalers with improved lung deposition and patient compliance. Surface-functionalized nanoparticles also enable targeted delivery of genes, peptides, proteins, and RNA-based therapeutics, highlighting the growing potential of nanotechnology in respiratory healthcare.

However, challenges related to toxicity, long-term biocompatibility, manufacturing scalability, regulatory approval, and clinical safety remain critical for successful clinical translation. This review highlights the design, preparation methods, therapeutic applications, advantages, and recent advancements of nanoparticle-based drug delivery systems in CPDs. It also discusses emerging trends, safety concerns, and future perspectives that may shape the next generation of targeted pulmonary therapies. Overall, nanoparticle-mediated pulmonary drug delivery holds significant potential to enhance therapeutic efficacy, reduce systemic toxicity, and advance precision medicine in respiratory disease management.

Keywords: Nanoparticles, Drug Delivery System, Chronic Pulmonary Diseases, Targeted Therapy, Pulmonary Drug Delivery, Nanomedicine, Magic Bullet, Inhalation Therapy, Respiratory Disorders, Precision Medicine.

NANOTECHNOLOGY IN DRUG DELIVERY: CURRENT APPLICATIONS AND FUTURE PROSPECTS IN PHARMACY PRACTICE

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Abstract

Background: Nanotechnology has emerged as a revolutionary approach in drug delivery, offering innovative solutions to overcome the limitations of conventional dosage forms. By utilizing nanoparticles and nanocarriers, drugs can be delivered more efficiently, improving therapeutic outcomes and minimizing adverse effects. The growing application of nanotechnology has significantly influenced modern pharmacy practice.

Objective: To review the current applications of nanotechnology in drug delivery and explore its prospects in enhancing pharmaceutical care and patient outcomes.

Methodology: A literature-based review was conducted using scientific journals, review articles, and published research studies related to nanotechnology, nanocarriers, targeted drug delivery systems, and their applications in pharmacy practice.

Results: The review indicated that nanotechnology-based drug delivery systems, including liposomes, polymeric nanoparticles, dendrimers, micelles, and solid lipid nanoparticles, have demonstrated improved drug solubility, bioavailability, stability, and targeted delivery. These systems are widely applied in the treatment of cancer, infectious diseases, cardiovascular disorders, and neurological conditions. Nanotechnology has also contributed to controlled drug release, reduced toxicity, and enhanced patient compliance. Despite these advantages, challenges such as high production costs, safety concerns, regulatory issues, and large-scale manufacturing limitations remain.

Conclusion: Nanotechnology has transformed drug delivery by enabling precise and effective therapeutic interventions. Its continued advancement offers significant potential for personalized medicine and improved healthcare outcomes. Further research, regulatory standardization, and technological innovations are necessary to fully realize its benefits in pharmacy practice.

Keywords: Nanotechnology, Drug delivery systems, Nanoparticles, Targeted drug delivery, Pharmacy practice, Liposomes, Controlled release, Personalized medicine.

ARTIFICIAL INTELLIGENCE – DRIVEN PERSONALIZED DRUG DELIVERY SYSTEMS: REVOLUTIONIZING PRECISION MEDICINE

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Abstract

By tailoring treatment regimens to each patient's distinct characteristics, personalized medicine has transformed precision medicine and emerged as a ground-breaking method for optimizing therapeutic results. In recent years, the pharmaceutics industry has focused a lot of emphasis on the potential of artificial intelligence (AI) to enhance the design, development, and optimization of tailored drug delivery systems. AI-based techniques like machine learning and deep learning algorithms enable precise prediction of drug release patterns, formulation features, and patient-specific dosing schedules. AI's integration with cutting-edge technologies like nanotechnology and three-dimensional (3D) printing has made it easier to design customized dosage forms with improved efficacy, safety, and patient adherence. AI-driven techniques provide real-time data processing and monitoring, as well as precision medicine and better treatment outcomes. Despite challenges related to data quality, legal concerns, and ethical quandaries, the application of AI in tailored drug administration has immense potential to revolutionize the field of pharmaceutical sciences. By outlining recent advancements, applications, opportunities, and issues associated with these systems, this paper emphasizes the significance of AI-driven customized pharmaceutical delivery systems in revolutionizing precision medicine.

Keywords: Patient-centered therapy, drug delivery systems for pharmaceutical formulations, machine learning for precision, medicine deep learning, nanotechnology for 3D printing, and customized medication administration.

EVALUATION AND DEVELOPMENT OF TOPICAL FORMULATION MICROALGAE DERIVED COMPOUNDS FOR THE MANAGEMENT OF SKIN DISEASES

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Abstract

Psoriasis, photoaging, atopic dermatitis and contact dermatitis are complex diseases which feature oxidative stress, inflammation, and malfunction of the skin barrier. Searching for natural effective medicinal substances has increased interest in the use of microalgae, a potential source of active compounds with antioxidant, anti-inflammatory and nutraceutical properties. This study aims at exploring and developing microalgae-based compounds for treatment of skin diseases using a combination of computational and experimental methods. Some of the microalgal species, such as Spirulina, Haematococcus and Chlorella, were selected based on their ability to interact with SIRT1 protein, an important regulator involved in the stress response and inflammation. Molecular docking was performed to estimate binding capacity and mode of interaction between the chosen drugs and the target protein. Moreover, preformulation tests were done to evaluate physicochemical properties and formulation suitability of the chosen bioactives for topical application. Finally, antioxidant activity and protein denaturation assays were performed to establish the radical-scavenging and anti-inflammatory properties of the selected drugs. Preliminary results suggest that some microalgae-based drugs can be effective for treatment of skin diseases which are caused by inflammatory and oxidative stress. Further in vivo studies are intended to evaluate the anti-psoriatic and defending effect of the developed formulation.

Keywords: microalgae, skin disorders, SIRT1, docking, antioxidant, nutraceuticals.

A REVIEW ON NANOPARTICLES: CHARACTERISTICS, SYNTHESIS, APPLICATIONS, AND CHALLENGES

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Abstract

The pivotal role of nanoparticles (NPs) in driving modern technological breakthroughs stems from their highly tunable physicochemical properties and superior performance metrics relative to their bulk counterparts. Traditionally, the fabrication of these nanomaterials relies on chemical reduction pathways that demand hazardous reducing agents, raising substantial ecological and human health concerns. In response, recent research paradigms have shifted toward sustainable green technology to bypass toxic chemical precursors. By utilizing biological systems such as plants, bacteria, fungi, yeast, actinomycetes, and algae, green synthesis offers an eco-friendly, economically viable, and highly efficient manufacturing alternative. These biogenic pathways utilize natural biomolecules to achieve clean and uncomplicated nanoparticle reduction and stabilization. This review paper provides an in-depth analysis of nanoparticle classifications and traits, contrasts traditional and biological synthesis strategies, highlights their cross-industry applications, and outlines the critical prospects and technical challenges governing their future commercial scaling.

Keywords: green synthesis, nanoparticles, nanotechnology, biological synthesis, microbial nanotechnology, bionanotechnology

COMPARATIVE PHENOTYPIC AND GENOTYPIC ANTIMICROBIAL RESISTANCE IN *ENTEROBACTERIACEAE* FROM WILD AND DOMESTICATED BIRDS

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Abstract

Antimicrobial resistance (AMR) in avian *Enterobacteriaceae* poses significant challenges to animal and public health. This study evaluated the phenotypic and genotypic profiles of *Enterobacteriaceae* from wild and domesticated birds in Sokoto, Nigeria, integrating Kirby–Bauer antibiotic susceptibility data with molecular detection of resistance genes (*blaTEM*, *blaCTX-M*, *blaSHV*) and Class 1 integrons (intI1). A total of 90 bacterial isolates were analyzed, with domestic birds exhibiting higher multidrug resistance (MARI) values compared to wild birds. Phenotypic resistance patterns strongly correlated with the presence of β-lactamase genes, although some resistant isolates lacked the tested genes, indicating additional resistance mechanisms. Co-occurrence of resistance genes with intI1 in domestic birds highlights the role of mobile genetic elements in horizontal gene transfer. Wild birds, while showing lower resistance rates, may serve as vectors bridging environmental and anthropogenic reservoirs. These findings underscore the One Health implications of AMR, linking bird husbandry practices, environmental exposure, and potential zoonotic transmission. The study advocates for integrated strategies including prudent antibiotic use, molecular surveillance, and enhanced biosecurity to curb the spread of resistance. Overall, the correlation between phenotypic and genotypic data provides critical insight into the epidemiology of AMR in avian hosts, informing both veterinary and public health interventions.

Keywords: Antimicrobial Resistance, Phenotypic, Genotypic, Domesticated Birds *Enterobacteriaceae*, B-Lactamase

ENVIRONMENTAL AND ECOLOGICAL IMPLICATIONS OF AVIAN RESERVOIRS OF ANTIMICROBIAL-RESISTANT ENTEROBACTERIACEAE

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Abstract

Avian species, both wild and domesticated, serve as important reservoirs and disseminators of antimicrobial-resistant (AMR) bacteria. This study examined the environmental and ecological implications of Enterobacteriaceae harboring resistance determinants from wild and domestic birds in Sokoto, Nigeria, within a One Health framework. Laboratory and literature data were synthesized to assess prevalence, phenotypic resistance patterns, and genotypic determinants (bla_TEM, bla_SHV, bla_CTX-M, and intI1). Domestic birds showed a higher prevalence of multidrug-resistant isolates than wild birds, reflecting greater anthropogenic antibiotic exposure. Resistance to β-lactams, tetracyclines, and fluoroquinolones was widespread, with frequent detection of extended-spectrum β-lactamase (ESBL) genes. The presence of Class 1 integrons (intI1) suggests active horizontal gene transfer and environmental dissemination. Wild birds likely acquired resistant bacteria from contaminated habitats, while domestic birds amplified resistance through direct antibiotic pressure. Both groups contribute to AMR persistence across ecological boundaries. These findings highlight the need for integrated AMR surveillance, responsible antibiotic use, and strengthened One Health interventions.

Keywords: Antimicrobial resistance, *Enterobacteriaceae*, wild birds, domestic poultry, ESBL, integrons, One Health, Sokoto, Nigeria

OPTIMIZING MYCOBACTERIUM ISOLATION: A COMPARATIVE ANALYSIS OF DECONTAMINATION PROTOCOLS ACROSS ANIMAL SPECIES

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Abstract

Introduction: Non-tuberculous mycobacteria (NTM) are environmental pathogens capable of infecting both humans and animals. This study aims to optimize the isolation of Mycobacterium spp. from fecal samples by comparing the effectiveness of three decontamination protocols: 5% oxalic acid, modified Petroff's method (NaOH), and sulfuric acid treatment.

Methodology: Fecal samples from various animal species were processed using the three decontamination protocols and subsequently inoculated onto Löwenstein-Jensen medium. Mycobacterial growth and contamination rates were systematically evaluated.

Results: While the overall contamination rate remained low, the modified Petroff's method demonstrated reduced effectiveness with higher contamination rates. In contrast, both acid-based protocols (oxalic and sulfuric acid) showed significant superiority, effectively reducing contamination while enhancing mycobacterial recovery.

Conclusion: Acid-based methods prove more effective for isolating NTM from fecal matrices. This protocol optimization enhances mycobacterial detection in animal studies, with important implications for epidemiological surveillance and public health.

Keys words: NTM, LJ, decontamination methods, fecal samples.

PROSPECT OF MONOCLONAL ANTIBODIES IN COMBATING ANTI-MICROBIAL RESISTANCE

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Abstract

Antimicrobial resistance (AMR) is today considered a major health challenge globally as it reduces the efficacy of extant antibiotics, thereby making microbial infections increasingly hard to treat. AMR is also escalated by the emergence of multidrug-resistant pathogens. As a result, the search for alternative therapies for combating microbial infections is expanding continously. The administration of monoclonal antibodies (mAbs) is a promising therapeutic approach for combatting antimicrobial resistance. Monoclonal antibodies are engineered to recognize and bind to specific bacterial antigens, toxins, or virulence factors, thereby neutralizing their harmful effects and enhancing the immune response of the host. Additionally, their high specificity offers benefits such as reducing disturbance on normal flora and lowering the effect of selective pressure that drives the development of antimicrobial resistance. This feature distinguishes them from the broad-spectrum action of many current antibiotics. Recent studies indicate that mAbs had demonstrated efficacy in preventing infection and improving treatment outcomes against several clinically important antibiotic-resistant pathogens. Although limitations such as high production costs and regulatory hurdles exist, advances in antibody engineering and biotechnology could counter them, thereby improving the robustness and effectiveness of this therapy. This review assesses the role of monoclonal antibodies in combating AMR, their mechanisms of action, therapeutic potential, current limitations, and future prospects as part of the global effort to combat resistant microbial infections.

Keywords: Antibody engineering, biotechnology, public health, multi-drug resistant pathogens

MICROBIOME RESEARCH AND HUMAN HEALTH

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Abstract

The human microbiome comprises trillions of microorganisms, including bacteria, viruses, fungi, and archaea, that inhabit various body sites such as the gastrointestinal tract, skin, oral cavity, and respiratory system. Advances in high-throughput sequencing technologies and bioinformatics have significantly expanded our understanding of the complex interactions between the microbiome and human health. The gut microbiome, in particular, plays a critical role in nutrient metabolism, immune system development, maintenance of intestinal barrier function, and protection against pathogenic microorganisms. A balanced microbial community contributes to overall health, whereas alterations in microbiome composition, known as dysbiosis, have been associated with numerous diseases, including obesity, diabetes, inflammatory bowel disease, cardiovascular disorders, allergies, autoimmune conditions, and neurological disorders.

Recent research has highlighted the bidirectional relationship between the microbiome and various physiological systems, including the gut-brain axis, which influences mental health, cognition, and behavior. Microbial metabolites such as short-chain fatty acids, neurotransmitters, and bioactive compounds are increasingly recognized as key mediators of host–microbe interactions. Furthermore, environmental factors, diet, lifestyle, medications, and antibiotic use can significantly influence microbiome diversity and function throughout an individual's lifespan.

The growing understanding of microbiome-host interactions has opened new avenues for disease prevention, diagnosis, and treatment. Therapeutic strategies such as probiotics, prebiotics, dietary interventions, and fecal microbiota transplantation have shown promising potential in restoring microbial balance and improving health outcomes. Additionally, personalized microbiome-based therapies represent an emerging frontier in precision medicine. Despite remarkable progress, challenges remain in establishing causal relationships, standardizing research methodologies, and translating scientific discoveries into clinical practice.

This review highlights the fundamental role of the human microbiome in maintaining health and contributing to disease development. It also discusses recent advances in microbiome research, therapeutic applications, and future prospects for microbiome-based interventions. Continued exploration of the human microbiome is expected to revolutionize modern medicine by providing innovative approaches for disease management and promoting overall health and well-being.

Keywords: Human microbiome, Gut microbiota, Dysbiosis, Probiotics, Prebiotics, Precision medicine, Gut-brain axis, Human health.

NIPAH VIRUS IN SOUTH ASIA: AN EMERGING PUBLIC HEALTH THREAT AND CHALLENGES FOR PREVENTION AND CONTROL

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Abstract

The high fatality rate, zoonotic nature and potential for sustained human-to-human transmission make Nipah virus a significant public health concern in South Asia. Bangladesh and India are particularly vulnerable with reports of Nipah virus infections nearly every year. Nipah virus (NIV) an enveloped RNA virus from the Paramyxoviridae family has Pteropus fruit bats as its natural reservoir. Interactions among wildlife, domestic animals and humans frequently lead to spillover events, highlighting the need for a One Health approach to prevention and control.In South Asia, one of the main routes of human infection is through consuming raw date palm sap contaminated by bat secretions.Outbreaks often occur during the sap collection season, mainly from January to May.Transmission can also happen via contact with infected animals like pigs or through close contact with infected people. Human-to-human transmission, especially in healthcare settings, has been crucial in many outbreaks, exacerbated by inadequate infection control measures. Healthcare workers are at particularly high risk of infection from patients with infectious diseases.

Therefore, measures such as patient isolation, use of personal protective equipment (PPE), proper hand hygiene and identifying and monitoring contacts are crucial to prevent further spread. The clinical signs of Nipah virus infection vary from common symptoms like fever, headache and respiratory issues to severe encephalitis and neurological complications. The disease has a high case fatality rate, with mortality exceeding 70% during outbreaks in Bangladesh and India. Challenges to controlling the virus include limited public awareness, weak surveillance systems and delays in diagnosis. For effective outbreak management, quick detection using reliable diagnostic methods like RT-PCR and serological tests is vital. An integrated surveillance system that combines wildlife monitoring, animal health surveillance, and human health efforts can help track viral circulation and lower transmission risks. Public awareness campaigns should emphasize avoiding raw date palm sap, practicing safe animal handling and recognizing early symptoms.Currently, there is no approved human vaccine or widely available specific antiviral treatment for Nipah.However,promising vaccine candidates-such as protein-based, viral-vector-based and nanoparticle-based vaccines -along with monoclonal antibody therapies, are under research. Enhancing laboratory capacity, genomic surveillance, healthcare preparedness, and international cooperation is essential to combat future outbreaks.

Nipah virus is a major public health concern in South Asia due to its high fatality, unpredictable emergence and pandemic potential. A One Health approach involving governments, healthcare workers, researchers, veterinarians and communities can enable rapid detection, control and prevention of outbreaks.

GENERATION OF EBV-TRANSFORMED LYMPHOBLASTOID CELL LINES FROM SEX-REVERSED PATIENTS: A RENEWABLE BIOBANK FOR GENOMIC AND SEX DETERMINATION STUDIES

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Abstract

Background: Sex reversal disorders (e.g., 46,XX male syndrome or 46,XY complete gonadal dysgenesis) are rare conditions characterized by a discrepancy between chromosomal sex and phenotypic sex, often resulting in infertility and hormonal imbalances. Epstein–Barr virus (EBV) transformation of B-lymphocytes generates long-lasting lymphoblastoid cell lines (LCLs), offering a method to preserve patient-derived genetic resources for ongoing research into the molecular mechanisms underlying sex determination and reversal.

Methods: Following informed consent, blood was collected from four sex-reversed cases, including 46,XX males with SRY translocation and 46,XY females with SRY mutations. Lymphocytes were isolated via Ficoll-Paque gradient, then transformed using EBV (B95-8) and cyclosporine A. LCLs were expanded, characterized, and cryopreserved. Quality control included mycoplasma detection (PCR/culture), sterility, species verification (PCR), and HBV/HCV/HIV screening.

Results: Successful establishment of four LCLs from sex-reversed individuals was achieved. Contamination tests for mycoplasma, bacteria, and fungi were all negative. Species verification confirmed human derivation, and pathogen screening for HBV, HCV, and HIV returned negative results. Catalogued LCLs were cryopreserved in liquid nitrogen vapor phase.

Conclusion: EBV-transformed cell lines from individuals with sex reversal provide a valuable and renewable bio-bank resource. Although direct fertility restoration remains challenging in many forms of sex reversal, this resource enables unlimited access to high-quality genomic DNA for future genetic association studies, epigenetic analyses (e.g., SRY, SOX9, DAX1 methylation patterns), and functional genomics to better understand the disruption of testicular or ovarian determination. All lines are available through the Iranian Biological Resource Centre. (https://ibrc.ir/).

EVALUATING LIGHT INTERACTION AND CLINICAL RELEVANCE OF CAD/CAM CERAMIC MATERIALS AFTER HYDROTHERMAL DEGRADATION

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Abstract

The continuous development of CAD/CAM restorative materials has improved both the aesthetic and functional outcomes of dental restorations. This in vitro study evaluated the translucency and opalescence of five CAD/CAM ceramic systems after hydrothermal degradation, including three monolithic zirconia grades, a polymer-infiltrated hybrid ceramic, and a lithium disilicate glass-ceramic. A total of 200 standardized specimens (14 × 12 × 1 mm, shade A2) were analyzed using a Vita Easyshade V spectrophotometer following the CIELAB color system. During thermocycling for all materials, a* and b* values decreased significantly ($p < 0.001$), indicating consistent shifts towards greener and bluer colors. Two-way ANOVA confirmed that both material and condition have statistically significant effects on L* ($p_{mat} < 0.001$ and $\eta_{mat}^2 = 0.980$; $p_{cond} < 0.001$ and $\eta_{cond}^2 = 0.725$). Furthermore, the interaction effect (Material*Condition) was also significantly large ($p_{int} < 0.001$ and $\eta_{int}^2 = 0.656$), indicating that the degree of green shift varies by material, with the largest effect on (LISI, ST and HT) and the smallest on UHT and CERASMART. Clinically, lithium disilicate is most suitable for highly aesthetic restorations, hybrid ceramics offer a balance between aesthetics and strength, and zirconia remains a reliable option for posterior restorations due to its superior mechanical properties. These findings emphasize the importance of material selection based on both optical characteristics and clinical requirements.

Keywords: CAD/CAM, esthetics, zirconia, hybrid ceramics, translucency, opalescence

EBEVEYNLERİN SAĞLİK OKURYAZARLIK DÜZEYLERİİ İLE İLKOKUL ÖĞRENCİLERİNİN ANTROPOMETRİK ÖLÇÜMLERİ VE GENEL SAĞLİK DURUMLARININ İLİŞKİSİ

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Özet

Giriş ve amaç: Ebeveynlerin sağlık okuryazarlığı düzeyi, çocuklarının sağlık ve gelişim durumları üzerinde kritik bir rol oynamaktadır. Düşük sağlık okuryazarlığına sahip ebeveynlerin çocuklarında, yetersiz beslenme alışkanlıkları, artan obezite riski, kronik böbrek hastalıkları, diyabet ve ağız sağlığı sorunları gibi çeşitli olumsuz sağlık sonuçlarına neden olduğu belirtilmektedir. Bu çalışma, ebeveynlerin sağlık okuryazarlık düzeyi ile ilkokul öğrencilerinin antropometrik ölçümleri ve genel sağlık durumu ilişkisini ortaya koymak amacıyla yapılmıştır.

Yöntemler: Bu çalışma, Fethiye ilçesindeki iki ilkokulda 15 Şubat- 31 Haziran 2023 tarihleri arasında yürütülen, tanımlayıcı ve ilişki arayıcı nitelikte bir araştırmadır. Araştırmanın örneklem büyüklüğünü belirlemek için güç analizi yapılmış, 2 ilkokulda bulunan 681 çocukları ve ebeveynleri çalışmaya dahil edilmiştir. Bu çalışma, Muğla Sıtkı Koçman Üniversitesi Sağlık Bilimleri Etik Kurulu'ndan alınan etik onay (230002/28) ile gerçekleştirilmiştir. Çalışmanın yürütülmesi için yetkili makamdan izin alınmıştır. Çalışmanın verileri Sosyo-demografik Veri Formu, Okul Çocuğu İzlem Formu ve Avrupa Sağlık Okuryazarlığı Ölçeği'nin Kısa Formu ile toplanmıştır. Veri toplama formları öğrencilerle birlikte ebeveynlerinde gönderilmiş, çocukların antropometrik ölçümleri ise bulundukları okulda tahsis edilen bir ofiste yapılmıştır. Veri analizinde, frekanslar ve yüzde dağılımlarının yanı sıra, katılımcıların sağlık okuryazarlık düzeyleri ile ebeveynlerin sosyodemografik özellikleri ve çocuklarının antropometrik ölçümleri arasındaki ilişkinin incelenmesi amacıyla Ki-kare testi ve Binary Regresyon Analizi kullanılmıştır. İstatistiksel analizlerde anlamlılık düzeyi olarak $p<0.05$ düzeyi kabul edilmiştir.

Bulgular: Ebeveynlerin %75.2'si kadındır ve yaş ortalamaları 37.40±5.89'dur. Ebeveynlerin %89.1'i evli ve %34.7'si lise mezunudur. Ebeveynlerin %56.1'i çalışmaktadır, %64.6'sının geliri giderine eşittir. Ebeveynlerin yaklaşık yarısı (%50.7) 2 çocuğa sahiptir. Ebeveynlerin %49'u kendi genel sağlık durumunu iyi olarak değerlendirirken, çocuklarının sağlık durumunu %47.3'ü iyi olarak değerlendirmiştir. Ebeveynlerin %59.6'sı sağlık hizmetlerine ilk başvurduklarında aile sağlığı merkezini tercih etmektedir. Ayrıca, %88.7'si sağlık haberlerini takip etmektedir. Çocukların yaş ortalaması 8.96±1.12 olup %7.6'ü kronik bir hastalığa sahiptir ve %11.7'si sürekli olarak enfeksiyon geçirmektedir. Çocukların %14'ünde görme problemleri ve%34.5'inde ağız ve diş problemleri mevcuttur. Çürük dişi

olanların oranı %55.7, dolgusu olanların oranı %27.8 ve kayıp dişi olanların oranı ise %21.1'dir. Çocukların %95.9'unun büyüme gelişme sorunu yoktur. Çocukların boy ortalaması 133.66±9.35 cm'dir ve kilo ortalaması 31.53±7.37 kg'dir. Yaşa göre ağırlık SDS düzeyi normal olanların oranı %88.4, yaşa göre boy SDS düzeyi normal olanların oranı %81.9 ve yaşa göre beden kitle indeksi SDS düzeyi normal olanların oranı ise %81.6'dır. Ebeveynlerin sağlık okuryazarlığı düzeyleri yeterli olarak değerlendirilmiştir. Eğitim düzeyi, medeni durum, çocukların genel sağlık durumu ve sağlık hizmetlerine erişim tercihleri gibi faktörlerle ebeveynlerin sağlık okuryazarlık düzeyleri arasında istatistiksel olarak anlamlı ilişkiler olduğu saptanmıştır ($p<.05$). Binary Regresyon Analizi sonucunda, erkeklerin (OR: 1.76, %95 GA: 1.050- 2.953), evlilerin (OR: 2.47, %95 GA: 1.209-5.055), lise mezunlarının (OR: 2.04, %95 GA: 1.210-3.470), üniversite mezunlarının (OR: 2.66, %95 GA: 1.492-4.762), ebeveynlerin genel sağlık durumlarını oldukça iyi belirtenlerin (OR: 2.33, %95 GA: 1.211-4.514), çocukların genel sağlık durumlarını iyi (OR: 1.96, %95 GA: 1.034- 3.730) ve mükemmel olarak belirtenlerin (OR: 5.79, %95 GA: 2.020- 16.601), hastaneye başvuran ebeveynlerin (OR: 1.60, %95 GA: 1.089- 2.353) yeterli sağlık okuryazarlığına sahip olduğu saptanmıştır.

Sonuçlar: Bekar olan, lise veya üniversite mezunu, genel sağlık durumlarını yüksek olarak değerlendiren, çocuklarının sağlık durumunu iyi veya mükemmel olarak algılayan, hastaneye başvuruda bulunan ve çocuklarında ağız ve diş sağlığı sorunları bulunmayan ebeveynlerin daha yüksek sağlık okuryazarlığı düzeyine sahip olduğu görülmüştür. Bu bağlamda, sağlık okuryazarlığını artırma ve geliştirme amacıyla, söz konusu demografik ve sağlıkla ilgili özelliklere sahip gruplara yönelik özel olarak tasarlanmış bilgilendirme ve eğitim programlarının hazırlanması önerilmektedir.

Anahtar Kelimeler: Ebeveyn, Genel Sağlık, İlkokul Öğrencileri, İlişki, Sağlık Okuryazarlığı.

THE RELATIONSHIP BETWEEN PARENTS' HEALTH LITERACY AND PRIMARY SCHOOL STUDENTS' ANTHROPOMETRIC MEASUREMENTS AND GENERAL HEALTH STATUS

Abstract

Introduction and Objective: The level of health literacy exhibited by parents has been demonstrated to exert a significant influence on the health and development of their offspring. It has been documented that children of parents with inadequate health literacy are susceptible to a range of detrimental health outcomes, including aberrant dietary habits, elevated risk of obesity, chronic kidney disease, diabetes, and oral health complications. The present study was conducted with a view to investigating the relationship between parents' health literacy levels and the anthropometric measurements and overall health status of elementary school students.

Methods: This study constitutes a descriptive and exploratory research project conducted at two elementary schools in the Fethiye district between 15 February and 31 June 2023. A power analysis was conducted to ascertain the requisite sample size, and the study was conducted on 681 children and their parents from two elementary schools. The present study was conducted in accordance with the ethical principles set out in the Health Sciences Ethics Committee of Muğla Sıtkı Koçman University (approval no. 230002/28). Permission was obtained from the relevant authorities to conduct the study. The data for the study was collected using three instruments: the Socio-demographic Data Form, the School Child Monitoring Form, and the Short Form of the European Health Literacy Scale. The data collection forms were distributed to both students and their parents, while the children's anthropometric measurements were taken in an office designated at their respective schools. In the data analysis, in addition to frequencies and percentage distributions, the Chi-square test and Binary Regression Analysis were used to examine the relationship between participants' health literacy levels and their parents' sociodemographic characteristics and their children's anthropometric measurements. In the statistical analyses, a significance level of $p<0.05$ was accepted.

Results: The demographic composition of the sample revealed a predominance of female parents, constituting 75.2% of the total. The mean age of these parents was found to be 37.40 years, with a

standard deviation of ± 5.89 years. A significant proportion of the parents are married, with 89.1% of the sample being married, and 34.7% of parents have a high school diploma. Furthermore, 56.1% of parents are employed, and 64.6% have an income equal to their expenses. It is estimated that approximately half of the parents (50.7%) have two children. While 49% of parents rate their own general health as good, 47.3% rate their children's health as good. Furthermore, it has been determined that 59.6% of parents opt to visit a family health centre when seeking healthcare for the first time. Furthermore, an overwhelming majority of 88.7% of respondents reported that they regularly engage with health-related news media. The mean age of the children was found to be 8.96 years ± 1.12 years; 7.6% of the children had a chronic illness, and 11.7% suffered from recurrent infections. Vision problems are present in 14% of the children, and oral and dental problems in 34.5%. The prevalence of decayed teeth was found to be 55.7%, while the prevalence of teeth that have been filled was 27.8%, and the prevalence of teeth that are missing was 21.1%. The vast majority of children, specifically 95.9%, exhibit no discernible issues related to growth or development. The mean height of the children is 133.66 cm (±9.35 cm), and the mean weight is 31.53 kg (±7.37 kg). The proportion of children demonstrating a normal weight-for-age SDS is 88.4%, the proportion demonstrating a normal height-for-age SDS is 81.9%, and the proportion demonstrating a normal body mass index-for-age SDS is 81.6%. The parents' levels of health literacy were found to be adequate. Statistically significant associations were identified between parents' levels of health literacy and factors such as educational level, marital status, children's general health status, and preferences regarding access to health services ($p<.05$). The results of the binary regression analysis indicate that men (odds ratio [OR]: 1.76, 95% confidence interval [CI]: 1.050–2.953), married individuals (OR: 2.47, 95% CI: 1.209–5.055), high school graduates (OR: 2.04, 95% CI: 1.210–3.470), and college graduates (OR: 2.66, 95% CI: 1.492–4.762) were found to have a higher probability of rating their parents' overall health as "very good" (OR: 2.33, 95% CI: 1.211–4.514). Similarly, those who rated their children's overall health as "good" (OR: 1.96, 95% CI: The findings of the study demonstrated that individuals with a score of 1.034 – 3.730 exhibited adequate health literacy (odds ratio [OR]: 5.79, 95% confidence interval [CI]: 2.020 – 16.601). Furthermore, it was observed that parents who sought medical care at a hospital (OR: 1.60, 95% CI: 1.089 – 2.353) demonstrated comparable levels of health literacy.

Conclusions: The study revealed that parents who are single, have a high school or college degree, rate their overall health as good, perceive their children's health as good or excellent, seek hospital care, and whose children do not have oral and dental health problems have higher levels of health literacy. In this context, it is recommended that information and education programs specifically designed for groups with these demographic and health-related characteristics be developed to enhance and improve health literacy.

Keywords: Parent, General Health, Primary School Students, Relationships, Health Literacy.

PANİK BOZUKLUK TANILI BİREYLERDE BİLİŞSEL DAVRANIŞÇI TERAPİNİN ETKİNLİĞİ: PSİKİYATRİ HEMŞİRELİĞİNE YANSIMALARI

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Özet

Bu derleme panik bozukluk tanılı bireylerin hemşirelik bakımında bilişsel davranışçı terapinin kullanımını ve bunun psikiyatri hemşireliğine nasıl yansıdığının belirlenmesi amacıyla yapılmıştır. Panik bozukluk; yoğun anksiyete, kontrol kaybı, ölüm korkusu, gerçek dışılık, baş dönmesi, nefes darlığı, bulantı ve kalp atım hızının artması gibi fiziksel ve bilişsel semptomların eşlik ettiği ani ve beklenmeyen panik ataklardan oluşan nüksler ve remisyonlarla süregiden bir hastalıktır. Panik bozukluk tedavisinde ilaç tedavisinin yanı sıra çeşitli terapi yöntemleri de ilave yöntemler olarak kullanılmaktadır. Bu yöntemlerden biri olan bilişsel davranışçı terapi, panik bozukluk tedavisinde ilk tercih edilen terapi yöntemi olarak yer almaktadır. Gün geçtikçe panik bozukluk hastalarının sayısı artmasına rağmen, bilişsel davranışçı terapi halen günümüzde hemşirelik bakım planlarında yer almamaktadır. Bunun nedeni bu alanda yeterli sayıda eğitimli psikiyatri hemşiresinin olmayışı olarak düşünülmektedir. Bu konuda psikiyatri hemşireliği alanında lisansüstü eğitim almış hemşirelerin bilişsel davranışçı terapi konusunda eğitimler alarak bu alanda gelişme göstermelidirler. Ayrıca, ruh sağlığı çalışanları arasında hastalarla en fazla vakit geçiren psikiyatri hemşireleri; panik bozukluk tedavisinde ilaç tedavisine ek olarak bilişsel davranışçı terapiyi rutin hemşirelik bakım planlarına entegre ederek uygulamaları gerekmektedir.

Anahtar Kelimeler: Bilişsel davranışçı terapi, Panik bozukluk, Psikiyatri Hemşireliği

THE EFFECTIVENESS OF COGNITIVE BEHAVIORAL THERAPY IN INDIVIDUALS DIAGNOSED WITH PANIC DISORDER: REFLECTIONS ON PSYCHIATRIC NURSING

Abstract

This review was conducted to determine the use of cognitive behavioral therapy in the nursing care of individuals diagnosed with panic disorder and its reflections on psychiatric nursing. Panic disorder is a condition characterized by relapses and remissions, consisting of sudden and unexpected panic attacks accompanied by physical and cognitive symptoms such as intense anxiety, loss of control, fear of death, unreality, dizziness, shortness of breath, nausea, and increased heart rate. In addition to pharmacological treatment, various therapy methods are used as adjunctive approaches in the treatment of panic disorder. Cognitive behavioral therapy, one of these methods, is considered the first-choice therapy in the treatment of panic disorder. Although the number of patients with panic disorder is increasing day by day, cognitive behavioral therapy is still not included in nursing care plans today. This is thought to be due to the lack of a sufficient number of trained psychiatric nurses in this field. In this regard, nurses who have received postgraduate education in the field of psychiatric nursing should develop themselves by receiving training in cognitive behavioral therapy. Furthermore, psychiatric nurses, who spend the most time with patients among mental health professionals, should implement cognitive behavioral therapy by integrating it into routine nursing care plans in addition to pharmacological treatment in the management of panic disorder.

Keywords: Cognitive behavioral therapy, Panic disorder, Psychiatric Nursing

TOTAL KALÇA ARTROPLASTİSİ UYGULANAN BİREYDE GORDON'UN FONKSİYONEL SAĞLIK ÖRÜNTÜLERİ MODELİNE GÖRE HEMŞİRELİK YAKLAŞIMI: OLGU SUNUMU

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Özet

Total kalça artroplastisi, kalçada ağrı ve fonksiyon kısıtlılığı olan bireylerde ağrının giderilmesi, eklem hareketliliğinin yeniden kazandırılması ve yaşam kalitesinin iyileştirilmesinde etkili bir cerrahi yöntemidir. Amerika Birleşik Devletleri'nde 2010 yılında 50 yaş ve üzeri yetişkinlerde total kalça artroplastisinin tahmini prevalansının %2,34 olduğu, Çin'de ise yılda 400.000'den fazla total kalça artroplastisi uygulandığı bildirilmektedir. Yaşlanan nüfus ve yaşam kalitesinin sürdürülmesine yönelik artan gereksinimler doğrultusunda total kalça artroplasti sıklığının daha da artacağı öngörülmektedir. Total kalça artroplastisi yaygın olarak yapılan bir cerrahi yöntem olmasına rağmen postoperatif komplikasyonlar; hastanede yatış süresinin uzamasına, enfeksiyon riskinin artmasına, bakım maliyetlerinin yükselmesine ve hastaların yaşam kalitesinin olumsuz etkilenmesine yol açabilmektedir. Bu nedenle postoperatif dönemde hastaların bütüncül bir yaklaşımla değerlendirilmesi ve hemşirelik bakımının sistematik olarak planlanması önem taşımaktadır. Hemşirelik bakım sürecinin bütüncül olarak değerlendirilmesini desteklemek amacıyla hemşirelik kuramcıları çeşitli modeller geliştirmiştir. Bu kuramcılardan Marjory Gordon'un Fonksiyonel Sağlık Örüntüleri Modeli, bireyin biyolojik, psikolojik ve sosyal gereksinimlerini kapsayan 11 fonksiyonel sağlık örüntüsü üzerinden kapsamlı bir değerlendirme yapılmasına olanak sağlamaktadır. Bu fonksiyonel alanlar, sistematik veri toplama yaklaşımı ile hemşirelik sürecinin yapılandırılmasını ve hasta gereksinimlerinin bütüncül biçimde analiz edilmesini olanak tanıyarak komplikasyon riskinin azaltılmasına, iyileşme sürecinin hızlandırılmasına ve hasta merkezli bakım anlayışının güçlendirilmesine katkıda bulunmaktadır.

Bu olguda, total kalça artroplastisi cerrahisi geçiren bireyin postoperatif 0.gündeki hemşirelik bakımı (8-16 şifti), Marjory Gordon'un Fonksiyonel Sağlık Örüntüleri Modeli ile değerlendirilmiştir. Fonksiyonel Sağlık Örüntüleri Modeli kapsamında yer alan 11 fonksiyonel sağlık örüntülerinden 8'inde hastaya ilişkin bakım gereksinimleri saptanmış ve bu gereksinimler kavram haritası ile şematize edilmiştir. Bu doğrultuda, hemşirelerin postoperatif dönemde hemşirelik bakımını Marjory Gordon'un Fonksiyonel Sağlık Örüntüleri Modeli çerçevesinde planlamaları ve uygulamaları önerilmektedir.

Anahtar Kelimeler: Total Kalça Artroplasti, Fonksiyonel Sağlık Örüntüleri Modeli, Hemşirelik Bakımı, Hemşirelik Modeli.

NURSING CARE ACCORDING TO GORDON'S FUNCTIONAL HEALTH PATTERNS MODEL IN AN INDIVIDUAL UNDERGOING TOTAL HIP ARTHROPLASTY: A CASE REPORT

Abstract

Total hip arthroplasty is an effective surgical procedure for relieving pain, restoring joint mobility, and improving quality of life in individuals experiencing hip pain and functional limitations. In the United

States, the estimated prevalence of total hip arthroplasty among adults aged 50 years and older was reported to be 2.34% in 2010, while more than 400,000 total hip arthroplasties are performed annually in China. In line with population aging and the increasing need to maintain quality of life, the frequency of total hip arthroplasty is expected to rise further. Although total hip arthroplasty is a commonly performed surgical procedure, postoperative complications may lead to prolonged hospital stays, increased risk of infection, higher healthcare costs, and adverse effects on patients' quality of life. Therefore, comprehensive assessment of patients and systematic planning of nursing care during the postoperative period are of critical importance.

To support the holistic evaluation of the nursing care process, nursing theorists have developed various models. One of these, Marjory Gordon's Functional Health Patterns Model, enables a comprehensive assessment through 11 functional health patterns encompassing the biological, psychological, and social needs of the individual. These functional domains facilitate the structuring of the nursing process through a systematic approach to data collection and the holistic analysis of patient needs, thereby contributing to the reduction of complication risks, acceleration of the recovery process, and strengthening of patient-centered care.

In this case, the nursing care of an individual who underwent total hip arthroplasty surgery on postoperative day 0 (08:00–16:00 shift) was evaluated using Marjory Gordon's Functional Health Patterns Model. Care needs were identified in 8 of the 11 functional health patterns included in the model, and these needs were schematized using a concept map. Accordingly, it is recommended that nurses plan and implement postoperative nursing care within the framework of Marjory Gordon's Functional Health Patterns Model.

Keywords: Total Hip Arthroplasty, Functional Health Patterns Model, Nursing Care, Nursing Model.

DİJİTAL SAĞLIK UYGULAMALARININ YARA YÖNETİMİNE ETKİSİ: AKUTTAN KRONİĞE

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Özet

Cerrahi yara, cerrahi girişim sonucu deri ve/veya alttaki dokuların bütünlüğünün bozulması ile oluşan yaradır. Bu yaralar normal iyileşme sürecinde akut yara olarak kabul edilir ve belirli bir süre içerisinde iyileşme gösterir. Ancak çeşitli olumsuz faktörlerin etkisiyle iyileşme süreci kesintiye uğrayabilir ve cerrahi yaralar kronik yara özellikleri göstermeye başlayabilir. Kronik yaraların iyileşme süreci genellikle uzundur ve akut yaralara kıyasla %50'ye kadar daha fazla pansuman ve bakım gereksinimi bulunmaktadır. Bu durum, randevu sıklığının ve sağlık personeli ihtiyacının artmasına yol açarak sağlık hizmeti kaynakları üzerinde ek bir yük oluşturmaktadır. Sağlık hizmetlerine erişim, özellikle mobilite kısıtlılığı olan, kırsal bölgelerde yaşayan ve iş ya da diğer sosyal yükümlülükleri bulunan hastalar için daha da zorlaşabilmektedir. Bu nedenle yara yönetimi hem hasta hem de sağlık sistemi açısından önemli bir sorun haline gelmiştir.

Günümüzde klinik ortamlarda, akıllı telefon ve tabletlerin yaygın kullanımıyla birlikte dijital sağlık uygulamalarının kullanımı giderek artmaktadır. Yara bakımına dijital entegrasyon, karmaşık yara yönetiminin bireyselleştirilmesine olanak tanıyarak ölçümde nesnellik, tutarlılık ve erişilebilirlik sağlamaktadır. Yara bakımında dijital sağlık uygulamalarında kullanılan mobil uygulamalar, tele-sağlık sistemleri, giyilebilir biyosensörler ve bilgisayarlı görme gibi yapay zekâ tabanlı teknolojiler, hastaların yara iyileşme sürecinin klinik ortam dışında da izlenmesine ve takip edilmesine olanak sağlamaktadır. Bu dijital sağlık teknolojileri, yara değerlendirme ve izlem süreçlerinin sistematik biçimde yürütülmesine katkı sağlayarak komplikasyonların erken dönemde fark edilmesini sağlamakta, sağlık hizmetlerine erişilebilirliği artırmakta ve hemşirelik uygulamalarını geliştirerek hasta bakım sürecinin daha etkin yönetilmesine katkıda bulunmaktadır. Dijital sağlık uygulamalarının yara yönetiminde sağladığı yararlara karşın teknolojik altyapı yetersizlikleri ve hastaların dijital okuryazarlık düzeylerindeki farklılıklar gibi sınırlılıkları da bulunmaktadır. Bu derlemede, dijital sağlık uygulamalarının yara yönetimi üzerindeki etkileri ortaya konulacaktır.

Anahtar Kelimeler: Cerrahi yara, dijital sağlık, yapay zekâ, mobil sağlık uygulamaları, hemşirelik

THE IMPACT OF DIGITAL HEALTH APPLICATIONS ON WOUND MANAGEMENT: FROM ACUTE TO CHRONIC

Abstract

A surgical wound is a wound that occurs as a result of disruption of the integrity of the skin and/or underlying tissues following a surgical intervention. Under normal healing conditions, these wounds are considered acute wounds and typically heal within a defined period. However, the healing process may be interrupted by various adverse factors, causing surgical wounds to exhibit characteristics of chronic wounds. The healing process of chronic wounds is generally prolonged, and they require up to 50%

more dressing changes and care compared with acute wounds. This situation increases the frequency of clinical appointments and the demand for healthcare personnel, thereby placing an additional burden on healthcare resources. Access to healthcare services may become even more challenging for patients with limited mobility, those living in rural areas, and individuals with work-related or other social obligations. Therefore, wound management has become a significant issue for both patients and healthcare systems.

Today, with the widespread use of smartphones and tablets in clinical settings, the utilization of digital health applications has increased substantially. The integration of digital technologies into wound care enables the personalization of complex wound management while providing objectivity, consistency, and accessibility in wound assessment. Mobile applications, telehealth systems, wearable biosensors, and artificial intelligence–based technologies such as computer vision used in digital health applications for wound care facilitate the monitoring and follow-up of patients' wound healing processes outside clinical environments. These digital health technologies contribute to the systematic implementation of wound assessment and monitoring processes, enable the early detection of complications, improve access to healthcare services, and support more effective patient care management by enhancing nursing practices. Despite the benefits of digital health applications in wound management, limitations such as inadequate technological infrastructure and differences in patients' levels of digital literacy remain. This review aims to present the effects of digital health applications on wound management.

Keywords: Surgical wound, digital health, artificial intelligence, mobile health applications, nursing

KANSER HASTALARINDA GÖRÜLEN PSİKOSOSYAL SORUNLAR ve HEMŞİRELİK BAKIMI

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Özet

Bu çalışmanın amacı, kanserin birey üzerindeki biyopsikososyal etkilerini ortaya koymak ve onkolojik bakım sürecinde hemşirelik yaklaşımının önemini yapılandırılmış bir çerçevede değerlendirmektir. Kanser tanı ve tedavi sürecinin hastaların psikolojik, sosyal ve fiziksel iyilik hali üzerindeki etkilerinin bütüncül bir perspektifle ele alınması hedeflenmiştir. Bu özet, literatüre dayalı kavramsal bir derleme niteliğindedir. Kanserin psikososyal etkileri, semptom yükü ve hemşirelik bakım yaklaşımları biyopsikososyal model temelinde incelenmiş; depresyon, anksiyete, ağrı, yorgunluk, insomnia ve finansal toksisite gibi değişkenler kapsam dahilinde değerlendirilmiştir. Ayrıca terapötik iletişim ve destekleyici bakım girişimleri ele alınmıştır. Kanserin tanı ve tedavi sürecinin; akut stres yanıtı, anksiyete, depresyon, uyum bozuklukları, sosyal izolasyon ve rol kaybı gibi psikososyal sorunlara yol açtığı belirlenmiştir. Ağrı, yorgunluk ve uyku bozuklukları yaşam kalitesini düşürmekte ve tedaviye uyumu olumsuz etkilemektedir. Cerrahi, kemoterapi ve radyoterapi uygulamaları beden imajında bozulma, cinsel işlev sorunları ve benlik saygısında azalma ile ilişkilidir. Ayrıca iş gücü kaybı ve tedavi maliyetleri finansal toksisiteye neden olarak ek bir stres faktörü oluşturmaktadır. Kanser hastaları, yukarıda belirtilen çok sayıda psikososyal sorunla baş etmek durumundadır. Bu sorunların hemşireler tarafından belirlenmesi ve uygun bakım girişimlerinin planlanması gerekmektedir. Kanser bakımında biyopsikososyal model doğrultusunda bütüncül ve multidisipliner bir yaklaşım benimsenmelidir. Hemşirelik bakımı; semptom yönetimi, terapötik iletişim, hasta ve aile eğitimi ile psikososyal destek uygulamalarını içermelidir. Bu yaklaşım, hastaların baş etme becerilerini güçlendirmekte, tedaviye uyumu artırmakta ve yaşam kalitesini iyileştirmektedir. Hasta ile sürekli iletişim hâlinde olmaları nedeniyle kritik bir role sahiptir. Onkoloji hemşireleri, hasta ile iletişim sürecinde daha özenli davranmaları konusunda da eğitim almalıdır. Hastayla güvene dayalı ve samimi bir iletişim kurulması, psikolojik desteğin sağlanmasında önemli rol oynamaktadır. Fiziksel sorunların yönetiminde tıbbi tedavi ve hemşirelik girişimleri kullanılırken, sosyal sorunların çözümünde aile iş birliği ve sosyal hizmet desteğinden yararlanılabilmektedir. Ayrıca toplumun erken tanının önemi konusunda bilinçlendirilmesi büyük önem taşımaktadır. Halk sağlığı kurumları tarafından eğitici programlar düzenlenebilir. Kadınların bilinçlendirilmesi amacıyla özel farkındalık günlerinde konferanslar ve eğitim etkinlikleri düzenlenebilir.

Anahtar Kelimeler: kanser, psikososyal sorunlar, hemşirelik bakımı

PSYCHOSOCIAL PROBLEMS OBSERVED IN CANCER PATIENTS AND NURSING CARE

Abstract

The aim of this study is to reveal the biopsychosocial effects of cancer on individuals and to evaluate the importance of the nursing approach in the oncological care process within a structured framework. It is intended to address the effects of cancer diagnosis and treatment on patients' psychological, social, and physical well-being from a holistic perspective. This abstract is a conceptual review based on the literature. The psychosocial effects of cancer, symptom burden, and nursing care approaches were examined within the framework of the biopsychosocial model. Variables including depression, anxiety, pain, fatigue, insomnia, and financial toxicity were evaluated. In addition, therapeutic communication

and supportive care interventions were discussed. The findings indicate that the cancer diagnosis and treatment process may lead to various psychosocial problems, including acute stress responses, anxiety, depression, adjustment disorders, social isolation, and loss of social roles. Pain, fatigue, and sleep disturbances reduce quality of life and negatively affect treatment adherence. Surgical procedures, chemotherapy, and radiotherapy are associated with body image disturbances, sexual dysfunction, and decreased self-esteem. Furthermore, loss of workforce participation and treatment-related expenses contribute to financial toxicity, creating an additional source of stress. Cancer patients are required to cope with numerous psychosocial challenges. These problems should be identified by nurses, and appropriate nursing interventions should be planned accordingly. A holistic and multidisciplinary approach based on the biopsychosocial model should be adopted in cancer care. Nursing care should include symptom management, therapeutic communication, patient and family education, and psychosocial support interventions. Such an approach strengthens patients' coping abilities, enhances treatment adherence, and improves quality of life. Nurses play a critical role due to their continuous interaction with patients throughout the care process. Oncology nurses should receive training to ensure greater sensitivity and competence in patient communication. Establishing a trusting and supportive therapeutic relationship with patients is essential for providing effective psychological support. While physical problems are managed through medical treatment and nursing interventions, social difficulties may be addressed through family collaboration and social service support. In addition, raising public awareness regarding the importance of early diagnosis is of great significance. Educational programs may be organized by public health institutions, and conferences and awareness activities can be conducted on special awareness days to increase public knowledge, particularly among women.

Keywords: Cancer, Psychosocial Problems, Nursing Care

HEMODİYALİZ HASTALARINDA CİNSEL SORUNLAR VE HEMŞİRELİK ÖNERİLERİ

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Özet

Kronik böbrek yetmezliği (KBY), glomerüler filtrasyon hızında progresif azalma ile karakterize, morbidite ve mortalite oranları yüksek, küresel ölçekte önemli bir halk sağlığı sorunudur. En sık etiyolojik faktörler arasında hipertansiyon ve diabetes mellitus yer almakta; obezite, nefrolitiyazis, tekrarlayan üriner enfeksiyonlar ve herediter böbrek hastalıkları da sürece katkıda bulunmaktadır. Hastalığın ileri evrelerinde renal replasman tedavileri olan hemodiyaliz, periton diyalizi veya böbrek transplantasyonu yaşamın sürdürülebilmesi açısından zorunlu hale gelmektedir. Kronik böbrek yetmezliği; sıvı-elektrolit dengesizlikleri, anemi, üremi, metabolik asidoz ve kardiyovasküler komplikasyonlar gibi çok sistemli klinik sonuçlara yol açmaktadır. Bunun yanı sıra konstipasyon, bulantı-kusma, dispne, ödem, kas krampları, uyku bozuklukları ve yorgunluk gibi semptomlar bireylerin yaşam kalitesini belirgin biçimde azaltmaktadır. Endokrin değişiklikler, hormonal düzensizlikler, vasküler hasar, kullanılan farmakolojik ajanlar ve psikososyal stresörler ise cinsel işlev üzerinde olumsuz etkilere neden olabilmektedir. Literatür, hemodiyaliz tedavisi alan hastalarda cinsel işlev bozukluklarının hem kadın hem de erkeklerde yaygın olduğunu göstermektedir. Kadınlarda cinsel istekte azalma, uyarılma ve orgazm güçlüğü; erkeklerde ise erektil disfonksiyon ve ejakülasyon sorunları sık bildirilen problemlerdir. Hemodiyaliz sürecine eşlik eden kronik yorgunluk, beden imajında değişim, hormonal düzensizlikler, komorbid hastalıklar ve uzun süreli farmakolojik tedavi gereksinimi; cinsel işlev üzerinde doğrudan ve dolaylı etkiler yaratmaktadır. Bununla birlikte, kültürel normlar ve mahremiyet algısı nedeniyle hastaların cinsel sorunlarını ifade etmekte isteksiz davranmaları, mevcut problemin klinik ortamda yeterince değerlendirilememesine sebep olmaktadır. Bu durum, cinsel sağlığın bütüncül bakım planlarına yeterince entegre edilememesini ve bakım kalitesinde eksikliklere neden olabilmektedir. Bu doğrultuda, cinsel sağlığın multidisipliner bir yaklaşımla ele alınması, hemşirelik bakım planlarına sistematik değerlendirme araçlarının dahil edilmesi ve danışmanlık hizmetlerinin yapılandırılması önem arz etmektedir. Mevcut literatür incelendiğinde, hemodiyaliz hastalarında cinsel işlev bozukluklarının yaşam kalitesi, ruhsal durum ve sosyal uyum ile ilişkisini ele alan çalışmaların sayısının sınırlı olduğu görülmektedir. Özellikle hastaların öznel deneyimlerini, algılarını ve baş etme mekanizmalarını derinlemesine inceleyen nitel araştırmalara gereksinim bulunmaktadır. Nitel yöntemlerin kullanımı; bireylerin yaşantılarını, duygusal tepkilerini ve bakım beklentilerini daha ayrıntılı biçimde ortaya koyarak klinik uygulamalara yön verebilecek kapsamlı veriler sağlayacaktır. Bilimsel kanıt temelli ve hasta merkezli müdahalelerin geliştirilmesi, hemodiyaliz hastalarında hem cinsel işlevin iyileştirilmesine hem de genel yaşam kalitesinin artırılmasına katkı sağlayacaktır. Bu nedenle hemodiyaliz tedavisi alan hastalarda görülen cinsel işlev sorunlarının yaygınlığını ortaya koymak, hastaların cinsel sağlık danışmanlığı gereksinimlerini belirlemek ve bu hastalara önerilerde bulunmak amacıyla yapılmıştır.

Anahtar Kelimler: Cinsel sorunlar; hemodiyaliz; kronik böbrek yetmezliği

SEXUAL PROBLEMS IN HEMODIALYSIS PATIENTS AND NURSING RECOMMENDATIONS

Abstract

Chronic kidney disease (CKD) is a major global public health problem characterized by a progressive decline in glomerular filtration rate and associated with high morbidity and mortality rates. Hypertension and diabetes mellitus are among the most common etiological factors, while obesity, nephrolithiasis,

recurrent urinary tract infections, and hereditary kidney diseases also contribute to disease progression. In the advanced stages of CKD, renal replacement therapies, including hemodialysis, peritoneal dialysis, and kidney transplantation, become essential for sustaining life.Chronic kidney disease leads to a wide range of multisystem complications, including fluid and electrolyte imbalances, anemia, uremia, metabolic acidosis, and cardiovascular disorders. In addition, symptoms such as constipation, nausea and vomiting, dyspnea, edema, muscle cramps, sleep disturbances, and fatigue significantly impair patients' quality of life. Endocrine alterations, hormonal imbalances, vascular damage, pharmacological treatments, and psychosocial stressors may further exert negative effects on sexual functioning. The literature indicates that sexual dysfunction is highly prevalent among patients receiving hemodialysis treatment, affecting both men and women. Commonly reported problems in women include decreased sexual desire, impaired arousal, and difficulty achieving orgasm, whereas erectile dysfunction and ejaculatory disorders are frequently observed in men. Chronic fatigue, altered body image, hormonal disturbances, comorbid conditions, and the long-term need for pharmacological therapy may directly and indirectly impair sexual functioning. Furthermore, cultural norms and concerns regarding privacy often discourage patients from discussing sexual problems, resulting in inadequate assessment and management of these issues in clinical settings. Consequently, sexual health is frequently underrepresented within holistic care plans, potentially compromising the quality of care. Therefore, adopting a multidisciplinary approach to sexual health, incorporating systematic assessment tools into nursing care plans, and establishing structured counseling services are of paramount importance. A review of the current literature reveals a limited number of studies examining the relationship between sexual dysfunction, quality of life, psychological well-being, and social adjustment among hemodialysis patients. In particular, further qualitative research is needed to explore patients' subjective experiences, perceptions, and coping mechanisms. Such studies may provide comprehensive insights capable of informing clinical practice. The development of evidence-based and patient-centered interventions may contribute to improving both sexual functioning and overall quality of life in individuals undergoing hemodialysis. Accordingly, this review was conducted to determine the prevalence of sexual dysfunction among patients receiving hemodialysis treatment, identify their sexual health counseling needs, and provide recommendations for healthcare professionals involved in their care.

Keywords: Sexual Problems; Hemodialysis; Chronic Kidney Disease

HİPERTANSİYON YÖNETİMİNDE KULLANILAN BİTKİSEL TEDAVİLER: 2000-2026 ARASINDAKİ ÇALIŞMALARIN İNCELENMESİ

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Özet

Hipertansiyon, dünya genelinde önemli bir halk sağlığı sorunu olup ciddi kardiyovasküler komplikasyonlarla ilişkilidir. Son yıllarda hipertansiyon yönetiminde, özellikle bitkisel ürünler olmak üzere tamamlayıcı ve alternatif tedavilere olan ilgi artmıştır. Bu anlatısal derleme, hipertansiyon tedavisinde kullanılan bitkisel ürünlere ilişkin güncel kanıtları değerlendirmek amacıyla hazırlanmıştır. Literatür taraması PubMed/MEDLINE, Google Scholar, Web of Science, TR Dizin ve DergiPark veri tabanları kullanılarak gerçekleştirilmiştir. Derlemeye, 2000-2026 yılları arasında yayımlanan özgün araştırmalar, randomize kontrollü çalışmalar, sistematik derlemeler ve meta-analizler dahil edilmiştir. İncelenen çalışmalar, sarımsak, hibiskus, zeytin yaprağı, alıç, çörek otu, keten tohumu, zencefil ve zerdeçalın hipertansiyon yönetiminde en sık araştırılan bitkisel ürünler arasında yer aldığını göstermiştir. Bu bitkisel ürünlerin genel olarak sistolik ve diyastolik kan basıncında anlamlı azalmalarla ilişkili olduğu bildirilirken, zerdeçal ve bazı diğer bitkilere ilişkin kanıtların daha sınırlı olduğu belirlenmiştir. Sonuç olarak, bazı bitkisel ürünler hipertansiyon yönetiminde destekleyici yaklaşımlar olarak umut verici görünmektedir; ancak antihipertansif ilaçların yerine kullanılmaları önerilmemektedir. Hemşirelerin hipertansiyonlu bireylerde bitkisel ürün kullanımını değerlendirmesi, olası bitki-ilaç etkileşimlerini göz önünde bulundurması ve güvenli kullanım konusunda kanıta dayalı danışmanlık sağlaması önemlidir.

Anahtar Kelimeler: Hipertansiyon, bitkisel tedavi, fitoterapi, tamamlayıcı tedavi, kan basıncı, hemşirelik

Abstract

Hypertension is a major public health problem worldwide and is associated with serious cardiovascular complications. In recent years, interest in complementary and alternative therapies, particularly herbal products, has increased in the management of hypertension. This narrative review was conducted to evaluate current evidence regarding herbal products used in the treatment of hypertension. A literature search was performed using the PubMed/MEDLINE, Google Scholar, Web of Science, TR Dizin, and DergiPark databases. Original studies, randomized controlled trials, systematic reviews, and meta-analyses published between 2000 and 2026 were included in the review. The reviewed studies indicated that garlic, hibiscus, olive leaf, hawthorn, black seed, flaxseed, ginger, and turmeric are among the most frequently investigated herbal products for hypertension management. These herbal products were generally associated with significant reductions in systolic and diastolic blood pressure, whereas evidence regarding turmeric and some other herbal products was more limited. In conclusion, several herbal products appear to be promising supportive approaches in the management of hypertension; however, their use as substitutes for antihypertensive medications is not recommended. Nurses should

assess the use of herbal products among hypertensive individuals, evaluate potential herb–drug interactions, and provide evidence-based counseling to ensure safe and effective use.

Keywords: Hypertension, Herbal Therapy, Phytotherapy, Complementary Therapy, Blood Pressure, Nursing.

HEMODİYALİZ HASTALARINDA ÜREMİK KAŞINTININ ŞİDDETİ VE YAŞAM DOYUMU ARASINDAKİ İLİŞKİNİN DEĞERLENDİRİLMESİ: GÜNCEL LİTERATÜR IŞIĞINDA BİR DERLEME

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Özet

Giriş: Son dönem böbrek yetmezliği olan ve idame hemodiyaliz tedavisi alan hastalarda, metabolik ve endokrin fonksiyonların bozulmasına bağlı olarak çok boyutlu semptomlar gelişmektedir. Bu semptomlar arasında en sık karşılaşılan, ancak klinik ortamda yönetimi en zor olan üremik kaşıntıdır (pruritus). Literatürde hemodiyaliz hastalarında kserozis (%60.6) ve pruritus (%53) gibi cilt sorunlarının çok yüksek prevalansla seyrettiği, bu durumun hastaların uyku mimarisini bozarak gece uyanmalarına, anksiyete seviyelerinde artışa ve genel konfor düzeylerinde ciddi bir azalmaya yol açtığı bilinmektedir. Kaşıntının şiddeti arttıkça bireylerin fiziksel, psikolojik ve sosyal iyilik halleri doğrudan etkilenmekte, bu kümülatif olumsuzluklar hastaların genel yaşam kalitesini ve hayattan aldıkları tatmini, yani yaşam doyumunu dramatik düzeyde düşürmektedir. **Amaç:** Bu derlemenin amacı, hemodiyaliz hastalarında deneyimlenen üremik kaşıntının şiddetini, bu semptomu etkileyen klinik faktörleri ve kaşıntı şiddetinin hastaların yaşam doyumu ile genel konfor düzeyleri üzerindeki etkilerini güncel araştırma sonuçları doğrultusunda incelemek ve hemşirelik bakımı odağında değerlendirmektir. **Yöntem:** Araştırma kapsamında, ulusal ve uluslararası veri tabanlarında (DergiPark, PubMed, Google Akademik) yer alan, hemodiyaliz hastalarında kaşıntı, uyku kalitesi, anksiyete, dermatolojik yaşam kalitesi ve konfor bileşenlerini çok boyutlu ölçeklerle inceleyen güncel primer araştırma makaleleri ve tezler sistematik olarak taranmış, elde edilen bulgular bütüncül bir yaklaşımla sentezlenmiştir. **Bulgular:** İncelenen çalışmalarda, hemodiyaliz hastalarında kronik kaşıntının varlığı ile uyku bozukluğu ve anksiyete skorları arasında pozitif yönlü, kuvvetli bir ilişki saptanmıştır. Kaşıntı şiddeti yüksek olan hastaların tedaviye uyum süreçlerinin sekteye uğradığı, dermatolojik yaşam kalitesi indekslerinin olumsuz etkilendiği ve genel konfor puanlarının anlamlı düzeyde düşük olduğu belirlenmiştir. Geceleri yoğunlaşan kaşıntı hissinin yarattığı uykusuzluk ve bitkinlik hali, hastaların günlük yaşam aktivitelerini kısıtlamakta, sosyal izolasyona yol açmakta ve bireylerin öznel yaşam doyumu algısını doğrudan baltalamaktadır. Ayrıca, üremik kaşıntı yönetiminde farmakolojik tedavilerin yanı sıra nemlendirici uygulamaları, soğuk uygulama ve hasta eğitimi gibi non-farmakolojik hemşirelik girişimlerinin semptom şiddetini azaltmada ve yaşam doyumunu desteklemede anahtar rol oynadığı görülmüştür **Sonuç:** Üremik kaşıntı, şiddetine bağlı olarak hemodiyaliz hastalarında yaşam doyumunu düşüren ve yaşam konforunu kısıtlayan en birincil semptomlardan biridir. Klinik uygulamada diyaliz hemşirelerinin kaşıntıyı sadece var/yok şeklinde değil, objektif ve çok boyutlu ölçeklerle rutin olarak değerlendirmesi hayati önem taşımaktadır. Hastaların yaşam doyumunu yükseltmek amacıyla, cilt bütünlüğünü koruyucu hemşirelik bakımı uygulamalarının standartlaştırılması, hasta ve aile eğitimlerinin artırılması ve çok disiplinli semptom yönetimi protokollerinin geliştirilmesi önerilmektedir.

Anahtar Kelimeler: Hemodiyaliz, Üremik Kaşıntı, Semptom Şiddeti, Konfor, Yaşam Doyumu.

EVALUATION OF THE RELATIONSHIP BETWEEN THE SEVERITY OF UREMIC PRURITUS AND LIFE SATISFACTION İN HEMODIALYSIS PATIENTS: A REVIEW İN LIGHT OF CURRENT LITERATURE

Abstract

Introduction: In patients with end-stage renal disease receiving maintenance hemodialysis therapy, multidimensional symptoms develop due to the impairment of metabolic and endocrine functions. Among these symptoms, uremic pruritus is the most frequently encountered, yet clinically the most challenging to manage. The literature indicates that skin problems such as xerosis (60.6%) and pruritus (53%) occur with a very high prevalence in hemodialysis patients, and this condition is known to disrupt patients' sleep architecture, leading to nocturnal awakenings, increased anxiety levels, and a severe reduction in general comfort levels. As the severity of itching increases, individuals' physical, psychological, and social well-being are directly affected, and these cumulative adversities dramatically diminish patients' overall quality of life and the satisfaction they derive from life, namely their life satisfaction.**Objective**: The objective of this review is to examine the severity of uremic pruritus experienced by hemodialysis patients, the clinical factors influencing this symptom, and the effects of pruritus severity on patients' life satisfaction and general comfort levels in light of current research findings, and to evaluate them from the perspective of nursing care. **Methodology:** Within the scope of the study, current primary research articles and theses available in national and international databases (DergiPark, PubMed, Google Scholar) that examine components of pruritus, sleep quality, anxiety, dermatological quality of life, and comfort using multidimensional scales in hemodialysis patients were systematically reviewed, and the obtained findings were synthesized using a holistic approach. **Results:** In the reviewed studies, a strong positive correlation was found between the presence of chronic pruritus and scores of sleep disturbance and anxiety in hemodialysis patients. It was determined that patients with high pruritus severity experienced disruptions in their treatment adherence processes, their dermatological quality of life indices were negatively affected, and their general comfort scores were significantly low. The insomnia and exhaustion caused by the itching sensation, which intensifies at night, restrict patients' activities of daily living, lead to social isolation, and directly undermine individuals' perception of subjective life satisfaction. Furthermore, in the management of uremic pruritus, it was observed that non-pharmacological nursing interventions, such as moisturizing applications, cold application, and patient education, along with pharmacological treatments, play a key role in reducing symptom severity and supporting life satisfaction. **Conclusion:** Uremic pruritus is one of the most primary symptoms that diminishes life satisfaction and restricts life comfort in hemodialysis patients, depending on its severity. In clinical practice, it is of vital importance for dialysis nurses to routinely evaluate pruritus using objective and multidimensional scales, rather than merely as present or absent. To enhance patients' life satisfaction, it is recommended to standardize nursing care practices aimed at protecting skin integrity, increase patient and family education, and develop multidisciplinary symptom management protocols.

Keywords: Hemodialysis, Uremic Pruritus, Symptom Severity, Comfort, Life Satisfaction.

YAŞLANMA VE KRİYOPREZERVASYONUN FARE TESTİKÜLER SPERMLERİNDE PTEN EKSPRESYONU VE DNA BÜTÜNLÜĞÜ ÜZERİNDEKİ ETKİLERİ

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Özet

Amaç: İleri baba yaşı, sperm kalitesinde azalma, DNA hasarında artış ve üreme başarısında düşüş ile ilişkilendirilmektedir. Bununla birlikte, sperm kriyoprezervasyonu sırasında oluşan stresin yaşlanma ile etkileşimi ve bu süreçte görev alan moleküler mekanizmalar tam olarak aydınlatılamamıştır. PTEN (Phosphatase and Tensin Homolog), hücresel stres yanıtı, genomik stabilite ve DNA hasar yanıtında önemli rol oynayan bir tümör baskılayıcı proteindir. Bu çalışmada, genç ve yaşlı farelerden elde edilen testiküler spermlerde kriyoprezervasyonun PTEN ekspresyonu, hücre içi lokalizasyonu ve DNA fragmantasyonu üzerine etkilerinin araştırılması amaçlandı.

Gereç ve Yöntem: Çalışmada toplam 20 erkek BALB/c fare kullanıldı. Hayvanlar genç erişkin (18 haftalık, n=10) ve yaşlı (10 aylık, n=10) olmak üzere iki gruba ayrıldı. Testiküler sperm örnekleri elde edilerek bir kısmı taze olarak değerlendirilirken diğer kısmı yavaş dondurma yöntemiyle kriyoprezervasyona tabi tutuldu. Sperm DNA fragmentasyonu, geliştirilmiş Sperm Chromatin Structure Assay (SCSA) yöntemi kullanılarak değerlendirildi. PTEN ekspresyonu ve lokalizasyonu immünositokimyasal yöntemle incelendi. Elde edilen veriler uygun istatistiksel testler kullanılarak analiz edildi ve $p<0,05$ değeri istatistiksel olarak anlamlı kabul edildi.

Bulgular: Yaşlı grupta DNA fragmantasyon oranları hem kriyoprezervasyon öncesinde hem de sonrasında genç gruba göre anlamlı derecede yüksek bulundu (p=0,009). Kriyoprezervasyon her iki grupta da DNA hasarını artırdı. Genç grupta DNA fragmantasyonu %13,2'den %22,1'e yükselirken (p=0,015), yaşlı grupta %27,2'den %36,0'a yükseldi (p=0,003). Sperm motilitesi ve canlılığı da kriyoprezervasyon sonrasında her iki grupta azalırken, bu azalma yaşlı grupta daha belirgin olarak gözlendi. PTEN ekspresyonu kriyoprezervasyon sonrasında her iki grupta arttı. Genç grupta PTEN pozitifliği %20,1'den %31,3'e yükselirken (p=0,012), yaşlı grupta %24,0'tan %42,6'ya yükseldi (p=0,004). Kriyoprezervasyon sonrası PTEN ekspresyonu yaşlı grupta genç gruba göre anlamlı olarak daha yüksekti (p=0,018). Buna karşın PTEN'in hücre içi lokalizasyonunda gruplar arasında anlamlı farklılık saptanmadı ve immünoreaktivitenin ağırlıklı olarak sperm baş bölgesinde yer aldığı gözlendi.

Sonuç: Yaşlanma, testiküler spermlerde DNA hasarına yatkınlığı artırmakta ve kriyoprezervasyon kaynaklı hücresel strese karşı duyarlılığı yükseltmektedir. Kriyoprezervasyon sonrasında PTEN ekspresyonunda belirgin artış meydana gelmesine rağmen bu yanıtın sperm genomik bütünlüğünü korumakta yeterli olmadığı görülmektedir. Bulgularımız, ileri baba yaşında kriyoprezervasyonun sperm DNA bütünlüğü üzerindeki olumsuz etkilerini ortaya koymakta ve kriyohasarı azaltmaya yönelik koruyucu stratejilerin geliştirilmesine katkı sağlayabilecek yeni moleküler veriler sunmaktadır.

Anahtar Kelimeler: PTEN, sperm kriyoprezervasyonu, DNA fragmantasyonu, paternal yaşlanma, testiküler sperm

EFFECTS OF AGING AND CRYOPRESERVATION ON PTEN EXPRESSION AND DNA INTEGRITY IN MOUSE TESTICULAR SPERMATOZOA

Abstract

Objective: Advanced paternal age has been associated with reduced sperm quality, increased DNA damage, and impaired reproductive outcomes. However, the interaction between aging and cryopreservation-induced stress, as well as the underlying molecular mechanisms involved, remains incompletely understood. PTEN (Phosphatase and Tensin Homolog) is a tumor suppressor protein that plays a critical role in cellular stress responses, genomic stability, and DNA damage signaling. This study aimed to investigate the effects of cryopreservation on PTEN expression, intracellular localization, and DNA fragmentation in testicular sperm obtained from young and aged mice.

Materials and Methods: A total of 20 male BALB/c mice were included in the study. Animals were divided into two groups: young adults (18 weeks old, n = 10) and aged mice (10 months old, n = 10). Testicular sperm samples were collected, with one portion evaluated fresh and the other subjected to cryopreservation using a slow-freezing protocol. Sperm DNA fragmentation was assessed using a modified Sperm Chromatin Structure Assay (SCSA). PTEN expression and localization were examined by immunocytochemistry. Data were analyzed using appropriate statistical tests, and a p-value < 0.05 was considered statistically significant.

Results: DNA fragmentation rates were significantly higher in the aged group than in the young group both before and after cryopreservation ($p = 0.009$). Cryopreservation increased DNA damage in both groups. In the young group, DNA fragmentation increased from 13.2% to 22.1% ($p = 0.015$), whereas in the aged group it increased from 27.2% to 36.0% ($p = 0.003$). Sperm motility and viability decreased following cryopreservation in both groups, with a more pronounced decline observed in aged mice. PTEN expression increased significantly after cryopreservation in both groups. PTEN positivity increased from 20.1% to 31.3% in the young group ($p = 0.012$) and from 24.0% to 42.6% in the aged group ($p = 0.004$). Post-cryopreservation PTEN expression was significantly higher in the aged group compared with the young group ($p = 0.018$). No significant differences were detected in the intracellular localization of PTEN between groups, and immunoreactivity was predominantly localized to the sperm head region.

Conclusion: Aging increases susceptibility to DNA damage in testicular sperm and enhances sensitivity to cryopreservation-induced cellular stress. Although PTEN expression was markedly upregulated following cryopreservation, this response appears insufficient to preserve sperm genomic integrity. Our findings demonstrate the detrimental impact of cryopreservation on sperm DNA integrity in the context of advanced paternal age and provide novel molecular insights that may contribute to the development of protective strategies aimed at reducing cryoinjury.

Anahtar Kelimeler: PTEN, sperm cryopreservation, DNA fragmentation, paternal aging, testicular sperm

PRENATAL KANNABİS MARUZİYETİ VE PLASENTAL ETKİLER: SİSTEMATİK LİTERATÜR DERLEMESİ VE IN SİLİCO AĞ ANALİZİ

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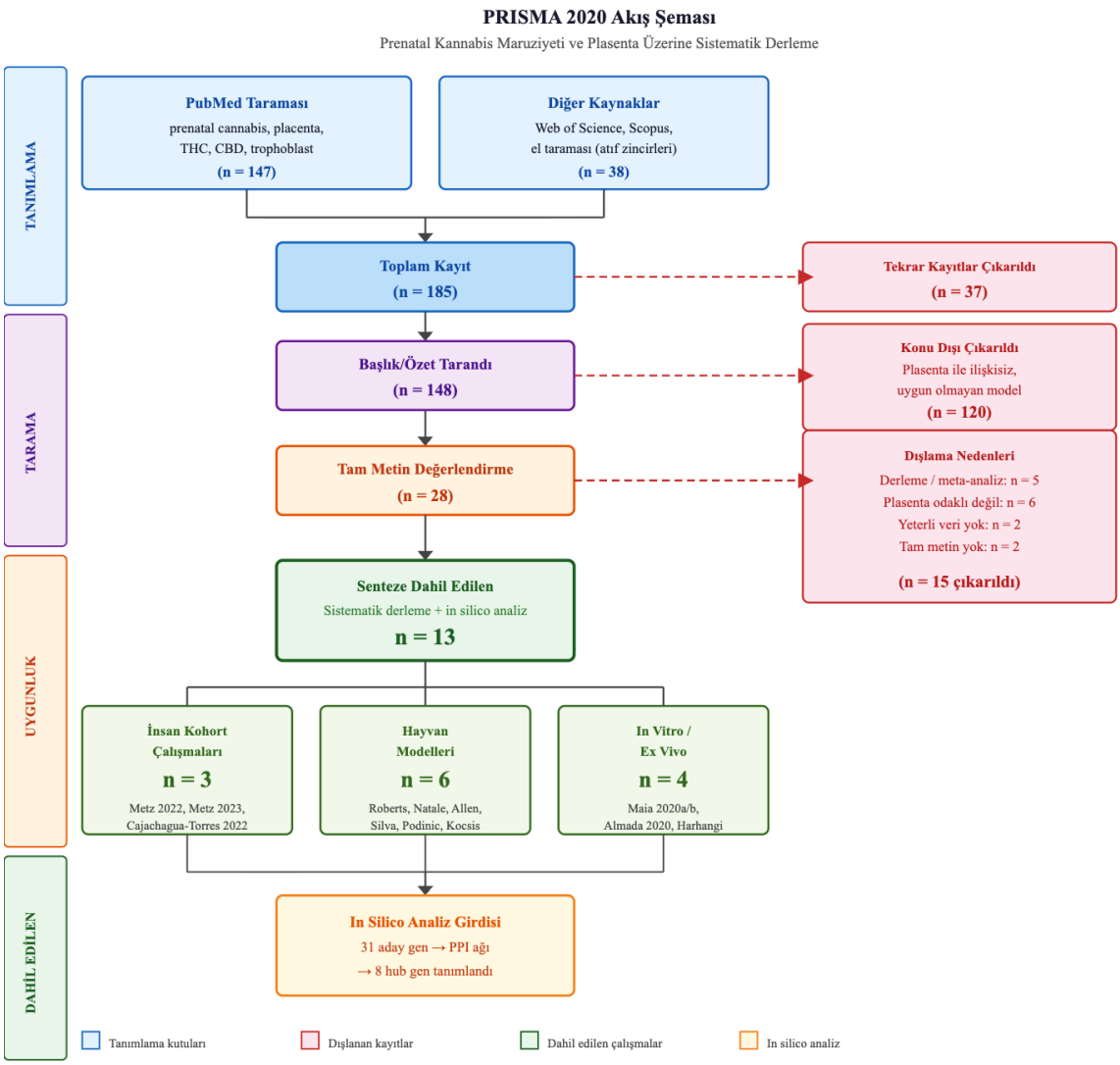
Özet

Bu çalışma, prenatal kannabis maruziyetinin plasenta üzerindeki etkilerini doğrudan inceleyen özgün araştırmaları sistematik olarak derlemekte ve bu çalışmalarda tanımlanan genleri kullanarak in silico ağ ve yolak zenginleştirme analizi sunmaktadır. PubMed veri tabanı taranarak plasental etkileri birincil odak olarak ele alan 13 özgün araştırma makalesi (2020–2026) seçilmiştir. Bu çalışmalardan derlenen 31 gen; Fisher's exact test ve Benjamini–Hochberg (BH) FDR düzeltmesi kullanılarak KEGG 2021, Reactome 2022 ve GO Biological Process 2023 veri tabanlarına karşı zenginleştirme analizine tabi tutulmuştur. STRING veri tabanı tabanlı protein–protein etkileşim (PPI) ağı NetworkX kütüphanesi ile oluşturulmuştur. İncelenen çalışmalar; insan kohort çalışmaları, hayvan modelleri ve in vitro/ex vivo deneyleri kapsamaktadır. İnsan kohort verileri, devam eden kannabis kullanımının plasental anjiyojenik dengeyi bozduğunu (PlGF artışı, sFlt-1 düşüşü) ve plasental disfonksiyona bağlı komplikasyonları artırdığını göstermektedir. Hayvan modelleri; THC ve CBD'nin plasental vaskülarizasyonu, glikoz taşıyıcı ekspresyonunu (özellikle GLUT1/SLC2A1), trofoblast diferansiasyonunu ve endokannabinoid homeostazını bozduğunu ortaya koymaktadır. Ex vivo çalışmalar, CBD'nin plasentayı geçebildiğini ve plasental arterlerde THC'nin tersine vazodilatasyon oluşturduğunu göstermiştir. In silico analizde 28 pathway anlamlı bulunmuştur (adj. $p<0,05$). En güçlü sinyal plasenta gelişimi GO terimi ile elde edilmiştir (adj. $p<10^{-28}$). Bunu endokannabinoid sinyali (KEGG) ve anjiyogenez (GO:BP ve Reactome) terimleri izlemiştir. HIF-1 yolağı, glikoz taşıma, apoptoz, steroid metabolizması ve trofoblast diferansiasyonu da anlamlı düzeyde zenginleşme göstermiştir. PPI ağında CNR1, VEGFA, HIF1A, IGF1R, ESR1, CASP3, FURIN ve EPCAM hub gen olarak belirlenmiştir. Bu hub genler, endokannabinoid ve anjiyogenez modüllerini birbirine bağlayan köprü konumundadır. Prenatal kannabis maruziyeti; plasental vaskülarizasyon, glikoz metabolizması, endokrin denge ve apoptotik süreçleri eş zamanlı olarak bozan çok katmanlı bir mekanizma aracılığıyla olumsuz etkiler oluşturmaktadır. CNR1–VEGFA–HIF1A ekseni, kannabinoid kaynaklı plasental hasarın merkezi düğümlerini oluşturmakta ve gelecekteki biyobelirteç veya tedavi hedefi araştırmaları için önemli bir odak noktası sunmaktadır.

Anahtar Kelimeler: prenatal kannabis, THC, CBD, plasenta, anjiyogenez, endokannabinoid sistemi



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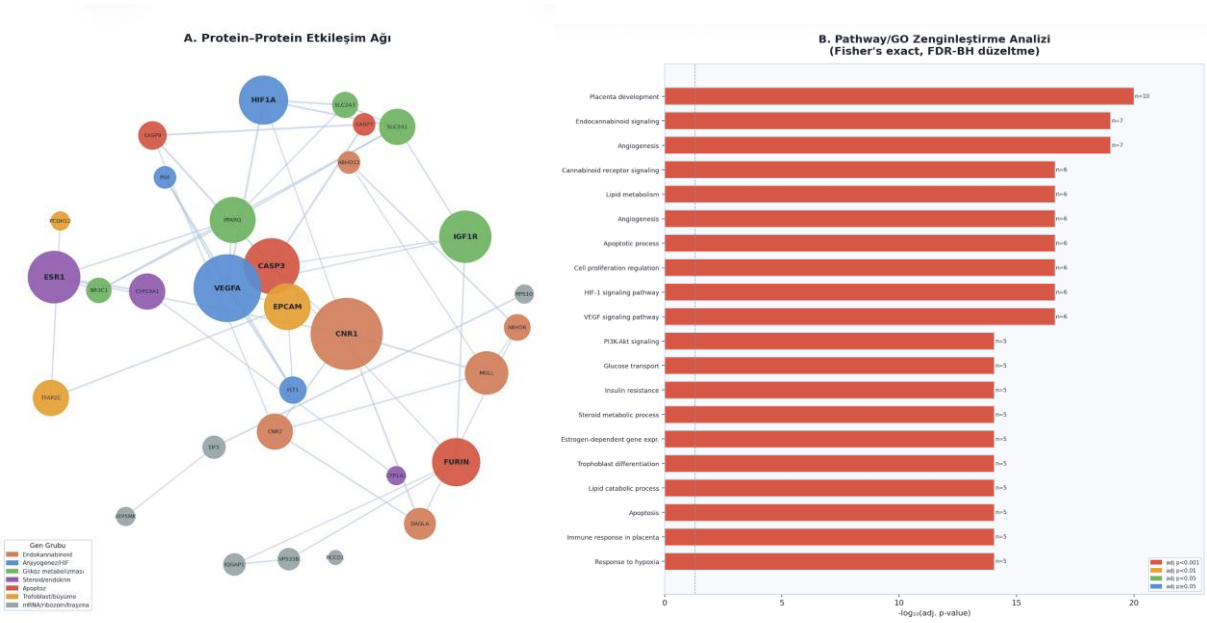
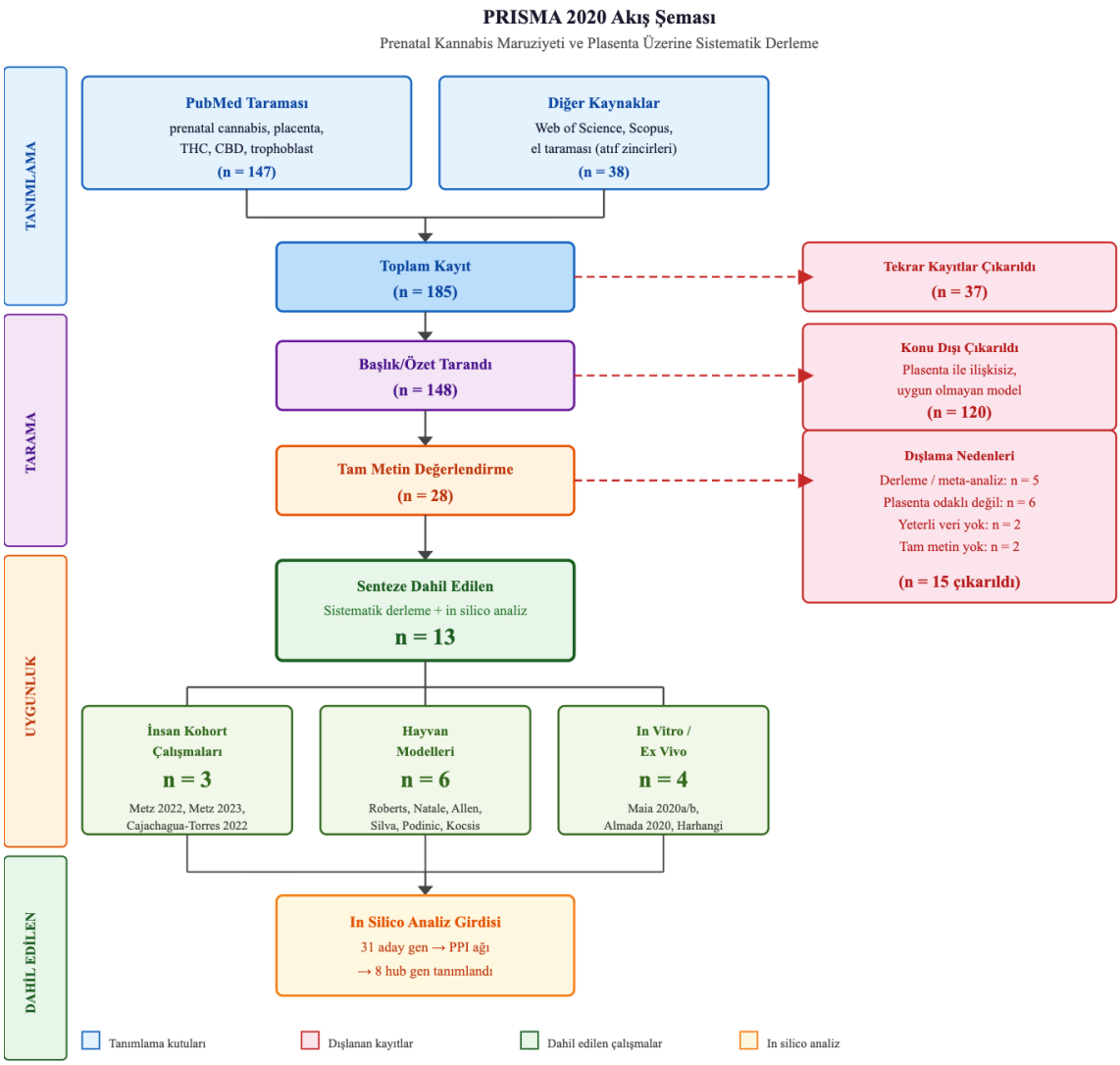


PRENATAL CANNABIS EXPOSURE AND PLACENTAL EFFECTS: A SYSTEMATIC LITERATURE REVIEW AND IN SILICO NETWORK ANALYSIS

Abstract

This study aimed to evaluate the effects of prenatal cannabis exposure on placental structure and function through a systematic literature review and complementary in silico network analysis. A total of thirteen original research articles focusing directly on the placenta were included. Human cohort data from large prospective studies demonstrated that biologically confirmed cannabis use during pregnancy significantly increased the risk of composite adverse perinatal outcomes associated with placental dysfunction (aRR 1.27; 95% CI, 1.07–1.49), with continued use representing an independent risk factor (aRR 1.32). Perturbations in angiogenic markers including elevated placental growth factor (PlGF) and altered sFlt-1/PlGF ratios were also documented. Animal models provided mechanistic insights, showing that chronic THC exposure in rhesus macaques reduced amniotic fluid volume, placental perfusion, and fetal oxygen availability, with microinfarcts observed exclusively in the THC-exposed group. In rodent models, both THC and CBD disrupted labyrinthine vascular architecture, downregulated glucose transporter expression (GLUT1), suppressed angiogenic transcriptomic pathways, and impaired trophoblast differentiation markers including Tfap2c, Vegfa, and Pparg. Sex-specific alterations in schizophrenia-associated gene expression (Furin, Rccd1, Atp5mk) were identified in gestational THC-exposed rat placentas. At the molecular level, THC was shown to upregulate aromatase and estrogen receptor-alpha (ERalpha) via CB1 receptor activation, disrupt endocannabinoid homeostasis through altered 2-AG metabolizing enzyme expression, and induce caspase-mediated apoptosis and G2/M cell cycle arrest in human trophoblast cells. Ex vivo perfusion studies confirmed that CBD crosses the placental barrier and that cannabinoids exert opposing vascular effects: CBD induces vasodilation while THC causes vasoconstriction, both mediated through CB1/CB2 receptors. In silico analysis of 31 candidate genes extracted from the reviewed studies identified eight hub genes (CNR1, VEGFA, CASP3, ESR1, IGF1R, HIF1A, FURIN, EPCAM) based on protein-protein interaction network degree and betweenness centrality. Pathway enrichment analysis revealed significant overrepresentation in apoptosis, endocannabinoid signaling, VEGF/angiogenesis, and estrogen receptor pathways. Collectively, these findings indicate that prenatal cannabis exposure disrupts placental vascularization, nutrient transporter expression, angiogenic signaling, and endocrine/endocannabinoid homeostasis through multiple converging mechanisms, providing a plausible biological basis for the adverse perinatal outcomes associated with gestational cannabis use.

Keywords: prenatal cannabis, THC, CBD, placenta, angiogenesis, endocannabinoid system



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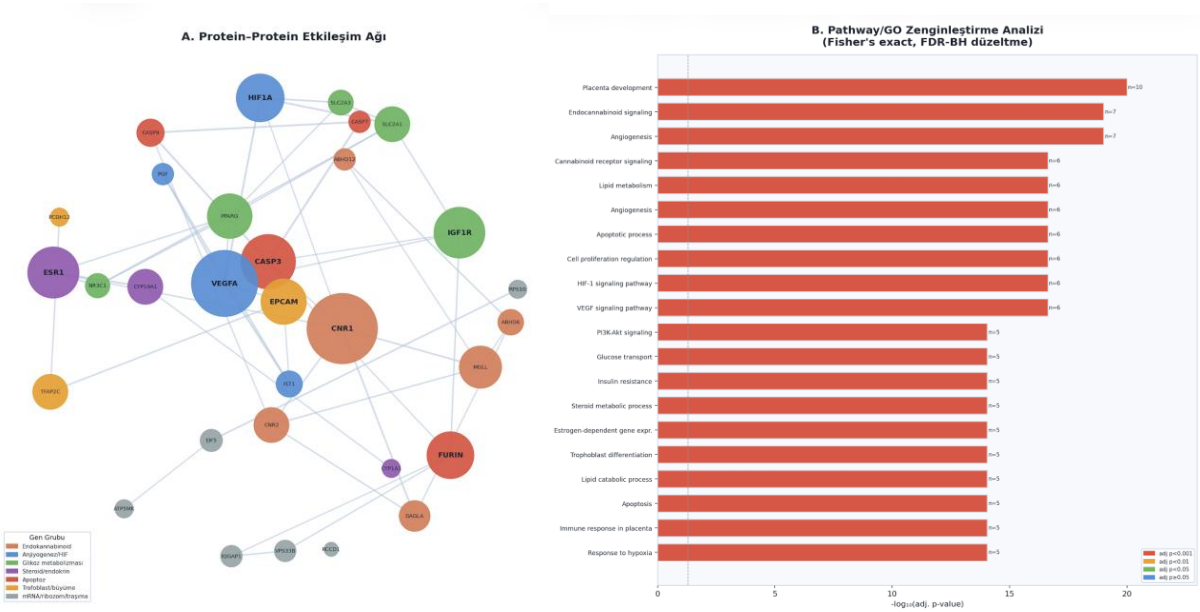

SUBMANDİBULAR BEZDE KANALİKÜLER ADENOM: SİTOLOJİK, HİSTOPATOLOJİK VE İMMÜNOHİSTOKİMYASAL DEĞERLENDİRME İLE NADİR BİR OLGU

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Özet

Amaç: Kanaliküler adenom (KA), tükürük bezlerinin nadir görülen benign epitelyal neoplazmlarından biri olup tüm tükürük bezi tümörlerinin yaklaşık %1'ini oluşturur. En sık üst dudak ve bukkal mukozadaki minör tükürük bezlerinde görülmekte, majör tükürük bezlerinde ise oldukça nadir izlenmektedir. Submandibular bez yerleşimi son derece seyrek olup tanısal açıdan önemli güçlükler yaratabilmektedir. Bu olguda submandibular bezde gelişen KA'nın sitolojik, histopatolojik ve immünohistokimyasal özelliklerinin sunulması amaçlanmıştır.

Olgu: Elli iki yaşında erkek hasta, yaklaşık üç aydır mevcut olan sol submandibular bölgede ağrısız şişlik yakınması ile başvurdu. Ultrasonografik incelemede sol submandibular gland komşuluğunda 25×14 mm boyutlarında, düzgün sınırlı ve kapsüllü solid lezyon saptandı. İnce iğne aspirasyon biyopsisinde yer yer psödopapiller yapılanmalar oluşturan, oval-iğsi hücrelerden oluşan benign epitelyal proliferasyon izlendi. Nükleer atipi, mitoz ve kondromiksoid stroma görülmedi. Sitolojik olarak kanaliküler adenom ve bazal hücreli adenom ön planda düşünüldü ve eksizyon önerildi.

Bulgular: Eksizyon materyalinin histopatolojik incelemesinde gevşek fibrovasküler stroma içerisinde yerleşmiş, çift sıralı kolumnar epitel hücrelerinden oluşan, dallanan ve anastomoz yapan kordlar izlendi. Hücreler uniform morfolojide olup nekroz, belirgin sitolojik atipi ve mitotik aktivite saptanmadı. İmmünohistokimyasal incelemede PanCK ve S100 yaygın pozitif, p63 ve SMA odaksal pozitif bulundu. β-katenin membranöz ekspresyon gösterirken GFAP lümene komşu hücrelerde pozitiflik sergiledi. Morfolojik ve immünofenotipik bulgular doğrultusunda tanı Kanaliküler Adenom olarak değerlendirildi. Hastanın iki yıllık takibinde nüks veya ek patoloji saptanmadı.

Sonuç: Kanaliküler adenomun submandibular bez yerleşimi son derece nadirdir. Özellikle ince iğne aspirasyon biyopsisinde bazal hücreli adenom ve adenoid kistik karsinom gibi lezyonlarla karışabilmesi nedeniyle ayırıcı tanının iyi bilinmesi gerekmektedir. Sitolojik bulguların histopatolojik ve immünohistokimyasal özelliklerle birlikte değerlendirilmesi doğru tanı açısından kritik öneme sahiptir. Sunulan olgu, nadir lokalizasyonu ve sitoloji-histopatoloji korelasyonu nedeniyle literatüre katkı sağlayabilecek özellikler taşımaktadır.

Anahtar Kelimeler: Kanaliküler adenom, submandibular bez, tükürük bezi tümörü, sitoloji, immünohistokimya

SUBMANDIBULAR CANALICULAR ADENOMA: A RARE LOCALIZATION WITH DIAGNOSTIC CYTOLOGIC-HISTOLOGIC CORRELATION

Abstract

Objective: Canalicular adenoma (CA) is one of the rare benign epithelial neoplasms of the salivary glands and accounts for approximately 1% of all salivary gland tumors. It is most commonly observed

in the minor salivary glands of the upper lip and buccal mucosa, while it is quite rare in the major salivary glands. Submandibular gland involvement is extremely rare and can present significant diagnostic challenges. The aim of this case report is to present the cytological, histopathological, and immunohistochemical characteristics of a CA that developed in the submandibular gland.

Case Report: A 52-year-old male patient presented with a painless swelling in the left submandibular region that had been present for approximately three months. Ultrasonographic examination revealed a 25×14 mm solid lesion with well-defined borders and a capsule adjacent to the left submandibular gland. Fine-needle aspiration biopsy revealed a benign epithelial proliferation composed of oval-spindle cells, with areas of pseudopapillary structures. No nuclear atypia, mitoses, or chondromyxoid stroma were observed. Cytologically, canalicular adenoma and basal cell adenoma were considered the most likely diagnoses, and excision was recommended.

Findings: Histopathological examination of the excision specimen revealed branching and anastomosing cords composed of double-layered columnar epithelial cells embedded in a loose fibrovascular stroma. The cells had a uniform morphology, and no necrosis, marked cytological atypia, or mitotic activity was observed. Immunohistochemical examination revealed widespread positivity for PanCK and S100, and focal positivity for p63 and SMA. β-catenin showed membranous expression, while GFAP demonstrated positivity in cells adjacent to the lumen. Based on the morphological and immunophenotypic findings, the diagnosis was evaluated as a canalicular adenoma. No recurrence or additional pathology was detected during the patient's two-year follow-up.

Conclusion: The submandibular gland location of a canalicular adenoma is extremely rare. A thorough understanding of the differential diagnosis is essential, particularly because it can be confused with lesions such as basal cell adenoma and adenoid cystic carcinoma, especially in fine-needle aspiration biopsy. The evaluation of cytological findings in conjunction with histopathological and immunohistochemical characteristics is critical for an accurate diagnosis. The presented case possesses features that may contribute to the literature due to its rare localization and the correlation between cytology and histopathology.

Keywords: Canalicular adenoma, submandibular gland, salivary gland tumor, cytology, immunohistochemistry

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18-49 YAŞ ARASI GEBE VE GEBE OLMAYAN KADINLARDA Toxoplasma gondii PREVALANSININ SEROLOJİK VE MOLEKÜLER YÖNTEMLERLE KARŞILAŞTIRILMASI VE SAG1 GEN BÖLGESİ ANALİZİ

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Özet

Toxoplasma gondii, çeşitli memeli ve kuş türlerini enfekte eden zorunlu bir hücre içi parazittir. *T. gondii*, geniş bir konak yelpazesi olan hem sağlık hem de ekonomik açıdan önemi yüksek bir protozoon parazit olarak kabul edilmektedir. İnsanlara enfeksiyon, kontamine su ve besinleri tüketerek, doku kisti içeren etleri çiğ veya az pişmiş şekilde yiyerek, kan nakli, organ nakli ve transplasental geçiş gibi değişik yollarla bulaşabilmektedir. *T. gondii*'nin hayat döngüsü; takizoit, bradizoit ve sporozoit olmak üzere üç enfektif dönem içermektedir. SAG1 geni takizoit dönemine spesifik bir antijendir. *T. gondii* antijenleri içerisinde en iyi karakterize edilenlerden biri olan SAG1 yüksek derecede korunmuş bir gendir. Bu çalışma, 18-49 yaş arasındaki gebe kadınlar ve gebe olmayan üreme çağındaki kadınlarda *T. gondii* enfeksiyonlarının prevalansını incelemeyi amaçlamaktadır. Katılımcılardan alınan kan örneklerinden elde edilen serumdan elektrokemilüminesans immünolojik test (ECLIA) yöntemiyle IgM ve IgG serolojisine bakıldı. Tam kandan alınan buffy coattan DNA ekstraksiyonu yapıldı ve Nested PCR ile SAG1 gen bölgesi araştırıldı. Çalışmaya toplam 243 kadın dahil edildi. Gebe kadınların yaş ortalaması 30,10 ± 5,55 yıl, gebe olmayan kadınların yaş ortalaması ise 32,00 ± 6,31 yıl olarak bulundu. *T. gondii* IgG seropozitifliği gebelerde %28,1 (50/178), gebe olmayanlarda %20,0 (13/65) olarak saptandı. IgM seropozitifliği ise sırasıyla %2,8 (5/178) ve %1,5 (1/65) olarak belirlendi. Toplam seropozitiflik oranları IgG için %25,9, IgM için %2,5 olarak hesaplandı. Nested PCR sonuçlarında iki olguda SAG1 gen bölgesi tanımlandı. Sonuç olarak, çalışmamızda moleküler teknikle pozitiflik oranı düşük bulunmuş olsa da daha yüksek seroprevalans oranları riskli popülasyonlarda tarama stratejilerinin devamlılığının önemini vurgulamaktadır

Anahtar Kelimeler: *Toxoplasma gondii*, Serolojik yöntemler, Gebelik ve enfeksiyon, SAG1 gen analizi, Prevalans, moleküler yöntemler

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COMPARİSON OF Toxoplasma gondii PREVALENCE IN PREGNANT AND NON-PREGNANT WOMEN AGED 18-49 WITH SEROLOGICAL AND MOLECULAR METHODS AND SAG1 GENE REGION ANALYSIS

Abstract

Toxoplasma gondii is an obligate intracellular parasite that infects various mammalian and avian species. *T. gondii* is considered a protozoan parasite of high importance, both in terms of health and economy,

with a wide host range. Infection in humans can occur through various routes, including consuming contaminated water and food, eating raw or undercooked meat containing tissue cysts, blood transfusions, organ transplants, and transplacental transmission. The life cycle of *T. gondii* includes three infectious stages: tachyzoite, bradyzoite, and sporozoite. The SAG1 gene is a tachyzoite-specific antigen. SAG1, one of the best-characterized *T. gondii* antigens, is a highly conserved gene. This study aimed to investigate the prevalence of *T. gondii* infections in pregnant women and non-pregnant women of reproductive age (18-49 years). Serum samples obtained from blood samples were analyzed for IgM and IgG serology using electrochemiluminescence immunoassay (ECLIA). DNA extraction was performed from the buffy coat of whole blood, and the SAG1 gene region was investigated using nested PCR. A total of 243 women were included in the study. The mean age of pregnant women was 30,10 ± 5,55 years, and the mean age of non-pregnant women was 32,00 ± 6,31 years. *T. gondii* IgG seropositivity was found to be 28.1% (50/178) in pregnant women and 20.0% (13/65) in non-pregnant women. IgM seropositivity was determined to be 2.8% (5/178) and 1.5% (1/65), respectively. Overall seropositivity rates were calculated as 25.9% for IgG and 2.5% for IgM. In nested PCR results, the SAG1 gene region was identified in two cases. In conclusion, although the positivity rate with molecular techniques was found to be low in our study, higher seroprevalence rates highlight the importance of continuing screening strategies in at-risk populations.

Keywords: *Toxoplasma gondii*; Serological methods; Pregnancy and infection, SAG1 gene analysis, prevalence, molecular methods,

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SOLUNUM YOLU ENFEKSIYONLARINDA VIRAL PATOJENLERININ MOLEKÜLER EPIDEMIYOLOJISI VE KLINIK ETKISI: MULTIPLEKS PCR TABANLI BIR ARAŞTIRMA

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Özet

Solunum yolu enfeksiyonlarının etiyolojik tanısında viral patojenlerin hızlı ve doğru şekilde saptanması, uygun klinik yönetim ve enfeksiyon kontrol önlemlerinin planlanması açısından büyük önem taşımaktadır. Bu amaçla kullanılan multipleks polimeraz zincir reaksiyonu (PCR) yöntemleri, tek bir klinik örnekten birden fazla viral etkenin eş zamanlı olarak tespit edilmesine olanak sağlamaktadır. Yüksek duyarlılık ve özgüllüğe sahip olan bu moleküler yöntemler; influenza virüsleri, respiratuvar sinsityal virüs (RSV), rinovirüsler, adenovirüsler, parainfluenza virüsleri ve koronavirüsler gibi yaygın solunum yolu patojenlerinin kısa sürede tanımlanmasını mümkün kılar. Multipleks PCR teknolojisi, kültür ve antijen temelli yöntemlere kıyasla daha hızlı sonuç vermesi ve koenfeksiyonların belirlenebilmesi gibi avantajları sayesinde günümüzde solunum yolu enfeksiyonlarının laboratuvar tanısında yaygın olarak kullanılmaktadır. Çalışmamızda Gaziantep Üniversitesi Şahinbey Araştırma ve Uygulama Hastanesi Moleküler Mikrobiyoloji laboratuvarına 2022-2026 tarihleri arasında rutin olarak gönderilen solunum yolu örneklerinden elde edilen verilerin retrospektif analizi amaçlandı. Çalışmaya dahil edilen 4970 hastanın 1272'si viral etken yönünden pozitif olarak saptandı. Solunum yolu örnekleri, Zybıo EXM 3000 cihazında nükleik asit izolasyonu yapılmış, micPCR Real Time PCR cihazında SARS CoV-2 (Severe Acute Respiratory Syndrome), influenza A/B, Human coronavirüs 229E/OC43/NL63/HKU1, Human parainfluenza 1/2/3/4, Human metapneumovirüs, Human enterovirüs, Human adenovirüs, Human bocavirüs, Human rhinovirüs, RSV (Respiratory Syncytial Virüs) A/B, influenza AH1/AH3/H1N1-2009 olmak üzere toplamda 20 adet viral etkeni araştıran Bio-Speedy Solunum Yolu Rt-qPCRMX-24L panel hazır ticari kiti kullanılarak amplifikasyonu yapılarak sonuçlar Sigmoida V 8.6 REV.195 programında değerlendirilmiştir. Moleküler tanı yöntemleri hız ve doğru sonuç verebilmesi, erken tanı, tedaviye başlama süresini kısaltması ve yayılımın kontrol altına alınması açısından büyük önem arz etmektedir.

Anahtar Kelimeler: SARS CoV-2, RSV, influenza, Multipleks PCR.

MOLECULAR EPIDEMIOLOGY AND CLINICAL IMPACT OF VIRAL PATHOGENS IN RESPIRATORY TRACT INFECTIONS: A MULTIPLEX PCR-BASED STUDY

Abstract

The rapid and accurate identification of viral pathogens in the etiological diagnosis of respiratory tract infections is essential for appropriate clinical management and the implementation of effective infection control strategies. Multiplex polymerase chain reaction (PCR) assays have emerged as valuable diagnostic tools, enabling the simultaneous detection of multiple viral agents from a single clinical specimen. Owing to their high sensitivity and specificity, these molecular techniques facilitate the timely identification of common respiratory pathogens, including influenza viruses, respiratory syncytial virus (RSV), rhinoviruses, adenoviruses, parainfluenza viruses, and coronaviruses. Compared with

conventional culture-based and antigen-detection methods, multiplex PCR offers significant advantages, such as shorter turnaround times and the ability to identify co-infections, making it a widely adopted approach in the laboratory diagnosis of respiratory tract infections. The present study aimed to retrospectively evaluate data obtained from respiratory tract specimens routinely submitted to the Molecular Microbiology Laboratory of Gaziantep University Şahinbey Research and Application Hospital between 2022 and 2026. Among the 4,970 patients included in the study, 1,272 were found to be positive for at least one viral pathogen. Nucleic acid extraction was performed from respiratory samples using the Zybio EXM 3000 platform. Subsequently, amplification and detection were carried out on the micPCR Real-Time PCR system using the commercially available Bio-Speedy Respiratory Tract RT-qPCR MX-24L panel, which targets 20 viral pathogens, including SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2), influenza A and B viruses, human coronaviruses (229E, OC43, NL63, and HKU1), human parainfluenza viruses (types 1–4), human metapneumovirus, human enterovirus, human adenovirus, human bocavirus, human rhinovirus, RSV A/B, and influenza A subtypes H1, H3, and H1N1-2009. The amplification results were analyzed using Sigmoida software version 8.6 REV.195. Molecular diagnostic methods play a critical role in the management of respiratory infections due to their ability to provide rapid and reliable results, facilitate early diagnosis, reduce the time required to initiate appropriate treatment, and contribute to the effective control of disease transmission.

Keywords: SARS CoV-2, RSV, influenza, Multiplex PCR.

BORİK ASİDİN DENEYSEL SIÇAN MODELİNDE SİKLOFOSFAMİD KAYNAKLI KARDİYAK HASAR ÜZERİNDEKİ ROLÜNÜN HİSTOLOJİK OLARAK DEĞERLENDİRİLMESİ

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Özet

Siklofosfamid (CYC), çeşitli kanserlerin tedavisinde yaygın olarak kullanılan etkili bir kemoterapötik ajandır. Ancak, klinik kullanımı kardiyotoksik yan etkileri nedeniyle sınırlıdır. Borik asit (BA), antioksidan özellikleri ile bilinen ve oksidatif stres kaynaklı doku hasarına karşı potansiyel koruyucu etkileri araştırılan önemli bir eser elementtir. Bu çalışmada, siklofosfamidin neden olduğu kalp hasarına karşı borik asidin olası koruyucu etkilerinin araştırılması amaçlanmıştır. Çalışmada, her grupta 8 hayvan olacak şekilde toplam 32 adet Wistar albino türü dişi sıçan kullanıldı. Kontrol grubuna çeşme suyu gavaj yoluyla 7 gün, CYC grubuna tek doz 150 mg/kg siklofosfamid intraperitoneal uygulandı. Borik asit grubuna 15 mg/kg borik asit gavaj yoluyla 7 gün, CYC+BA grubuna ise, tek doz 150 mg/kg siklofosfamid intraperitoneal ve 15 mg/kg borik asit gavaj yoluyla 7 gün uygulandı. Son uygulamanın yapılmasının ardından 24 saat sonra, sıçanlar anestezi altında sakrifiye edilerek kalp dokuları alındı ve rutin histolojik doku takibi uygulandı. Histopatolojik incelemeler için parafin bloklardan alınan kesitlere, Hematoksilen-Eozin, Masson trikrom ve Toluidin mavisi boyama yöntemleri uygulandı. CYC grubunda kalp dokusunda inflamatuar hücre infiltrasyonu, ödem, miyokardiyal konjesyon gözlenirken, CYC+BA grubunda bu histopatolojik bulguların azaldığı belirlenmiştir. Çalışmadan elde edilen bulgulara göre, CYC kalp dokusunda patolojik bulgulara neden olmuştur. BA uygulaması kalp dokusunda olumsuz etkiye neden olmazken, CYC+BA grubunda BA toksik etkileri hafifletebileceği anlaşılmıştır. BA'nın kardiyoprotektif etkilerinin altında yatan moleküler mekanizmaları açıklığa kavuşturmak için daha ileri çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: siklofosfamid, borik asit, kalp, sıçan

HISTOLOGICAL EVALUATION OF THE ROLE OF BORIC ACID ON CYCLOPHOSPHAMIDE-INDUCED CARDIAC DAMAGE IN AN EXPERIMENTAL RAT MODEL

Abstract

Cyclophosphamide (CYC) is an effective chemotherapeutic agent widely used in the treatment of various types of cancer. However, its clinical use is limited by its cardiotoxic side effects. Boric acid (BA) is an important trace element known for its antioxidant properties and investigated for its potential protective effects against oxidative stress-induced tissue damage. This study aimed to investigate the potential protective effects of boric acid against cyclophosphamide-induced cardiac damage. A total of 32 female Wistar albino rats were used in the study, with eight animals in each group. The control group was administered tap water via gavage for 7 days and the CYC group received a single intraperitoneal dose of 150 mg/kg cyclophosphamide. The boric acid group received 15 mg/kg boric acid via gavage for 7 days and the CYC+BA group received a single dose of 150 mg/kg cyclophosphamide intraperitoneally and 15 mg/kg boric acid via gavage for 7 days. Twenty-four hours after the final administration, the rats were sacrificed under anesthesia, cardiac tissues were collected, and routine histological examination was performed. For histopathological evaluation, sections obtained from paraffin blocks were stained with Hematoxylin-Eosin, Masson's trichrome and Toluidine blue. Inflammatory cell infiltration, edema, and myocardial congestion were observed in the CYC group,

whereas these histopathological alterations were reduced in the CYC+BA group. According to the findings of the study, CYC induced pathological changes in cardiac tissue. BA administration alone did not cause any adverse effects in cardiac tissue, and in the CYC+BA group, BA appeared to alleviate the toxic effects of CYC. Further studies are needed to clarify the molecular mechanisms underlying the cardioprotective effects of BA.

Keywords: cyclophosphamide, boric acid, heart, rat

GEBELİKTE STRES VE KANITA DAYALI HEMŞİRELİK YAKLAŞIMLARI

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Özet

Amaç: Gebelikte yaşanan maternal stres, anne ve fetüs sağlığını etkileyen önemli bir halk sağlığı sorunudur. Bu derlemenin amacı, gebelik dönemindeki stres faktörlerinin neler olduğunu, maternal/ fetal iyilik haline yansımalarını ve maternal stresin yönetiminde kullanılan kanıta dayalı hemşirelik uygulamalarını incelemektir.

Yöntemler: Bu derleme çalışması ulusal ve uluslararası güncel literatürün incelenmesiyle gerçekleştirilmiştir. Bu kapsamda kadın hayatının fizyolojik ve psikolojik olarak derinden etkilendiği gebelik döneminde stres kavramı, maternal stres ve hemşirelik müdahalelerine ilişkin kanıta dayalı uygulamaların neler olduğu ‘‘gebelik, maternal stres, hemşirelik, kanıta dayalı uygulama ve prenatal bakım’’ anahtar kelimeleri kullanılarak literatür doğrultusunda derlenmiştir.

Bulgular: Literatür bulguları, stres semptomlarının küresel yaygınlığının birinci ve ikinci trimesterlerde %30 seviyerlerinde olmakla birlikte özellikle üçüncü trimesterde doğum sürecinin yaklaşması ile yaygınlığın %52- %60 seviyelerine yükseldiğini göstermektedir. Gebelik döneminde trimesterlere göre düzeyi değişmekle birlikte algılanan stresin yüksek olduğu görülmektedir. Çalışmalar gebelik sürecindeki algılanan yüksek stres düzeylerinin erken doğum, düşük doğum ağırlığı, intrauterin gelişim geriliği, düşük APGAR skoru, gestasyonel hipertansiyon, preeklampsi, gestasyonel diyabet, postpartum depresyon gibi maternal ve fetal sağlığı tehdit eden olumsuz sonuçlarla ilişkili olduğunu göstermektedir. Prenatal bakım sürecinde hemşirelerin stres risklerini erken dönemde belirlemede önemli bir role sahip olduğu saptanmıştır. Ayrıca bilişsel davranışçı yaklaşımlar, bilinçli farkındalık (mindfulness) uygulamaları, müzik terapisi, masaj terapisi, aromaterapi, solunum ve gevşeme egzersizleri ve sosyal destek girişimleri gibi kanıt temelli bakım uygulamalarının maternal stresin azaltılmasında etkili olduğu belirlenmiştir.

Tartışma ve Sonuç: Gebelik döneminde deneyimlenen stres maternal ve fetal sağlığı etkileyen önemli risk faktörlerinden biridir. Gebenin yapılan taramalarda stres açısından değerlendirilmesi buna yönelik kanıta dayalı hemşirelik müdahalelerinin prenatal bakım hizmetlerine entegre edilmesi, maternal stresin azaltılmasına ve anne-bebek sağlığı sonuçlarının iyileştirilmesine katkı sağlanması açısından önem taşımaktadır. Bu nedenle hemşirelerin gebelik dönemindeki stres yönetiminde aktif rol alarak bütüncül bakım anlayışına uygun olarak fiziksel iyilik hali ile birlikte ruhsal iyilik halinide gözeterek bakım vermesi gerekmektedir.

Anahtar Kelimeler: Gebelik, Maternal stres, Hemşirelik, Kanıta dayalı uygulama, Prenatal bakım

STRESS IN PREGNANCY AND EVIDENCE-BASED NURSING APPROACHES

Abstract

Objective: Maternal stress during pregnancy is a significant public health issue that affects the health of both the mother and the fetus. The objective of this review is to examine the stress factors present

during pregnancy, their impact on maternal and fetal well-being, and evidence-based nursing practices used in the management of maternal stress.

Methods: This review study was conducted by examining current national and international literature. In this context, the concept of stress during pregnancy, a period profoundly affecting women's lives physiologically and psychologically, and evidence-based practices regarding maternal stress and nursing interventions were compiled in accordance with the literature using the keywords "pregnancy, maternal stress, nursing, evidence-based practice, and prenatal care".

Results: Literature findings indicate that the global prevalence of stress symptoms is around 30% in the first and second trimesters, but this prevalence increases to 52-60%, particularly in the third trimester as labor approaches. Perceived stress levels are generally high throughout pregnancy, although varying by trimester. Studies show that high perceived stress levels during pregnancy are associated with adverse outcomes that threaten maternal and fetal health, such as premature birth, low birth weight, intrauterine growth restriction, low APGAR score, gestational hypertension, preeclampsia, gestational diabetes, and postpartum depression. Nurses have been found to play a crucial role in identifying stress risks early in the prenatal care process. Furthermore, evidence-based care practices such as cognitive behavioral approaches, mindfulness techniques, music therapy, massage therapy, aromatherapy, breathing and relaxation exercises, and social support interventions have been found to be effective in reducing maternal stress.

Discussion and Conclusion: Stress experienced during pregnancy is a significant risk factor affecting maternal and fetal health. Assessing pregnant women for stress through screenings and integrating evidence-based nursing interventions into prenatal care services are crucial for reducing maternal stress and improving maternal and infant health outcomes. Therefore, nurses should play an active role in stress management during pregnancy, providing care in accordance with a holistic approach that considers both physical and mental well-being.

Keywords: Pregnancy, Maternal stress, Nursing, Evidence-based practice, Prenatal care

GEBELİKTE UYKU VE KANITA DAYALI HEMŞİRELİK YAKLAŞIMLARI

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Özet

Amaç: Gebelik fizyolojik, psikolojik, duygusal, çevresel ve sosyal değişimlerin görüldüğü çok boyutlu bir dönemdir. Yaşanan değişimler maternal uyku kalitesini önemli düzeyde etkilemektedir. Bu derlemenin amacı, gebelik döneminde görülen maternal uyku kalitesindeki etkilenmeler ve bu doğrultuda uygulanabilecek kanıta dayalı hemşirelik girişimlerinin neler olduğunu incelemektir.

Yöntemler: Bu derleme çalışması ulusal ve uluslararası güncel literatürün incelenmesiyle gerçekleştirilmiştir. Bu kapsamda gebeliğin birinci, ikinci ve üçüncü trimesterlerindeki uyku kalitesinde görülen etkilenmeler ve uygulanabilecek kanıta dayalı bakım yaklaşımlarının neler olabileceği literatür doğrultusunda "gebelik, uyku kalitesi, hemşirelik, kanıta dayalı uygulama ve prenatal bakım" anahtar kelimeleri kullanılarak derlenmiştir.

Bulgular: Literatür bulguları gebelerin %75- %80'nin gebeliğin herhangi bir döneminde uyku problemi ile karşı karşıya kaldığını göstermektedir. Gebelerin uyku kalitesindeki olumsuz etkilemelerin trimesterlere göre yaygınlığı değerlendirildiğinde birinci trimesterde %40, ikinci trimesterde %50 ve üçüncü trimesterde %70'lere ulaşan oranlarda olduğu bildirilmiştir. Trimesterlere göre uyku kalitesini etkileyen faktörler değişiklik göstermektedir. Bunlar; mide yanması, bulantı/ kusma, kramplar, nefes darlığı, sık idrara çıkma, fetal hareketler, doğumun yaklaşması kaynaklı yüksek kaygı düzeyi gibi çok çeşitlilik göstermektedir. Etken farklılık göstersede maternal uyku kalitesinin kötü etkilenmesi doğum sonu depresyon, preeklampsi, gestasyonel diyabet, enfeksiyonlara yatkınlık, uzamış doğum eylemi, intrauterin gelişme geriliği, düşük doğum ağırlığı, prematüre doğum olmak üzere çeşitli komplikasyonlar ile maternal ve fetal sağlığı olumsuz etkilemektedir. Bu dönemde gebe kadın ile en yakın teması oluşturan profesyonel sağlık disiplini olmaları sebebiyle hemşirelerin önemli bir role sahip olduğu saptanmıştır. Bu bağlamda sunulan hemşirelik bakımına kanıta dayalı sol yan pozisyon verilmesi, uyku hijyeni eğitimleri, gevşeme teknikleri, akupresür, terapötik dokunma ve ayak masajı gibi uygulamaların entegre edilmesinin uyku kalitesini iyileştirmede yüksek etkinliğe sahip olduğu belirlenmiştir.

Tartışma ve Sonuç: Gebelik döneminde uyku kalitesinin olumsuz etkilenmesi hem maternal hem de fetal sağlığı olumsuz etkilemektedir. Bu açıdan gebelerin yaşam kalitesine doğrudan etki eden uyku kalitesinin iyileştirilmesi büyük önem taşımaktadır. Planlanan hemşirelik bakımının etkinliği kanıtlanmış yaklaşımlar çerçevesinde, kapsayıcı ve kişiselleştirilmiş şekilde sunulması önerilmektedir.

Anahtar Kelimeler: Gebelik, Uyku kalitesi, Hemşirelik, Kanıta dayalı uygulama, Prenatal bakım

SLEEP DURING PREGNANCY AND EVIDENCE-BASED NURSING APPROACHES

Abstract

Objective: Pregnancy is a multifaceted period characterized by physiological, psychological, emotional, environmental, and social changes. These changes significantly impact maternal sleep quality. This

review aims to examine the effects on maternal sleep quality during pregnancy and the evidence-based nursing interventions that can be applied in this regard.

Methods: This review study was conducted by examining current national and international literature. In this context, the effects on sleep quality during the first, second and third trimesters of pregnancy and the possible evidence-based care approaches were compiled using the keywords "pregnancy, sleep quality, nursing, evidence-based practice, and prenatal care" in accordance with the literature.

Results: Literature findings indicate that 75-80% of pregnant women experience sleep problems at some point during pregnancy. When the prevalence of negative impacts on sleep quality is evaluated according to trimesters, it has been reported to be 40% in the first trimester, 50% in the second trimester, and reaching 70% in the third trimester. Factors affecting sleep quality vary according to trimesters. These include a wide range of issues such as heartburn, nausea/vomiting, cramps, shortness of breath, frequent urination, fetal movements, and high anxiety levels due to approaching labor. Although the factors differ, poor maternal sleep quality negatively impacts maternal and fetal health through various complications including postpartum depression, preeclampsia, gestational diabetes, susceptibility to infections, prolonged labor, intrauterine growth restriction, low birth weight, and premature birth. It has been determined that nurses, as the professional healthcare discipline that has the closest contact with pregnant women during this period, play a significant role. In this context, integrating evidence-based practices such as left-side positioning, sleep hygiene training, relaxation techniques, acupressure, therapeutic touch, and foot massage into nursing care has been found to be highly effective in improving sleep quality.

Discussion and Conclusion: Negative impacts on sleep quality during pregnancy negatively affect both maternal and fetal health. Therefore, improving sleep quality, which directly impacts the quality of life of pregnant women, is of great importance. It is recommended that planned nursing care be provided in an inclusive and personalized manner, based on proven effective approaches.

Keywords: Pregnancy, Sleep quality, Nursing, Evidence-based practice, Prenatal care

AFET DÖNEMİNDE EBELİK BAKIMI

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Özet

Afetler, bireylerin kontrolü dışında meydana gelen, toplumların yaşam düzenini ciddi biçimde etkileyen ve mevcut kaynaklarla baş edilmesini güçleştiren olağanüstü olaylardır. Bu olaylar fiziksel, ekonomik, sosyal ve psikolojik kayıplara neden olarak bireylerin yaşam kalitesini olumsuz yönde etkileyebilmektedir. Afetlerden toplumun tüm kesimleri etkilenmekle birlikte, bazı gruplar sahip oldukları biyolojik ve sosyal özellikler nedeniyle daha yüksek risk altındadır. Özellikle gebeler ve lohusalar, artan sağlık gereksinimleri ve bakım ihtiyaçları nedeniyle afetlerden en fazla etkilenen kırılgan gruplar arasında yer almaktadır. Afet dönemlerinde sağlık hizmetlerinin aksaması, sağlık personeli ve sağlık kuruluşlarına erişimde yaşanan güçlükler, temiz su ve beslenme olanaklarının yetersizliği ile barınma sorunları anne ve bebek sağlığını tehdit eden önemli faktörlerdir. Ayrıca gebeler ve lohusalar temel yaşam gereksinimi olan beslenme, barınma, uyku ve güvenlik ihtiyacına ulaşmada ve bunları sürdürmede sıkıntı yaşamıştır. Yeterli prenatal ve pospartum bakım, sezaryen oranlarını, anne bebek ölümlerini, kaygı sorunlarını azaltmakta ve genel üreme sağlığı sonuçlarını iyileştirmektedir. Birçok yönden gebelerin ve lohusaların kendileri için faydalı olan bu profesyonel bakıma ihtiyaçları vardır. Ancak afetlerde arama kurtarma ekiplerinin ve sosyal yardımlaşma ağlarının öncelikli amacı afetten etkilenen, yaralı insanları kurtarmak olduğu için gebelere ve lohusalara verilen bakım göz ardı edilebilmektedir. Bunun yanı sıra afetlerin oluşturduğu belirsizlik ortamı, gebeler ve lohusalar üzerinde yoğun psikolojik baskı yaratabilmekte; stres, anksiyete, depresyon ve travma sonrası stres belirtilerinin görülme sıklığını artırabilmektedir. Bu durum yalnızca kadınların ruh sağlığını değil, aynı zamanda gebelik ve doğum sonuçlarını da etkileyebilmektedir. Yapılan çalışmalar, afetlere maruz kalan gebelerde prematür doğum, düşük doğum ağırlığı, gebelik komplikasyonları ve olumsuz yenidoğan sonuçlarının daha sık görülebildiğini göstermektedir. Bu süreçte ebeler, anne ve yenidoğan sağlığının korunmasında kritik bir role sahiptir. Ebeler; antenatal, intrapartum ve postpartum bakım hizmetlerinin sürdürülmesinin yanı sıra psikososyal destek, danışmanlık ve sağlık eğitimi hizmetleri sunarak afetlerin olumsuz etkilerinin azaltılmasına katkı sağlamaktadır. Afetlere hazırlık ve müdahale planlarında ebelik hizmetlerinin güçlendirilmesi, ebelerin afet yönetimi ekiplerine etkin şekilde dâhil edilmesi ve kırılgan gruplara yönelik bakım modellerinin geliştirilmesi, anne ve bebek sağlığının korunmasında önemli bir gereklilik olarak değerlendirilmektedir.

Anahtar Kelimeler: Ebelik, afet yönetimi, deprem, gebe, lohusa

MIDWIFERY CARE DURING DISASTER PERIODS

Abstract

Disasters are extraordinary events that occur beyond the control of individuals, severely affecting the life of societies and making it difficult to cope with existing resources. These events can negatively impact the quality of life of individuals by causing physical, economic, social, and psychological losses. While all segments of society are affected by disasters, some groups are at higher risk due to their biological and social characteristics. Pregnant women and postpartum mothers, in particular, are among the most vulnerable groups affected by disasters due to their increased health and care needs. Disruptions in health services during disasters, difficulties in accessing health personnel and health facilities, insufficient access to clean water and nutrition, and housing problems are significant factors threatening maternal and infant health. In addition, pregnant women and postpartum mothers experience difficulties

in accessing and maintaining their basic life needs such as nutrition, shelter, sleep, and security. Adequate prenatal and postpartum care reduces cesarean section rates, maternal and infant mortality, anxiety problems, and improves overall reproductive health outcomes. In many ways, pregnant women and new mothers need this professional care, which is beneficial to them. However, because the primary goal of search and rescue teams and social support networks in disasters is to rescue the affected and injured, the care provided to pregnant women and new mothers can be overlooked. In addition, the uncertainty created by disasters can create intense psychological pressure on pregnant women and new mothers; it can increase the frequency of stress, anxiety, depression, and post-traumatic stress symptoms. This situation can affect not only the mental health of women but also pregnancy and birth outcomes. Studies show that premature birth, low birth weight, pregnancy complications, and adverse neonatal outcomes are more common in pregnant women exposed to disasters. In this process, midwives play a critical role in protecting the health of mothers and newborns. Midwives contribute to mitigating the negative effects of disasters by providing antenatal, intrapartum, and postpartum care services, as well as psychosocial support, counseling, and health education services. Strengthening midwifery services in disaster preparedness and response plans, effectively including midwives in disaster management teams, and developing care models for vulnerable groups are considered crucial requirements for protecting maternal and infant health.

Keywords: Midwifery, disaster management, earthquake, pregnant, postpartu

SEZARYEN SONRASI VAJİNAL DOĞUM

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Özet

Sezaryen sonrası vajinal doğum (SSVD), önceki doğumu sezaryen ile gerçekleşmiş bir kadının sonraki doğumunu vajinal yolla gerçekleştirmesi olarak tanımlanmaktadır. Uzun yıllar boyunca obstetrik uygulamalara yön veren "Bir kez sezaryen, her zaman sezaryen" yaklaşımı, ilk kez 20. yüzyılın başlarında Edwin Cragin tarafından dile getirilmiş ve sezaryen doğum yapan kadınların sonraki gebeliklerinde de sezaryen ile doğum yapmaları gerektiği görüşü benimsenmiştir. Ancak cerrahi tekniklerde, anestezi uygulamalarında ve obstetrik bakım hizmetlerinde yaşanan gelişmeler sonucunda bu yaklaşım zamanla sorgulanmaya başlanmıştır. Özellikle 1960'lı yıllardan itibaren, önceki sezaryen doğumu alt segment transvers uterin kesi ile gerçekleştirilen kadınların uygun koşullar altında vajinal doğum yapabilecekleri görüşü ön plana çıkmıştır. 1980'li yıllarda yayınlanan rehberler ve bilimsel çalışmalar, seçilmiş olgularda SSVD'nin güvenli bir seçenek olabileceğini ortaya koymuştur. Bu doğrultuda, Amerikan Obstetrisyenler ve Jinekologlar Birliği (ACOG), alt segment transvers insizyona sahip kadınların SSVD için uygun adaylar olduğunu ve bu yaklaşımın artan sezaryen oranlarının azaltılmasına katkı sağlayabileceğini belirtmiştir. Bununla birlikte, SSVD uygulamalarının yaygınlaşmasıyla birlikte uterus rüptürü gibi ciddi komplikasyonlara ilişkin veriler de gündeme gelmiştir. Özellikle uterus rüptürünün anne ve yenidoğan açısından önemli morbidite ve mortalite riskleri taşıdığı bildirilmiş, bu nedenle SSVD'nin acil obstetrik müdahale olanaklarının bulunduğu merkezlerde gerçekleştirilmesi önerilmiştir. Güncel kılavuzlar ise uygun adayların belirlenmesi ve kapsamlı danışmanlık verilmesi koşuluyla SSVD'nin desteklenmesi gerektiğini vurgulamaktadır. Kadınların SSVD'yi tercih etme nedenleri çok boyutlu olup bireysel değerler, geçmiş doğum deneyimleri ve gelecekteki üreme planlarından etkilenmektedir. Tekrarlayan sezaryen doğumların plasenta previa ve plasenta akreta gibi ciddi obstetrik komplikasyonların görülme riskini artırabileceğine ilişkin farkındalık, kadınların SSVD'ye yönelmesinde önemli bir etkendir. Ayrıca doğum sonrası iyileşme sürecinin daha kısa olması, günlük yaşam aktivitelerine daha hızlı dönüş sağlanması ve cerrahi girişime bağlı risklerden kaçınma isteği de tercih nedenleri arasında yer almaktadır. Bunun yanı sıra bazı kadınlar doğum eylemini ve vajinal doğumu deneyimlemek istemekte, eşlerinin doğum sürecine daha aktif katılımını önemsemektedir. Tüm bu faktörler değerlendirildiğinde, SSVD kararının bireyselleştirilmiş danışmanlık ve kanıta dayalı bakım anlayışı çerçevesinde ele alınması gerekmektedir.

Anahtar Kelimeler: Doğum yönetimi, ebe, gebe, sezaryen sonrası vajinal doğum

VAGINAL BIRTH AFTER CESAREAN SECTION

Abstract

Vaginal birth after cesarean section (VBAC) is defined as a woman who has had a previous cesarean delivery giving birth vaginally in her next pregnancy. The "once a cesarean, always a cesarean" approach, which guided obstetric practice for many years, was first articulated by Edwin Cragin in the early 20th century, and the view that women who had a cesarean delivery should also have a cesarean delivery in their subsequent pregnancies was adopted. However, as a result of developments in surgical techniques, anesthesia practices, and obstetric care services, this approach has gradually begun to be questioned. Especially since the 1960s, the view that women who had a previous cesarean delivery with a lower segment transverse uterine incision can have a vaginal delivery under appropriate conditions has come to the fore. Guidelines and scientific studies published in the 1980s have shown that VBAC

can be a safe option in selected cases. In this context, the American College of Obstetricians and Gynecologists (ACOG) has stated that women with lower segment transverse incisions are suitable candidates for VBAC (Vaginal Birth After Cesarean) and that this approach can contribute to reducing the increasing cesarean section rates. However, with the increasing prevalence of VBAC, data regarding serious complications such as uterine rupture have also come to the fore. Uterine rupture, in particular, has been reported to carry significant morbidity and mortality risks for both mother and newborn; therefore, it is recommended that VBAC be performed in centers with access to emergency obstetric intervention facilities. Current guidelines emphasize that VBAC should be supported provided that suitable candidates are identified and comprehensive counseling is provided. Women's reasons for choosing VBAC are multifaceted and influenced by individual values, past birth experiences, and future reproductive plans. Awareness that repeated cesarean deliveries can increase the risk of serious obstetric complications such as placenta previa and placenta accreta is a significant factor in women's inclination towards VBAC. Additionally, shorter postpartum recovery, faster return to daily activities, and the desire to avoid risks associated with surgical intervention are among the reasons for choosing vaginal birth after cesarean section (VBAC). Furthermore, some women wish to experience labor and vaginal delivery, and value their partners' more active participation in the birthing process. Considering all these factors, the decision regarding VBAC should be approached within the framework of individualized counseling and evidence-based care.

Keywords: Birth management, midwife, pregnant woman, vaginal birth after cesarean section

VULVODİNİNİN KLİNİK SINIFLANDIRMASI

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Özet

Vulvodini, kadınlarda vulva bölgesinde en az üç ay süreyle devam eden ve herhangi bir inflamatuvar, enfeksiyöz ya da görünür patolojik değişiklikle açıklanamayan kronik ağrı sendromudur. Belirtileri vulvada yanma, batma, iğnelenme ve benzeri ağrı şikâyetleri şeklinde ortaya çıkar. Ağrının şiddetine bağlı olarak vajinal penetrasyon zorlaşabilir veya tamamen imkânsız hale gelebilir. Lokal vulvodinide kadın, penetrasyon girişimi sırasında vajinal giriş bölgesinde şiddetli ağrı hisseder ve ilişkiyi sonlandırmak zorunda kalır. Bunun yanı sıra vulvodini jinekolojik muayene ve tedavileri, gebelik sürecini ve doğum yönetimini olumsuz etkileyerek kadının cinsel ve sosyal yaşamında önemli sorunlara yol açmaktadır.

Vulvodini belirtileri çoğu zaman vestibül bölgesinde (lokal vulvodini) gözlenmektedir. Ağrı penetrasyon girişimi sırasında, günlük hareketler esnasında ve bazen de idrar yaparken ortaya çıkabilmektedir. Vulvodini ağrısı büyük labialar ve klitoral bölgede de yaygın şekilde görülebilir (genelize vulvodini). Bazı olgularda ağrı o kadar şiddetli ve dayanılmaz olabilir ki, hastada intihar düşüncelerine dahi neden olabilmektedir. Klinik gözlemler, vulvodini belirtilerinin bazı durumlarda ilk penetrasyon girişiminden önce de mevcut olabileceğini göstermektedir. Bu hastalar sıklıkla sistit veya vulvovajinal kandidiyazis tanıları ile aylarca hatta yıllarca etkisiz tedavilere maruz kalabilmektedir. Vulvodiniden etkilenen kadınların önemli bir bölümü benzer başarısız tedavi deneyimleri yaşamaktadır. Bu çalışmanın amacı, lokal vulvodini tedavisinde çağdaş yaklaşımlar çerçevesinde ağrı şiddetinin yanı sıra ağrının yüzeyel veya derin karakterinin belirlenmesinin önemini değerlendirmektir.

2015 yılında kabul edilen uluslararası klinik sınıflandırmaya göre vulvodini ISSVD, ISSWSH ve IPPS tarafından lokalize (ağrının vestibülde olduğu) ve genelize (ağrının vulvada yaygın olduğu) formlar olarak sınıflandırılmaktadır. Ayrıca ağrı provake (temasla ortaya çıkan), spontan ve karma tip olarak değerlendirilmektedir. Hastalık klinik seyrine göre primer ve sekonder formlara da ayrılmaktadır.

Bu araştırmada vulvodini ağrısının yüzeyel veya derin yerleşimi ile ağrı şiddeti incelenmiştir. Üç yüzden fazla kadın üzerinde gerçekleştirilen uzun süreli klinik gözlemler sonucunda ağrı yoğunluğuna göre dört dereceli bir şiddet sınıflaması ve ağrının yüzeyel (submukozal tabakalarda) veya derin (kas tabakalarında) lokalizasyonu belirlenmiştir. Ağrının şiddeti ve yerleşiminin değerlendirilmesi, uygun tedavi yönteminin seçilmesi açısından büyük klinik önem taşımaktadır. Sonuç olarak, multifaktöriyel bir sendrom olan vulvodininin tanı ve tedavisi hâlen güçlükler içermektedir. Bu nedenle daha kapsamlı bilimsel araştırmalara, geliştirilmiş klinik sınıflandırmalara ve bireyselleştirilmiş modern tedavi yaklaşımlarına ihtiyaç vardır. Önerilen sınıflandırma, mevcut ISSVD ve diğer sınıflandırma sistemlerini tamamlayarak klinik uygulamada daha doğru değerlendirmelere katkı sağlayabilir.

Anahtar Kelimeler: vulvodini, jinekoloji, ağrı, kronik vulvar ağrı, sınıflandırma, tedavi yöntemi.

CLINICAL CLASSIFICATION OF VULVODYNIA

Abstract

Vulvodynia is a chronic pain syndrome characterized by pain in the vulvar region lasting for at least three months without any identifiable inflammatory, infectious, or visible pathological cause. Clinical manifestations include burning, stinging, pricking, and other pain sensations localized to the vulva. Depending on pain severity, vaginal penetration may become difficult or completely impossible. In

localized vulvodynia, women typically experience severe pain at the vaginal introitus during attempted penetration, leading to discontinuation of sexual activity. In addition, vulvodynia may adversely affect gynecological examinations and treatments, pregnancy management, and childbirth, thereby significantly impairing a woman's sexual and social well-being.

Symptoms of vulvodynia are most frequently observed in the vestibular region (localized vulvodynia). Pain may occur during attempted penetration, routine physical activities, and occasionally during urination. Vulvodynia-related pain may also be distributed throughout the labia majora and clitoral region (generalized vulvodynia). In some cases, the pain becomes so severe and intolerable that it may lead to suicidal ideation. Clinical observations indicate that symptoms of vulvodynia may be present even before the first attempt at vaginal penetration. In such cases, patients are often misdiagnosed with cystitis or vulvovaginal candidiasis and may undergo ineffective treatments for months or even years. A substantial proportion of women suffering from vulvodynia report similar experiences. The aim of this study is to evaluate the importance of determining not only pain intensity but also the superficial or deep nature of pain within contemporary approaches to the management of localized vulvodynia.

According to the international clinical classification established in 2015, vulvodynia is categorized by the ISSVD, ISSWSH, and IPPS into localized forms (pain confined to the vestibule) and generalized forms (pain distributed throughout the vulva). Furthermore, pain may be classified as provoked, spontaneous (unprovoked), or mixed. Based on clinical course, vulvodynia is also divided into primary and secondary forms.

The present study investigated the localization of vulvodynia-related pain (superficial versus deep) as well as pain intensity. Long-term clinical observations involving more than 300 women identified four grades of pain severity and distinguished between superficial localization (submucosal layers) and deep localization (muscular layers). Assessment of pain severity and localization is of considerable clinical importance in selecting the most appropriate treatment strategy. In conclusion, vulvodynia remains a multifactorial syndrome with significant diagnostic and therapeutic challenges. Therefore, further scientific research, improved clinical classification systems, and individualized modern treatment approaches are required. The proposed classification may complement existing ISSVD and other classification systems and contribute to more accurate assessment in clinical practice.

Keywords: vulvodynia, gynecology, pain, chronic vulvar pain, classification, treatment approach.

EMZİRME DANIŞMANLIĞINDA DİJİTAL DESTEK SİSTEMLERİNİN ANNE ÖZ-YETERLİLİĞİNE ETKİSİ

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Özet

Bu çalışmada, ilk kez anne olan kadınların (primipar) emzirme süreçlerindeki öz-yeterlilik algıları ile klinik emzirme başarıları üzerinde mobil uygulamalar, sosyal ağlar, web tabanlı platformlar, Sanal Gerçeklik (VR) ve Metaverse gibi güncel dijital destek mekanizmalarının yarattığı etkiler literatür verileri doğrultusunda incelenmiştir. Derleme kapsamında; klinik ortamda ya da evde WhatsApp grupları üzerinden yürütülen danışmanlıklar, mobil sağlık (m-Sağlık) aplikasyonları, VR ve Metaverse ortamında özel olarak tasarlanan simülasyonlar, uzaktan eğitim modelleri ile SMS ve telefon takibine dayalı kesintisiz izlem yöntemlerini içeren lisansüstü tez çalışmaları ve randomize kontrollü araştırmalar ele alınmıştır. İncelenen bu araştırmalarda verilerin toplanması ve klinik sonuçların değerlendirilmesi amacıyla ağırlıklı olarak Emzirme Öz-Yeterlilik Ölçeği (BSES-SF) ve LATCH emzirme tanılama araçlarının kullanıldığı görülmüştür.

Elde edilen bilimsel bulgular, dijital destek sistemlerinden yararlanan primipar annelerin emzirme öz-yeterlilik puanlarında, geleneksel yüz yüze yöntemlerle takip edilen kontrol gruplarına kıyasla istatistiksel olarak anlamlı düzeyde bir artış olduğunu net bir şekilde ortaya koymaktadır. Özellikle hastane taburculuğu sonrasındaki ilk kritik postpartum dönemde sosyal medya ve anlık mesajlaşma ağları üzerinden sağlanan profesyonel rehberliğin, annelerin yalnızlık hissini azalttığı, öz-yeterlilik algılarını korumada ve yükseltmede güçlü bir rol oynadığı belirlenmiştir. Sanal Gerçeklik ve Metaverse teknolojileri kullanılarak hazırlanan yenilikçi eğitimlerin ise annelere sanal ortamda hata yapma riski olmaksızın pratik deneyim edinme fırsatı sunduğu, bu sayede hem teorik bilgileri pekiştirdiği hem de emzirme sırasındaki teknik kaygıyı ve stresi azaltarak klinik emzirme başarısını artırdığı görülmüştür. Bunların yanı sıra, web tabanlı platformlar ve uzaktan izlem yöntemleri sayesinde, profesyonel sağlık bakımına ulaşmanın zorlaştığı dönemlerde annelerin en çok yaşadığı "sütün yetersiz olduğu" yanılgısının önüne geçildiği, annelerin doğru emzirme pozisyonlarını daha kolay benimsediği ve bebeklerin sadece anne sütü ile beslenme sürelerinin uzadığı saptanmıştır.

Sonuç olarak, dijital platformlarda sunulan danışmanlık hizmetleri, emzirme sürecindeki kadınlara zaman ve mekân kısıtlaması olmaksızın ulaşılabilir, interaktif, güvenilir ve pratik bir destek alanı sağlamaktadır. Bu tür yenilikçi ve teknolojik uygulamaların hemşirelik ve ebelik hizmetlerine entegre edilmesi, özellikle klinik deneyimi olmayan çiçeği burnunda annelerin kendilerine olan içsel güvenini artırmak, hatalı uygulamaların önüne geçmek ve toplum genelinde emzirme başarısını kalıcı kılmak açısından büyük önem taşımaktadır.

Anahtar Kelimeler: Emzirme, öz-yeterlilik, dijital sağlık, mobil uygulama, emzirme danışmanlığı.

THE EFFECT OF DIGITAL SUPPORT SYSTEMS IN BREASTFEEDING CONSULTANCY ON MATERNAL SELF-EFFICACY

Abstract

This study examines the effects of contemporary digital support mechanisms—such as mobile applications, social networks, web-based platforms, Virtual Reality (VR), and the Metaverse—on the breastfeeding self-efficacy perceptions and clinical breastfeeding success of first-time (primiparous) mothers, based on literature data. Within the scope of this review, graduate theses and randomized controlled trials focusing on counseling conducted via WhatsApp groups in clinical or home settings, mobile health (m-Health) applications, specially designed simulations within VR and Metaverse environments, remote education models, and continuous follow-up methods based on SMS and telephone tracking were analyzed. The reviewed studies primarily utilized the Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF) and LATCH breastfeeding assessment tools for data collection and clinical outcome evaluation.

The scientific findings clearly demonstrate that primiparous mothers utilizing digital support systems achieve a statistically significant increase in their breastfeeding self-efficacy scores compared to control groups followed through traditional face-to-face methods. Particularly during the critical early postpartum period after hospital discharge, professional guidance provided via social media and instant messaging networks reduces mothers' feelings of isolation and plays a powerful role in maintaining and enhancing their self-efficacy perceptions. Furthermore, innovative educational programs designed with VR and Metaverse technologies offer mothers the opportunity to gain practical experience in a virtual environment without the risk of making errors. This reinforces theoretical knowledge and reduces technical anxiety and stress during actual breastfeeding, thereby improving clinical success. Additionally, web-based platforms and remote monitoring methods help prevent the misconception of "insufficient milk supply"—the most common anxiety among mothers when professional care is harder to access—enabling them to adopt correct breastfeeding positions more easily and ultimately extending exclusive breastfeeding durations.

In conclusion, counseling services offered through digital platforms provide an accessible, interactive, reliable, and practical support network for breastfeeding women, free from time and space limitations. Integrating these innovative technological applications into nursing and midwifery services is of great importance for boosting the internal confidence of new mothers with no prior clinical experience, preventing incorrect practices, and ensuring sustainable breastfeeding success across society.

Keywords: Breastfeeding, self-efficacy, digital health, mobile application, breastfeeding consultancy.

DATA CAPITALIZATION OF *CENTAUREA PULLATA* L.: PHYTOCHEMICAL COMPOSITION, ANTIOXIDANT, ANTIFUNGAL, AND CYTOTOXIC ACTIVITIES

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Abstract

Centaurea pullata L. is a medicinal plant belonging to the Asteraceae family, traditionally used for the treatment of various diseases. This species is recognized for its therapeutic potential, yet its phytochemical and pharmacological properties remain underexplored. This study aims to capitalize on reliable published data to systematically evaluate the bioactive compounds, antioxidant capacity, antifungal activity, and cytotoxic potential of the methanolic extract of *C. pullata* roots (CPME).

According to published studies reporting reliable data on this species, phytochemical analysis of CPME revealed the presence of tannins, terpenoids, phlobatannins, and anthraquinones, while saponins and flavonoids were absent. The extract demonstrated significant concentration-dependent antioxidant activity across multiple assays. At a concentration of 3 mg/ml, CPME exhibited 85% DPPH radical scavenging, 83% ABTS scavenging, 77% hydrogen peroxide scavenging, 87% β-carotene bleaching inhibition, 82% hydroxyl radical scavenging, and 93% phosphomolybdate reduction.

The antifungal activity of CPME was evaluated against three pathogenic fungal strains, showing the highest inhibition against *Aspergillus fumigatus* (94%), followed by *Aspergillus niger* (93%) and *Aspergillus flavus* (92%) at 3 mg/ml. The brine shrimp lethality assay revealed potent cytotoxic activity, with 100% mortality observed at 3 mg/ml after 72 hours of exposure. The observed biological activities are attributed to the synergistic effects of the identified phytochemical constituents.

Centaurea pullata L. thus represents a promising source of natural bioactive compounds with significant antioxidant, antifungal, and cytotoxic properties. These findings support its traditional medicinal use and highlight its potential for further development into pharmaceutical or nutraceutical products. However, isolation of individual active compounds, mechanistic studies, and in vivo toxicity evaluations are recommended to confirm its therapeutic efficacy and safety.

Keywords: *Centaurea pullata*, Asteraceae, phytochemicals, antioxidant activity, antifungal, brine shrimp lethality, cytotoxicity, medicinal plants.

DATA CAPITALIZATION OF *FERULA COMMUNIS* L. SUBSP. *COMMUNIS* (GIANT FENNEL): CHEMOTYPES, PHYTOCHEMISTRY, PHARMACOLOGICAL PROPERTIES, AND TOXICITY

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Abstract.

Ferula communis L. subsp. *communis* (giant fennel) is a perennial, latex-containing plant belonging to the Apiaceae family, widely distributed throughout the Mediterranean region, Central Asia, and Northern Africa. This species has a long history of use in traditional medicine for various ailments, including dysentery, skin infections, fever, and as a hypoglycemic agent. This study aims to capitalize on reliable published data to systematically evaluate the phytochemical composition, pharmacological activities, and toxicological profiles of the two distinct chemotypes of *F. communis*.

According to published studies reporting reliable data on this species, *F. communis* exhibits two well-characterized chemotypes with distinct chemical constituents and biological effects. The poisonous chemotype is dominated by prenylated sesquiterpene coumarins, primarily ferulenol (1) and its derivatives, which are responsible for a lethal haemorrhagic disorder known as ferulosis in livestock and humans. In contrast, the non-poisonous chemotype contains daucane-type sesquiterpene esters, such as ferutinin (21), which exhibit estrogenic properties. Phytochemical investigations have also identified volatile constituents, including myrcene and aristolene as major essential oil components, as well as miscellaneous compounds such as chromones and acetylenes.

The two chemotypes differ not only in their chemical composition but also in their biological activities. The poisonous chemotype demonstrates anticoagulant and cytotoxic activities, while the non-poisonous chemotype exhibits antiproliferative, anti-osteoporotic, and aphrodisiac effects. Ferulenol exerts its toxicity by inhibiting succinate ubiquinone reductase and reducing factor X biosynthesis, whereas ferutinin acts as a calcium ionophore, inducing apoptosis in cancer cells via mitochondrial membrane potential collapse and reactive oxygen species (ROS) generation. Antibacterial and antifungal activities have also been reported for several daucane esters and ferulenol against Gram-positive bacteria and *Mycobacterium* strains.

Ferula communis L. subsp. *communis* thus represents a valuable model for understanding the relationship between chemotypes and bioactivity, highlighting the importance of chemotaxonomic discrimination for the safe and effective use of this medicinal plant. Further research should focus on the molecular mechanisms underlying its antibacterial and cytotoxic activities, as well as the validation of its traditional uses.

Keywords: *Ferula communis*, giant fennel, chemotypes, sesquiterpene coumarins, ferulenol, ferutinin, anticoagulant, cytotoxicity, ferulosis, traditional medicine.

EVALUATION OF THE HEPATOPROTECTIVE ACTIVITY OF *SILYBUM MARIANUM* METHANOLIC EXTRACT USING *IN VITRO* AND *IN VIVO* MODELS OF ACETAMINOPHEN-INDUCED LIVER INJURY

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Abstract

Milk thistle or *Silybum marianum* is a medicinal plant widely recognized for its hepatoprotective, antioxidant, and anti-inflammatory properties. This study aimed to characterize the phytochemical composition and evaluate the biological activities of its methanolic extract through in vitro and in vivo approaches. Phytochemical screening revealed a high content of polyphenols and flavonoids, indicating the presence of bioactive compounds with potential therapeutic value. The extract exhibited considerable antioxidant activity with an IC_{50} value of 51.2 µg/mL and significant anti-inflammatory activity with an IC_{50} value of 73.9 µg/mL. The hepatoprotective effect of the extract was assessed in Wistar rats subjected to acetaminophen-induced hepatotoxicity. Histopathological examination demonstrated a marked improvement in liver architecture and a substantial reduction in tissue damage in treated animals compared with the intoxicated control group. These findings suggest that the protective effect of *Silybum marianum* is associated with its ability to counteract oxidative stress and inflammatory processes associated with liver injury. Overall, the results support the potential of milk thistle as a valuable natural source of bioactive compounds for the prevention and management of hepatic disorders and oxidative stress-related diseases.

Keywords: antioxidant activity, anti-inflammatory activity, hepatoprotection, *Silybum marianum*, polyphenols, silymarin, acetaminophen-induced hepatotoxicity.

PHYTOCHEMICAL CHARACTERIZATION, ANTIOXIDANT AND ANTI-INFLAMMATORY ACTIVITIES OF *CATHARANTHUS ROSEUS* METHANOLIC EXTRACT

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Abstract

Catharanthus roseus (L.) G., commonly known as Madagascar periwinkle, has long been used in traditional medicine for its various therapeutic properties. This study examines the phytochemical composition and bioactive potential of *Catharanthus roseus*, with a particular focus on its antioxidant and anti-inflammatory activities. In this study, dried *Catharanthus roseus* plant material was ground into powder and extracted with methanol, followed by phytochemical screening and assessment of antioxidant and anti-inflammatory activities. The results revealed a significant presence of alkaloids, phenolic compounds and tannins, as well as lower levels of anthocyanins. Flavonoids, although not detected in initial screenings, were confirmed by HPLC analysis, identifying chlorogenic acid as a notable component. Quantitative analysis indicated that the plant is rich in total polyphenols (1.404 mg GAE/g DM) and tannins (3.653 mg EAT/g DM), with a flavonoid content of 5.9 mg EQ/g DM. The methanolic extract demonstrated potent antioxidant activity, with an IC50 value of 0.047 mg/ml, closely reflecting the activity of ascorbic acid (IC50 = 0.040 mg/ml). In addition, the extract showed significant anti-inflammatory effects, surpassing the reference acetylsalicylic acid with an IC50 value of 0.163 mg/ml. These results highlight the therapeutic potential of *Catharanthus roseus*, justifying its traditional use and suggesting its promising role in modern herbal medicine. Further research is needed to explore the full spectrum of its bioactive compounds and their mechanisms of action.

Keywords: alkaloids, antioxidant activity, anti-inflammatory activity, *Catharanthus roseus*, chlorogenic acid, phytochemical screening.

MEDICINAL POTENTIAL OF *PHLOMIS BOVEI*: PHYTOCHEMICAL PROFILE AND PHARMACOLOGICAL ACTIVITIES

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Abstract

The present study aimed to investigate the bioactive properties of *Phlomis bovei* and to evaluate its potential as a source of pharmacologically active compounds. Particular emphasis was placed on its anti-inflammatory, analgesic, and wound-healing activities, alongside phytochemical characterization using high-performance liquid chromatography (HPLC) and the determination of total phenolic content. The anti-inflammatory activity of the infusion extract was assessed using the carrageenan-induced paw edema model, while analgesic activity was evaluated through the acetic acid-induced writhing test. The wound-healing potential was investigated using an excision wound model. The results demonstrated that the infusion extract, at a dose of 500 mg/kg, exhibited a pronounced analgesic effect (71.87%), surpassing that of aspirin (68.83%). Similarly, significant anti-inflammatory activity was observed, with an inhibition rate of 72.84%, slightly higher than that of diclofenac (71.01%). Wound-healing activity indicated complete wound closure in 100% of mice treated with the ointment formulated from the infusion extract of *Phlomis bovei*, whereas the positive and negative control groups showed healing rates of 73.33% and 62.28%, respectively. Histological analysis further confirmed these findings, revealing complete re-epithelialization in the treated group and incomplete re-epithelialization in both control groups. Phytochemical analysis revealed a high total phenolic content (257.08 ± 0.3 mg GAE/g MVS). HPLC profiling further identified several bioactive phenolic compounds, including salicylic acid, ferulic acid, gallic acid, caffeic acid, orientin, vitexin, rutin, and kaempferol. These findings provide scientific support for the traditional use of *Phlomis bovei* in the treatment of various ailments and highlight its potential as a promising source of natural bioactive compounds for the development of novel therapeutic agents.

Keywords: *Phlomis bovei*, polyphenols, HPLC, pharmacological activities

EUPHORBIA RESINIFERA IN MOROCCO: TRADITIONAL USES, PHARMACOLOGICAL ACTIVITIES, AND TOXICOLOGICAL ASPECTS

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Abstract

Euphorbia resinifera, an endemic medicinal plant widely distributed in the Moroccan Middle Atlas, has been extensively used in traditional medicine for centuries. Local populations employ this species to manage various diseases, including cancer and diabetes. This chapter provides a comprehensive review of *Euphorbia resinifera*, focusing on its botanical classification, morphological characteristics, geographical distribution, ethnopharmacological applications, biological activities, and toxicological profile. Traditionally, this plant has been used to treat a broad spectrum of health conditions such as cancer, diabetes, skin disorders, venomous stings, paralysis, respiratory and digestive diseases, pain, hypercholesterolemia, goiter, and hair-related issues. Numerous in vitro and in vivo studies have demonstrated that extracts and bioactive compounds from *Euphorbia resinifera* exhibit diverse pharmacological activities, including antibacterial, antifungal, antioxidant, anticancer, anti-inflammatory, antiparasitic, anticoagulant, antithrombotic, and antidiabetic effects. However, ethnobotanical evidence and experimental studies also indicate potential toxicological risks associated with its use. Therefore, further detailed toxicological investigations are essential to evaluate its safety, confirm its therapeutic efficacy, and better understand its underlying mechanisms of action.

Keywords: *Euphorbia resinifera*, medicinal plant, traditional medicine, pharmacological activities, toxicity, endemic species.

UNLOCKING THE FERTILITY RESTORING POTENTIAL OF MEDICINAL HERBS; PRECLINICAL EVALUATION IN FEMALE ALBINO RATS

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Abstract

Infertility is most sensitive issue in socio-cultural and multiethnic population of Sub-continent. Folk medicines are being used in all developing countries from last many centuries. Health related disorders are getting more attention and popularity day by day in nutraceuticals products. So, this research work was carried out to explore the impact of selected medicinal plants on reproductive system of female experimental animals. Phytochemical constituents of Withania somnifera, Cnidium monnieri, Ptychopetalum olacoides and Epimedium grandiflorum and their antioxidant activities have been screened by standard protocols. HPLC, FTIR spectroscopy and AAS results were found significant ($p<0.05$) for various phenolic constituents, active functional groups, and essential trace elements, respectively. Moreover, hemolysis study against RBCs was found non-significant ($p>0.05$), while clot lysis potential was found significant ($p<0.05$). Experimental animal model was used to explore the fertility restoration capacity of two top scored plants extracts including P. olacoides, and E. grandiflorum along with CCl4 intoxication. At the end of trial significant ($p<0.05$) improvement in baseline selected blood parameters like oxidative stress markers, LFTs, RFTs, and lipid profile were found. The results of sex hormones including LH, FSH, testosterone, prolactin, estradiol, and progesterone were analyzed by ELISA method and found significantly ($p<0.05$) restored in treatment groups. It was also observed that histological architecture of ovaries was improved significantly ($p<0.05$). The expression of selective enzyme like CYP17A1; receptors including ERα, AR; and neuropeptides viz kisspeptin, K1R (GPR54) and GnRH in the ovaries tissues sections were studied using immunehistochemical (IHC) stains which revealed potential impact of selected natural medicinal herbs. It could be concluded that selected medicinal plants have significant therapeutic response to address the healthcare problems particularly of impotency.

Keywords: Natural medicine, infertility, nutraceutical activities, reproductive hormones, restoration

ETHNOBOTANICAL KNOWLEDGE OF WILD EDIBLE AND MEDICINAL PLANTS IN SOUTHERN MOROCCO: THE CASE OF GUELMIM PROVINCE

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Abstract

Background: In Morocco, Wild edible plants (WEPs) constitute an essential element of traditional knowledge, contributing to food security, healthcare, and cultural heritage. However, their use is declining due to modernization, agriculture intensification, and the loss of local knowledge, highlighting the need for documentation.

Methods: An ethnobotanical survey was conducted from August 2024 to August 2025 in Guelmim Province, Southern Morocco. The study covered Guelmim city and three rural communes: Timoulay, Laqsabi Tagoust, and Tighmert. Ethnobotanical Data were collected using semi-structured interviews and focus group discussions with local informants and analyzed using descriptive statistics and quantitative ethnobotanical indices, namely the Fidelity Level (FL), Relative Frequency of Citation (RFC) and Informant Consensus Factor (ICF).

Results: A total of 36 wild edible plant species were recorded. The most dominant families are Asteraceae, Fabaceae, and Lamiaceae (8% each). The study revealed a diversity of uses, with leaves (29.09%) predominating for medicinal purposes, followed by fruits (7.27%) and seeds (5.45%). Decoction was identified as the most common preparation method (38.1%). FL ranged from 18.45% to 96.67%, and RFC values varied from 0.21 to 0.86, indicating variable use importance across species, while the ICF values showed overall high informant consensus.

Conclusions: The present study highlighted that the people of Guelmim Province possess valuable traditional knowledge Documentation of this heritage can support biodiversity conservation, dietary diversification, and food security. Moreover, providing a foundation for sustainable agricultural practices, notably organic farming.

Keywords: Wild edible plants; Ethnobotany; Traditional knowledge; Food security; Guelmim Province; Morocco.

PROTECTIVE EFFECTS OF *ACACIA RADDIANA* GUM AGAINST URETHANE-INDUCED PULMONARY CARCINOGENESIS IN RATS

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Abstract

Background: Pulmonary carcinogenesis induced by urethane is associated with histopathological alterations and oxidative stress. This study evaluated the protective potential of *Acacia raddiana* gum against urethane-induced lung damage in rats. **Methods:** Twenty rats were allocated into four groups: control, urethane-treated, urethane plus *Acacia raddiana* gum (low dose), and urethane plus *Acacia raddiana* gum (high dose). Lung tissues were examined histologically, and oxidative stress markers, including catalase (CAT) and peroxidase (POD), were assessed. **Results:** Urethane induced bronchiolar cell hyperproliferation, marked mucin overproduction and significantly increased CAT and POD activities compared with controls. Administration of *Acacia raddiana* gum attenuated mucin overproduction and improved lung histological features. Both doses modulated oxidative stress, with the low dose reducing CAT and POD activities relative to the urethane group and the high dose producing a more pronounced reduction. **Conclusion:** *Acacia raddiana* gum exhibits protective effects against urethane-induced pulmonary carcinogenesis by preserving lung histoarchitecture, limiting mucin overproduction, and modulating oxidative stress responses. These findings support its potential as a natural chemopreventive agent against lung carcinogenesis.

TOXICOLOGICAL SCREENING OF SAPONIN EXTRACTS FROM *TETRAENA GAETULA* USING *TETRAHYMENA THERMOPHILA*

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Abstract

Tetraena gaetula is a medicinal plant known for its richness in bioactive compounds, particularly saponins, which have been associated with various pharmacological properties. The present study aimed to evaluate the *in vitro* cytotoxicity of saponin extracts from *T. gaetula* using the protozoan model *Tetrahymena thermophila*. Cytotoxic effects were assessed through growth monitoring, turbidity measurements, viability assays, motility evaluation, and morphological observations following exposure to increasing concentrations of the extract. The results revealed a concentration-dependent response. At concentrations up to 700 µg/mL, saponin extracts stimulated the growth of *T. thermophila*, reaching approximately 110% of the control culture. In contrast, higher concentrations (1000 and 2000 µg/mL) produced a significant inhibitory effect, with growth inhibition exceeding 50% ($p < 0.05$). Turbidity analysis showed a moderate reduction compared with untreated controls, indicating an intermediate cytotoxic profile. A gradual decrease in cell motility was observed from 700 µg/mL onward, although no major morphological alterations were detected. The extract exhibited limited cytotoxic potency, with an IC_{50} value of 1867.4 µg/mL (95% CI: 1072.1–2167.4 µg/mL) and an LC_{50} value of 1850 µg/mL (95% CI: 1712.0–1915.2 µg/mL). Overall, saponin extracts from *T. gaetula* displayed relatively low toxicity toward *T. thermophila*, suggesting a favorable safety profile and supporting further investigations into their biological and therapeutic potential.

Keywords: Cytotoxicity; Saponins; *Tetraena gaetula*; *Tetrahymena thermophila*.

ANALYSIS OF LEAD LEVELS IN AUTOMOTIVE PAINTING WORKERS IN MAKASSAR CITY

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Abstract

Lead (Pb) exposure is a potential occupational health risk among automotive painting workshop workers due to contact with heavy metal-containing materials during painting activities. Lead can accumulate in the body, and hair is commonly used as a bioindicator of long-term exposure. This study aimed to describe lead (Pb) levels in hair and examine the relationship between age, years of service, daily working hours, smoking intensity, PPE use, and hair lead levels among automotive painting workshop workers in Makassar City. A cross-sectional study was conducted involving 32 workers selected through accidental sampling. Data were collected through laboratory analysis of hair samples and interviews using a structured questionnaire. Data were analyzed using univariate and bivariate methods, including Spearman correlation and independent t-tests. Most respondents were aged ≥27 years, had more than 10 years of work experience, worked ≤8 hours per day, had moderate smoking intensity, and did not use appropriate PPE. Lead levels in hair ranged from 0.007 to 1.17 mg Pb/100 g and were within the normal range for all respondents. No significant associations were found between age, years of service, working hours, smoking intensity, PPE use, and hair lead levels ($p>0.05$). Although lead levels in hair tended to increase with years of service, working hours, and smoking intensity, the correlations were very weak his study concludes that the individual characteristics examined were not significantly associated with hair lead levels among automotive painting workshop workers in Makassar City. Regular monitoring and safe work practices are recommended to minimize long-term lead accumulation.

Keywords: Automotive painting workers, bioindicator, hair, lead

GLOBAL METAL CONTAMINATION: ENVIRONMENTAL PATHWAYS, HUMAN HEALTH RISKS, AND SUSTAINABLE REMEDIATION

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Abstract

Metal contamination is an escalating global environmental and public health issue driven by rapid industrialization, urbanization, intensive agriculture, mining, and wastewater discharge. Toxic metals and metalloids such as cadmium (Cd), lead (Pb), arsenic (As), mercury (Hg), chromium (Cr), zinc (Zn), and nickel (Ni) accumulate in soils, water, and air, entering the human food chain through contaminated crops, drinking water, and inhalation pathways. Their persistence, mobility, and bioavailability contribute to oxidative stress, cellular dysfunction, carcinogenesis, and ecosystem degradation. This review summarizes major natural and anthropogenic sources of metal contamination, including agrochemicals, biosolids, wastewater irrigation, mining activities, and airborne particulate emissions. Particular emphasis is placed on the mechanisms governing metal mobility, plant uptake, and redistribution within agroecosystems. Contemporary remediation strategies are critically discussed, focusing on sustainable and bio-based approaches such as phytoremediation, biochar and bioash amendments, and chemical stabilization. Metallophyte plants demonstrate considerable potential for phytoextraction and detoxification of contaminated soils, while engineered biochars and alkaline bioashes improve metal immobilization and reduce bioavailability. In addition, recent advances in artificial intelligence and machine learning provide innovative tools for predicting metal dynamics, optimizing remediation efficiency, and supporting environmental risk assessment. Integrating AI-driven modelling with advanced sensing technologies and field-scale remediation practices offers promising opportunities for more precise, cost-effective, and sustainable management of contaminated environments. A multidisciplinary framework combining environmental science, agriculture, toxicology, and computational technologies is essential for mitigating future risks associated with metal contamination and safeguarding human and ecosystem health.

Keywords: Heavy metals; Environmental pollution; Phytoremediation; Soil remediation; Public health; Agroecosystems

HEALTH AND NUTRITIONAL IMPACTS OF WASTEWATER-IRRIGATED MILLET: A CASE STUDY OF TRICKLING FILTER EFFLUENT IN ARID NORTH AFRICA

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Abstract

Millets are important crops for dry land farmers. They are highly nutritious and climate compliant crops , millet also known as Bachna (Illane), is one of the four most important cereals (rice, maize, sorghum and millets) grown in the semi-arid tropical regions of the world, mainly in Africa (North of Africa imntanoute marrakech – Morocco) and Asia. Our aim is to topic the potential health benefits of millet. it is rich in a number of nutrients and non-nutrients such as phenols. It is high in energy, contains less starch, lots of fibre (1.2 g/100 g, most of which is insoluble), 8 to 15 times more α-amylase activity than wheat, a low glycaemic index (55) and is glutenfree. The protein content varies from 8 to 19% and millet is low in lysine, tryptophan, threonine and sulphur amino acids. The energy content of millet is higher than that of sorghum and almost equal to that of brown rice, as the fat content is generally higher (3 to 6%). millet can be recommended in the treatment of coeliac disease, constipation and a number of noncommunicable diseases. Nutritional studies on the population living in the millet belts of the world and clinical trials on the impact of millet in specific pathological conditions are needed.An experimental reuse study was performed using raw (RWW) and treated urban wastewater (TWW) by Trickling Filter (TF) process to irrigate millet in comparison to well water (WW) as a control over a period of 5 months the highest productivity of millet and leaf area were obtained in response to irrigation with RWW and TWW compared to WW; while macroelements (TP, TKN, and K) were also affected in millet irrigated with RWW compared to TWW and WW. However, the plants irrigated with well water accumulate more Ca, Na, and Mg than those irrigated with RWW and TWW, the biochemical parameters (protein and sugar content) were adversely affected in millet irrigated with RWW as compared to TWW and WW. Moreover, the use of treated urban wastewater

Keywords: *Millet ; nutritional ,health* , irrigation; treated wastewater reuse; physiological proprieties; Trickling Filter.

EFFECTS OF LPS-INDUCED NEUROINFLAMMATION ON DEPRESSION-LIKE BEHAVIORS IN WISTAR RATS

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Abstract

Several clinical studies have demonstrated a link between adversity during childhood and the onset of psychiatric disorders in adults, including depression and anxiety and memory disorders. In rodents, exposure to early stress such as maternal separation, causes neuroendocrine, neurochemical and behavioral changes.

On the other hand, inflammation is an innate immune response, which when it becomes unsuitable, causes neurodegenerative diseases, as well as affective and cognitive disorders.

The present work attempted to perform a cognitive-behavioral characterization of the effect of early stress, in a 24-hour maternal separation model, and in a model of LPS-induced neuroinflammation and in a separation combination model of 24 hours maternal with neuroinflammation in male Wistar rats (à reformuler).

At the age of two months, anxiety behavior was assessed by using Open Field Test (OFT) and Elevated Plus Maze (EPM) tests, while depression and working memory were assessed by forced swimming (FST) and maze in Y (Y maze) respectively.

The results showed a strong aversion to open spaces (OFT) and raised areas (EPM). In addition, a nonsignificant increase in immobility time in forced swimming was also marked (FST) and a percentage decrease in alternation in the maze Y (Y maze), which shows that the maternal separation of 24h all alone and neuroinflammation alone cause depressive and anxious and memory disorders in adult male rats. These disorders are of high intensity in rats that have undergone 24 hr maternal separation stress followed by LPS-induced neuroinflammation.

Key words: stress, maternal separation, neuroinflammation, LPS, anxiety, depression, working memory.

THE IMAM AS A MENTAL HEALTH RESOURCE: ISLAMIC CHAPLAINCY AND THE POTENTIAL FOR FAITH-INTEGRATED POST-TRAUMATIC STRESS CARE AMONG NIGERIAN AIR FORCE PERSONNEL

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Abstract

The psychological cost of counter-insurgency operations is well documented. Personnel of the Nigerian Air Force (NAF) deployed in Operation HADIN KAI against Boko Haram and the Islamic State West Africa Province in the Lake Chad Basin face sustained exposure to combat violence, moral crisis, and loss. These experiences generate significant rates of post-traumatic stress disorder (PTSD) among military personnel, yet institutional responses in the Nigerian military context remain thin, stigma-laden, and culturally misaligned with the lived realities of Muslim service members. This paper argues that the Directorate of Islamic Affairs (DOIA) of the Nigerian Air Force represents an underutilized institutional resource for faith-integrated mental health support. Drawing on the global literature on religiously integrated care, Islamic psychology, and military chaplaincy, the paper makes a conceptual case for repositioning the NAF Imam, not as a replacement for clinical services, but as a culturally proximate and spiritually grounded first-responder in the mental health continuum of care. The paper develops three interrelated arguments. First, Muslim NAF personnel face specific barriers to clinical mental health care, including stigma, cultural distance, and limited access in forward areas, that make faith-based support not merely complementary but functionally necessary. Second, the Islamic tradition carries rich therapeutic resources relevant to PTSD and moral injury, including the Qur'anic theology of *sabr* (patient endurance), *tawakkul* (reliance on Allah), *dhikr* (remembrance of God), and *tawbah* (repentance), which the Imam is uniquely positioned to mobilize within a structured supportive relationship. Third, realizing this potential requires deliberate capacity development, equipping Imams with trauma-informed pastoral skills, psychological first aid competencies, and clear referral protocols that connect religious support to clinical pathways. The paper situates its argument within the specific institutional context of the NAF DOIA, drawing on documented pastoral practices, existing DOIA welfare functions, and the broader development of Islamic chaplaincy in Nigerian military settings. It contributes to an emerging but underdeveloped conversation on faith-based mental health intervention in African military institutions, and offers a framework for policy reform that is both theologically grounded and operationally realistic.

Keywords: Islamic chaplaincy, PTSD, religiously integrated care, Nigerian Air Force, military mental health, Directorate of Islamic Affairs

BRIBERY AND BRIBE-TAKING IN THE HEALTHCARE SECTOR: LEGAL PERSPECTIVES

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Abstract

In the province and districts of Şanlıurfa, it is seen that there are many local arts from copper, straw, knitting to fur processing, from kazaz knitting to hand weaving and felting. Within the scope of hand weaving in the region, weaving of sackcloth, carpet, rug, cicim and zili. Flat weaving, which includes products such as kilim, cicim and zili, has a special importance since it provides an opportunity for the evaluation of hair and wool obtained from ovine livestock which is an important economic activity in the region.

Plain kilim weavings are weft-faced weavings formed by passing weft and warp threads evenly over and under each other. Cicim weaving is a kind of weaving in which colored pattern yarns are used besides weft and warp yarns. Since it has a similar appearance to the “winding” technique with fine lines on flat woven floors, it has the appearance of having been embroidered with needle on flat woven floors.

This study has been carried out in order to determine the technical, motif and composition characteristics of cicim weavings in Şanlıurfa. Cicim weavings in the region "warp and weft-faced" two different techniques are woven. Warp-faced weaves are weavings in which the motif is formed by warp yarns and the weft thread is used to hold the structure together.

Weft-faced cicims are examples of cicim where colored pattern yarns form motifs between wefts. These motifs may be frequent or sparse. Weft-faced cicim weavings are seen in almost all districts. In this paper, cicim weaving samples that can be reached within the scope of the research will be documented with photographs and information about their technical properties will be given.

Keywords: Cicim, Şanlıurfa, Cultural Heritage, Traditional Weaving

FROM CHARM TO HARM: THE DARK TRIAD'S PATHWAY TO WORKPLACE INCIVILITY IN LEGAL PROFESSION

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Abstract

The current research paper was conducted to examine the linkage between Dark Triad personality factors and workplace incivility among lawyers, and the mediating effect of the cognitive empathy. The sample of lawyers who are working in different firms in Lahore, Pakistan was taken (N=300, age M = 34.74, SD = 7.64). The respondents were asked to fill out Short Dark Triad Scale (SD3; Jones and Paulhus, 2014), the Instigated Workplace Incivility Scale (Blau and Andersson, 2005), and the Cognitive Empathy subscale of CASES (Reniers et al., 2011). Structural equation modeling revealed that higher Dark Triad traits predicted greater workplace incivility through reduced cognitive empathy (β_indirect = -0.03, $p < .01$).. Pearson correlations showed that Dark Triad traits were more relevant to workplace incivility and less cognitive empathy. In AMOS, mediation analysis involving the use of SEM indicated that Dark Triad traits have a significant indirect effect on workplace incivility via low cognitive empathy. These results are indicative that socially aversive traits are predictors of workplace incivility directly and indirectly and that cognitive empathy mediates the relationship. The workplace incivility in legal settings could be minimized with interventions aimed at Dark Triad tendencies minimization and cognitive empathy maximization.

Keywords: Dark Triad, Workplace Incivility, Cognitive Empathy, Lawyers (Quantitative Study)

KNOWLEDGE AND ATTITUDES TOWARD GENETIC DISEASES AMONG ADULTS IN ABHA CITY, SAUDI ARABIA

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Abstract

Genetic diseases represent a major public health concern worldwide, particularly in Saudi Arabia, where consanguineous marriages contribute to a higher prevalence of inherited disorders. Assessing public knowledge and attitudes toward genetic diseases is essential for developing effective educational and preventive strategies. This study aimed to assess knowledge and attitudes toward genetic diseases among adults in Abha City, Saudi Arabia, and to examine their association with selected sociodemographic characteristics. A descriptive cross-sectional study was conducted among 384 adults residing in Abha City between February and May 2026. Data were collected using a structured electronic questionnaire, which was adapted from a validated instrument with established reliability and validity, ensuring the accuracy of the measurements. The questionnaire included sociodemographic characteristics, knowledge-related items, and attitude statements regarding genetic diseases. Descriptive and inferential statistical analyses were performed, with statistical significance set at $p < 0.05$.

The results showed that 37.8% of participants were aged 18–29 years, while most were female, university-educated, and urban residents. Overall, participants demonstrated high levels of knowledge (91.4%) and positive attitudes (95.3%) toward genetic diseases. Awareness regarding genetic inheritance, the impact of consanguineous marriage, and the importance of premarital genetic screening was generally high. However, 18.5% of participants reported misconceptions regarding certain aspects of genetic diseases. No statistically significant associations were found between sociodemographic characteristics and knowledge levels ($p > 0.05$). In contrast, attitudes were significantly associated with place of residence ($p = 0.002$), with urban residents demonstrating more favorable attitudes than rural residents.

In conclusion, adults in Abha City possess high knowledge and positive attitudes toward genetic diseases. Targeted educational programs and accessible genetic counseling can further enhance informed decision-making and foster community engagement in health promotion.

Keywords: Genetic diseases, Knowledge, Attitudes, Genetic inheritance, Premarital genetic screening, Genetic counseling, Saudi Arabia.

ASSESSING KNOWLEDGE AND ATTITUDES TOWARD GENETIC DISEASES AMONG ADULTS IN ABHA CITY, SAUDI ARABIA: A CROSS-SECTIONAL STUDY

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Abstract

Background: Genetic diseases constitute a significant public health challenge worldwide, especially in Saudi Arabia, where high rates of consanguineous marriages increase inherited disorders. Assessing the population's knowledge and attitudes toward genetic diseases can inform stakeholders' ability to develop effective health strategies, including premarital genetic screening, early diagnosis, and genetic counseling. This assessment is crucial for creating impactful educational interventions and reducing the genetic disease burden.

Aim: This study aimed to assess knowledge and Attitudes Toward Genetic Diseases Among Adults in Abha City, Aseer Region, Saudi Arabia, and to analyze their relationships with specific sociodemographic factors.

Methods: A descriptive cross-sectional study was conducted among 384 adults residing in Abha City, Saudi Arabia, from February to May [2026]. Data were collected using a structured, self-administered electronic questionnaire adapted from a validated instrument. The questionnaire included three sections: sociodemographic characteristics, knowledge of genetic diseases (12 items), and attitudes toward genetic diseases (10 statements rated on a five-point Likert scale). Data analysis involved descriptive and inferential statistical methods, with significance set at $p < 0.05$.

Results: More than one-third of the participants were aged 18–29 years (37.8%). The majority were female, university-educated, and residents of urban areas. Overall, participants demonstrated high levels of knowledge (91.4%) and positive attitudes (95.3%) toward genetic diseases. Awareness of key concepts, including genetic inheritance, the impact of consanguineous marriage, and the importance of premarital genetic screening, was generally high. Nevertheless, 18.5% of participants exhibited misconceptions regarding certain aspects of genetic diseases. No statistically significant associations were observed between sociodemographic characteristics and knowledge levels ($p > 0.05$). In contrast, attitudes were significantly associated with place of residence ($p = 0.002$), with urban residents demonstrating more favorable attitudes toward genetic diseases than their rural counterparts, which can inspire policymakers to focus on urban populations for targeted interventions.

Conclusion: The findings indicate that the general population in Abha City possesses a high level of knowledge and predominantly positive attitudes toward genetic diseases. Despite these encouraging results, notable misconceptions remain, emphasizing the importance of addressing these gaps to ensure health reports are seen as thorough and reliable by healthcare professionals. Expanding public awareness programs and improving access to genetic counseling services may enhance informed decision-making, promote preventive practices, and contribute to reducing the burden of genetic diseases, particularly among populations with limited access to healthcare resources.

Keywords: Genetic diseases; knowledge; attitudes; genetic inheritance; premarital genetic screening; genetic counseling; Saudi Arabia.

EFFECT OF SOIL ACIDITY ON NUTRIENT AVAILABILITY AND PHYTOHORMONAL RESPONSES

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Abstract

More than half (52%) of all fertile and productive land in the world is now considered degraded due to a variety of factors. Among these factors, soil acidification is a matter of great concern. About 70% of potential arable land and 30 % of total land area are affected by some degree of soil acidity. There are several reasons for soil acidification, but the main ones are rainfall and leaching, acidic parent material, harvesting of high-yield crops, inappropriate nitrogen fertilization, and decomposition of organic matter. Acid soils influence plant growth, development, and production in many ways. In one way, it reduces plant productivity by introducing several toxins such as Al3+, Mn2+, and H+ and in another way; it affects the availability of nutrients, mainly altering the soil nutrient composition. The main plant nutrients, such as N, P, K, S, Ca, and Mg, and trace elements like Mo, are less readily available and may not be sufficient to promote the growth and development of plants. Acidic conditions not only affect the activity of plants, but also soil microbes. Most microbial functions, such as organic matter degradation and nutrient cycling, are reduced. As a result, it greatly reduces the rate at which nutrients are mineralized by soil microbes into plant-available forms, and may therefore reduce the absorption of plants. Significantly, it may inhibit the development of symbiosis and nodulation of legume. Plants attempted to resist all the effects of acid soil by exhibiting a variety of morphological and physiological responses. They have primary sought to acclimatize and adapt by altering the biosynthesis and action of phytohormones.

Keywords: Acid soil; Nutrient availability; Effects of acid soils; Phytohormones

HIV/AIDS HASTALARINDA MANDİBULAR TRABEKÜLER KEMİK MİKROYAPISININ FRAKTAL ANALİZ YÖNTEMİYLE DEĞERLENDİRİLMESİ: VAKA-KONTROL ÇALIŞMASI

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Özet

Amaç: Bu çalışmanın amacı, HIV/AIDS hastalarında panoramik radyografiler üzerinde fraktal analiz yöntemi kullanılarak sağ ve sol mandibular trabeküler kemik mikro yapısını değerlendirmek ve bulguları yaş-cinsiyet eşleştirilmiş sağlıklı kontrol grubuyla karşılaştırmaktır.

Gereç ve Yöntem: Bu retrospektif vaka-kontrol çalışmasına, en az bir yıldır antiretroviral tedavi (ART) alan 20 HIV/AIDS tanılı hasta (16 erkek, 4 kadın; ort. yaş: 49.95±11.81 yıl) ile yaş ve cinsiyet açısından eşleştirilmiş, sistemik hastalığı bulunmayan 20 sağlıklı birey (15 erkek, 5 kadın; ort. yaş: 52.10±11.38 yıl) dahil edilmiştir. Tüm panoramik radyografiler aynı cihazla standart parametrelerde elde edilmiştir. Görüntüler Fiji yazılımına (ImageJ) aktarılmış; White ve Rudolph'un tanımladığı yönteme göre sağ ve sol mandibuladan seçilen ilgi alanlarında (kondil, angulus, interdental) kutu sayım algoritması kullanılarak Fraktal Boyut (FB) ve lakünarite (Λ) değerleri FracLac eklentisi aracılığıyla hesaplanmıştır. İstatistiksel karşılaştırmalar Shapiro-Wilk normallik testi, bağımsız örneklem t-testi, Mann-Whitney U testi ve Friedman testi ile gerçekleştirilmiş; ölçüm güvenilirliği sınıf içi korelasyon katsayısı (SKK) ile değerlendirilmiştir.

Bulgular: HIV grubunda tüm bölgelerde (kondil, angulus, interdental) sağ ve sol taraf FB değerleri kontrol grubuna kıyasla istatistiksel olarak anlamlı düzeyde düşük saptanmıştır (Sağ FB: 1.014–1.049 ± 0.100–0.146 vs. 1.373–1.426 ± 0.097–0.123; Sol FB: 0.983–1.040 ± 0.114–0.153 vs. 1.378–1.443 ± 0.111–0.166; tüm $p<0.001$). Lakünarite değerleri ise HIV grubunda her iki tarafta da kontrol grubuna göre belirgin biçimde yüksek bulunmuştur (Sağ Λ: 0.486–0.515 ± 0.099–0.142 vs. 0.255–0.276 ± 0.046–0.052; Sol Λ: 0.479–0.505 ± 0.090–0.124 vs. 0.255–0.289 ± 0.032–0.052; tüm $p<0.001$). Tüm parametrelerde çok büyük etki büyüklüğü elde edilmiştir (Cohen d: 2.206–3.518). Bölgeler arası (Friedman, $p>0.05$) ve sağ-sol taraflar arasında istatistiksel açıdan anlamlı bir fark saptanmamıştır ($p>0.05$). FB ve lakünarite değerleri yaş ile korelasyon göstermemiş (Spearman, $p>0.05$); cinsiyet açısından da anlamlı fark bulunmamıştır.

Sonuç: Fraktal boyut ve lakünarite analizi, HIV/AIDS hastalarında mandibular trabeküler kemik mikro yapısının tüm bölgelerde bilateral olarak bozulduğunu ortaya koymaktadır. Kronik viral enfeksiyon, immün disregülasyon ve uzun süreli ART kullanımının kümülatif etkilerinin trabeküler ağın karmaşıklığını ve homojenliğini olumsuz etkilediği düşünülmektedir. Panoramik radyografi tabanlı fraktal analiz, HIV/AIDS hastalarında kemik kalitesinin rutin klinik değerlendirmesine katkı sağlayabilecek, non-invaziv ve erişilebilir bir tamamlayıcı yöntem olarak öne çıkmaktadır.

Anahtar Kelimeler: HIV/AIDS, antiretroviral tedavi, panoramik radyografi, fraktal analiz, fraktal boyut, lakünarite, mandibular kemik

EVALUATION OF MANDIBULAR TRABECULAR BONE MICROSTRUCTURE IN HIV/AIDS PATIENTS USING FRACTAL ANALYSIS: A CASE-CONTROL STUDY

Abstract

Aim: The aim of this study was to evaluate the right and left mandibular trabecular bone microstructure in HIV/AIDS patients using fractal analysis on panoramic radiographs and to compare these findings with age- and sex-matched healthy controls.

Materials and Methods: This retrospective case-control study included 20 patients with HIV/AIDS receiving antiretroviral therapy (ART) for at least one year (16 male, 4 female; mean age: 49.95±11.81 years) and 20 age- and sex-matched healthy individuals with no systemic disease (15 male, 5 female; mean age: 52.10±11.38 years). All panoramic radiographs were obtained using the same device under standardized parameters. Images were imported into Fiji software (ImageJ); fractal dimension (FD) and lacunarity (Λ) values were calculated from bilateral regions of interest (condyle, angle, and interdental regions) in the mandible using the box-counting algorithm via the FracLac plugin, following the method described by White and Rudolph. Statistical comparisons were performed using the Shapiro-Wilk normality test, independent samples t-test, Mann-Whitney U test, and Friedman test; intra- and inter-observer reliability was assessed using the intraclass correlation coefficient (ICC).

Results: FD values in all regions (condyle, angle, interdental) were statistically significantly lower in the HIV group compared to the control group on both sides (Right FD: 1.014–1.049 ± 0.100–0.146 vs. 1.373–1.426 ± 0.097–0.123; Left FD: 0.983–1.040 ± 0.114–0.153 vs. 1.378–1.443 ± 0.111–0.166; all $p<0.001$). Lacunarity values were markedly elevated in the HIV group on both sides (Right Λ: 0.486–0.515 ± 0.099–0.142 vs. 0.255–0.276 ± 0.046–0.052; Left Λ: 0.479–0.505 ± 0.090–0.124 vs. 0.255–0.289 ± 0.032–0.052; all $p<0.001$). Very large effect sizes were obtained across all parameters (Cohen's d: 2.206–3.518). No statistically significant difference was found between regions (Friedman, $p>0.05$) or between right and left sides ($p>0.05$). Neither FD nor lacunarity values showed a significant correlation with age (Spearman, $p>0.05$), and no significant sex-related differences were identified.

Conclusion: Fractal dimension and lacunarity analysis demonstrate that mandibular trabecular bone microarchitecture is significantly compromised bilaterally across all regions in HIV/AIDS patients. The cumulative effects of chronic viral infection, immune dysregulation, and long-term ART use appear to systematically impair the complexity and homogeneity of the trabecular network. Panoramic radiography-based fractal analysis emerges as a non-invasive and accessible complementary tool for the routine clinical assessment of bone quality in patients with HIV/AIDS.

Keywords: HIV/AIDS, antiretroviral therapy, panoramic radiography, fractal analysis, fractal dimension, lacunarity, mandibular bone

DİYABET VE HİPERTANSİYONUN MANDİBULA ÜZERİNE ETKİSİ: BİR FRAKTAL ANALİZ ÇALIŞMASI

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Özet

Amaç: Diyabet ve hipertansiyon gibi sistemik hastalıkların kemik metabolizmasını olumsuz etkilediği bilinmektedir. Bu çalışmanın amacı, fraktal analiz (FA) kullanarak diyabet, hipertansiyon ve her iki hastalığın birlikteliğinin mandibular trabeküler kemik yapısı üzerindeki etkisini panoramik radyograflar aracılığıyla değerlendirmektir.

Yöntem: Çalışmaya sağlıklı kontrol (n=20), sadece diyabet (n=20), sadece hipertansiyon (n=20) ve her iki tanıyı birlikte taşıyan mix grup (Diyabet+Hipertansiyon, n=20) olmak üzere toplam 80 birey dahil edildi. Her grupta 10 kadın ve 10 erkek yer almaktadır. Hastaların panoramik radyografileri üzerinden ImageJ programı kullanılarak üç anatomik bölgeden (kondil, angulus ve mental foramen) fraktal boyut (FD) değerleri hesaplanmıştır. İstatistiksel analizde Kruskal-Wallis testi ve Bonferroni düzeltmeli Mann-Whitney U testi kullanılmış; istatistiksel anlamlılık düzeyi $p<0,01$ olarak kabul edilmiştir.

Bulgular: Her üç anatomik bölgede de gruplar arasında istatistiksel olarak ileri düzeyde anlamlı farklılıklar saptanmıştır. Kondil bölgesindeki FA değerleri karşılaştırıldığında en yüksek değer sağlıklı (ortalama: 1,245) grubunda kaydedilirken bunu diyabet (ortalama: 1,190) ve hipertansiyon (ortlalama: 1,185) izlemiş ve en düşük değer ise mix grupta (ortalama: 0,985) kaydedilmiştir. Angulus bölgesindeki FA değerleri karşılaştırıldığında en yüksek değer sağlıklı (ortalama: 1,270) grubunda kaydedilirken bunu hipertansiyon (ortlalama: 1,215) ve diyabet (ortalama: 1,050) izlemiş ve en düşük değer ise mix grupta (ortalama: 0,965) kaydedilmiştir. Mental foramen bölgesindeki FA değerleri karşılaştırıldığında en yüksek değer hipertansiyon (ortalama: 1,345) grubunda kaydedilirken bunu sağlıklı (ortlalama: 1,330) ve diyabet (ortalama: 1,325) izlemiş ve en düşük değer ise mix grupta (ortalama: 0,930) kaydedilmiştir. Post-hoc analizde Mix grubunun tüm bölgelerdeki FA değerlerinin diğer üç gruptan (sağlıklı, diyabet, hipertansiyon) istatistiksel olarak anlamlı biçimde düşük olduğu saptanmıştır ($p<0,01$). Sağlıklı, diyabet ve hipertansiyon grupları arasında ise hiçbir bölgede anlamlı farklılık gözlenmemiştir ($p>0,01$).

Sonuç: Bulgular, diyabet ve hipertansiyonun birlikte bulunmasının, mandibular kemik yoğunluğu üzerinde her iki hastalığın ayrı ayrı oluşturduğundan daha belirgin bir azalmaya yol açtığına işaret etmektedir. Fraktal analizin sistemik hastalıklara bağlı erken kemik değişikliklerini noninvaziv biçimde ortaya koyabilme kapasitesi, bu yöntemin klinik uygulamalarda değerli bir tanı aracı olabileceğini düşündürmektedir.

Anahtar Kelimeler: Diyabet, hipertansiyon, fraktal analiz, mandibula, panoramik radyografi

THE EFFECT OF DIABETES AND HYPERTENSION ON THE MANDIBLE: A FRACTAL ANALYSIS STUDY

Abstract

Objective: Systemic diseases such as diabetes and hypertension are known to adversely affect bone metabolism. The aim of this study is to evaluate the effect of diabetes, hypertension, and their co-existence on mandibular trabecular bone structure using fractal analysis (FA) on panoramic radiographs.

Method: A total of 80 individuals were included in the study, divided into three groups: healthy control (n=20), diabetes-only (n=20), hypertension-only (n=20), and a mixed group with both diagnoses (Diabetes + Hypertension, n=20). Each group comprised 10 women and 10 men. Fractal dimension (FD) values were measured in three anatomical regions (condyle, angulus, and mental foramen) from panoramic radiographs using ImageJ software. Kruskal-Wallis test and Bonferroni-corrected Mann-Whitney U test were used for statistical analysis; the significance level was set at $p<0.01$.

Findings: Statistically significant differences were found among the four groups in all three anatomical regions. When comparing FA values in the condyle region, the highest value was recorded in the healthy group (average: 1.245), followed by diabetes (average: 1.190) and hypertension (average: 1.185), while the lowest value was recorded in the mixed group (average: 0.985). When comparing FA values in the angulus region, the highest value was recorded in the healthy group (average: 1.270), followed by hypertension (average: 1.215) and diabetes (average: 1.050), while the lowest value was recorded in the mixed group (average: 0.965). When comparing FA values in the mental foramen region, the highest value was recorded in the hypertension group (mean: 1.345), followed by healthy (mean: 1.330) and diabetes (mean: 1.325), while the lowest value was recorded in the mixed group (mean: 0.930). In the post-hoc analysis, it was determined that the FA values of the mixed group in all regions were statistically significantly lower than the other three groups (healthy, diabetes, hypertension) ($p<0.01$). No significant differences were observed in any region between the healthy, diabetes, and hypertension groups ($p>0.01$).

Conclusion: The findings indicate that the co-occurrence of diabetes and hypertension leads to a more significant decrease in mandibular bone density than either disease alone. The ability of fractal analysis to non-invasively reveal early bone changes associated with systemic diseases suggests that this method could be a valuable diagnostic tool in clinical practice.

Keywords: Diabetes, hypertension, fractal analysis, mandible, panoramic radiography

GAUCHER HASTALIĞININ TANISINA YOL AÇAN ORAL VE MAKSİLLOFASİYAL BULGULAR: BİR OLGU SUNUMU

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Özet

Gaucher hastalığı (GH), nadir görülen bir lizozomal depo hastalığı olup, bazen belirgin olmayan oral ve maksillofasiyal bulgularla kendini gösterebilir ve erken tanı çoğu zaman zor olabilir. Bu olgu sunumunun amacı, GH'nin erken tanısında oral bulguların fark edilmesinin önemini vurgulamak ve oral ve maksillofasiyal cerrahların oral belirtiler aracılığıyla sistemik hastalıkları tanımlamadaki kritik rolünü ortaya koymaktır. Kırklı yaşlarında bir kadın hasta, mandibular dişlerde mobilite ve gingival kanama şikayetleri ile başvurdu. Klinik muayene sonrasında gerçekleştirilen değerlendirmeler doğrultusunda radyografik inceleme yapıldı. Yapılan radyografik görüntülemede mandibulada diffüz kemik infiltrasyonu ve kortikal incelme saptandı. Radyografik olarak gözlenen bu infiltrasyon, kemik iliğinde anormal hücre birikimini göstermesi nedeniyle dikkat çekici bulundu. Aynı zamanda bu görünüm, hastalığın sistemik doğasına işaret eden önemli bir bulgu olarak değerlendirildi. Elde edilen radyografik bulgular, tek başına periodontal hastalık ile açıklanamayacak özellikler göstermekteydi. Bu nedenle klinik ve radyografik bulgular birlikte değerlendirilerek ileri incelemelerin yapılmasına karar verildi. Tanısal amaçla gerçekleştirilen insizyonel biyopsi sırasında elde edilen dokunun yumuşak ve frajil kemik yapısında olduğu gözlendi. Biyopsi materyalinde ayrıca sarımsı lipid benzeri materyal varlığı dikkat çekti. Elde edilen örneklerin histopatolojik incelemesinde karakteristik "fibriller" sitoplazmaya sahip PAS-pozitif histiyositler gözlendi. Histopatolojik değerlendirme sonucunda elde edilen bu bulgular GH tanısını doğruladı. Klinik, radyografik ve histopatolojik bulguların bir arada değerlendirilmesi tanı sürecinde belirleyici oldu. Oral bulguların, hastada mevcut olan anemi ve trombositopeni gibi sistemik hematolojik bulgularla uyumlu olduğu görüldü. Bu bulguların birlikte değerlendirilmesi sonucunda GH'nin ilk tanısı konulabildi ve hastalığın sistemik niteliği ortaya konuldu. Bu olgu, oral ve maksillofasiyal cerrahların açıklanamayan diş mobilitesi, dirençli gingival kanama ve mandibular kemik yapısındaki değişiklikleri yalnızca lokal bir patolojinin bulguları olarak değerlendirmemesi gerektiğini göstermektedir. Bu tür bulguların sistemik hastalıkların potansiyel göstergeleri olabileceğinin göz önünde bulundurulması, tanı sürecine önemli katkı sağlayabilmektedir. Ayrıca GH'nin erken tanınması, hastanın sistemik tedaviye zamanında başlamasını sağlamakta ve olası cerrahi komplikasyonların önlenmesine yardımcı olmaktadır. Özellikle trombositopeniye bağlı kanama riski ve infiltrasyon nedeniyle geciken kemik iyileşmesi açısından erken tanı önemli avantajlar sağlamaktadır. Bu olgu, açıklanamayan mandibular lezyonlarda GH'nin ayırıcı tanıda göz önünde bulundurulmasının gerekliliğini vurgulamaktadır. Aynı zamanda oral bulguların sistemik hastalıkların erken tespitinde önemli bir araç olabileceğini ve dikkatli değerlendirilmelerinin tanı sürecinde değerli katkılar sağlayabileceğini göstermektedir.

Anahtar Kelimeler: Gaucher hastalığı, lizozomal depo hastalıkları, maksillofasiyal patoloji

ORAL AND MAXILLOFACIAL FINDINGS LEADING TO THE DIAGNOSIS OF GAUCHER DISEASE: A CASE REPORT

Abstract

Gaucher disease (GD) is a rare lysosomal storage disorder that may present with subtle oral and maxillofacial manifestations, making early diagnosis often challenging. Because the oral findings are not always specific, they may be overlooked or misinterpreted, which can further delay the diagnostic process. The aim of this case report is to emphasize the importance of recognizing oral findings in the early diagnosis of GD and to highlight the critical role of oral and maxillofacial surgeons in identifying systemic diseases through oral signs. A female patient in her forties presented with mandibular tooth mobility and gingival bleeding. The symptoms had persisted and prompted further clinical evaluation. Radiographic imaging following clinical examination revealed diffuse bone infiltration and cortical thinning in the mandible. This infiltration reflected abnormal cell accumulation in the bone marrow, indicating the systemic nature of the disease and representing a finding that could not be explained solely by periodontal disease. In addition, the extent and pattern of bone involvement raised suspicion for an underlying systemic condition rather than a localized periodontal problem alone. During incisional biopsy, the tissue obtained contained soft and friable bone with yellowish, lipid-like material. These intraoperative findings were considered noteworthy and supportive of a storage-related pathology. Histopathological examination revealed PAS-positive histiocytes with characteristic “fibrillar” cytoplasm, confirming the diagnosis of GD. The combination of clinical, radiographic, intraoperative, and histopathological findings was essential in reaching the final diagnosis. The oral manifestations were also found to be consistent with the patient’s systemic hematologic findings, including anemia and thrombocytopenia, and this combination of findings allowed the initial diagnosis of GD to be established. This case highlights the importance of oral and maxillofacial surgeons considering unexplained tooth mobility, refractory gingival bleeding, and changes in mandibular bone structure as potential indicators of systemic disease. Such findings should prompt further investigation rather than being attributed solely to common periodontal conditions. Moreover, early recognition of GD enables timely initiation of systemic treatment and helps prevent potential surgical complications, particularly bleeding due to thrombocytopenia and delayed bone healing due to infiltration. Early diagnosis is therefore crucial both for patient management and for reducing procedural risks. This case underscores the necessity of including GD in the differential diagnosis of unexplained mandibular lesions and demonstrates that oral findings can serve as a valuable tool for the early detection of systemic diseases.

Keywords: Gaucher disease, lysosomal storage disorders, maxillofacial pathology

LOKALİZE DİŞ ETİ BÜYÜMESİNİN BAŞLANGIÇ PERİODONTAL TEDAVİ İLE YÖNETİMİ: VAKA SUNUMU

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Özet

Lokalize diş eti büyümesi, çeşitli lokal ve sistemik faktörlere bağlı olarak gelişebilen, diş eti dokusundaki sınırlı hacim artışı ile karakterize bir klinik durumdur. Etiyolojisinde dental plak ve diş taşı birikimi, çürükler, hatalı restorasyonlar, yabancı cisim irritasyonları ve hormonal değişiklikler rol oynayabilmektedir. Bu lezyonlar estetik problemlere neden olabilmekte, ağız hijyeninin sürdürülmesini güçleştirebilmekte ve fonksiyonel rahatsızlıklara yol açabilmektedir. Tedavi yaklaşımında öncelikle etiyolojik faktörlerin eliminasyonunu amaçlayan başlangıç periodontal tedavi (BPT) uygulanmakta, gerekli görülen olgularda ise cerrahi eksizyon tercih edilmektedir. Bu olgu sunumunda, cerrahi müdahaleye gerek kalmaksızın BPT'ye olumlu yanıt veren lokalize diş eti büyümesinin klinik seyri sunulmaktadır. Marmara Üniversitesi Diş Hekimliği Fakültesi Periodontoloji Anabilim Dalı'na diş eti büyümesi şikâyeti ile başvuran sistemik olarak sağlıklı 54 yaşındaki erkek hastanın intraoral muayenesinde, plak birikimine bağlı gingival enflamasyon ve 15-16 numaralı dişlerin vestibül bölgesinde lokalize, saplı, ağrısız ve kolay kanayan diş eti büyümesi saptandı. Klinik ve radyografik değerlendirmeler sonucunda hastaya periodontitis tanısı konuldu. Başlangıç periodontal değerlendirmede plak indeksi 1.4, gingival indeks 1.3, sondalama derinliği 1.9 mm ve sondalamada kanama oranı %36 olarak kaydedildi. Hastaya iki hafta içerisinde üç seans BPT uygulandı. İlk seansta hastaya ağız hijyeni eğitimi verildi, diş taşı temizliği ve polisaj uygulandı; takip eden iki seansta kök yüzeyi düzleştirmesi gerçekleştirildi. İkinci ve üçüncü seanslarda lezyon olan bölge klorheksidin solüsyonu ile irrige edildi. Üçüncü seans kontrolünde, lezyonun ikinci seans sonrasında spontan olarak dokudan ayrıldığı öğrenildi ve klinik muayenede lezyonun tamamen ortadan kalktığı gözlendi. Lezyonun klinik ortam dışında ayrılması nedeniyle histopatolojik inceleme gerçekleştirilemedi. Altı haftalık takip süresince herhangi bir rekürrens izlenmedi. Tedavi sonrası yapılan değerlendirmede plak indeksi 0.4, gingival indeks 1.2, sondalama derinliği 1.7 mm ve sondalamada kanama oranı %30 olarak kaydedildi. Bu olgu sunumu, lokalize diş eti büyümelerinde BPT'nin önemini göstermektedir. Etiyolojik faktörlerin eliminasyonu, etkin plak kontrolü ve lokal irritanların uzaklaştırılması ile bazı olgularda cerrahi girişime gerek kalmaksızın klinik iyileşme sağlanabileceği düşünülmektedir. Bu nedenle lokalize diş eti büyümelerinde cerrahi tedavi planlanmadan önce kapsamlı BPT uygulanması ve lezyonun BPT sonrası yeniden değerlendirilmesi önerilmektedir.

Anahtar Kelimeler: Başlangıç periodontal tedavi, diş eti büyümesi, periodontal tedavi, periodontitis.

MANAGEMENT OF LOCALISED GINGIVAL OVERGROWTH WITH INITIAL PERIODONTAL TREATMENT: A CASE REPORT

Abstract

Localised gingival overgrowth is a clinical condition characterised by a limited increase in gingival tissue volume that may develop as a result of various local and systemic factors. Its aetiology may involve dental plaque and calculus accumulation, dental caries, defective restorations, foreign body irritation, and hormonal changes. These lesions may cause aesthetic problems, complicate the maintenance of oral hygiene, and lead to functional discomfort. The treatment approach primarily involves Initial Periodontal Treatment (IPT), aimed at eliminating aetiological factors, whilst surgical excision is preferred in cases where it is considered necessary. This case report presents the clinical

course of a localised gingival overgrowth that responded favourably to IPT without the need for surgical intervention. A systemically healthy 54-year-old male patient presented to the Department of Periodontology, Faculty of Dentistry, Marmara University, with a complaint of gingival overgrowth. Intra-oral examination revealed plaque-induced gingival inflammation and a localised, pedunculated, painless, and easily bleeding gingival overgrowth on the buccal aspect of teeth 15 and 16. Following clinical and radiographic examinations, the patient was diagnosed with periodontitis. At the initial periodontal assessment, the plaque index was recorded as 1.4, the gingival index as 1.3, the probing depth as 1.9 mm, and bleeding on probing as 36%. The patient received three sessions of IPT over a two-week period. During the first session, oral hygiene instructions were provided, and scaling and polishing were performed; root planing was carried out during the subsequent two sessions. During the second and third sessions, the lesion area was irrigated with chlorhexidine solution. At the third-session follow-up, it was learned that the lesion had spontaneously detached from the tissue following the second session, and clinical examination revealed that the lesion had completely disappeared. Histopathological examination could not be performed because the lesion detached outside the clinical setting. No recurrence was observed during the six-week follow-up period. Post-treatment evaluation showed a plaque index of 0.4, a gingival index of 1.2, a probing depth of 1.7 mm, and bleeding on probing of 30%. This case report demonstrates the importance of IPT in the management of localised gingival overgrowths. Elimination of aetiological factors, effective plaque control, and removal of local irritants may provide clinical improvement in some cases without the need for surgical intervention. Therefore, comprehensive IPT should be performed and the lesion should be re-evaluated following IPT before surgical treatment is planned for localised gingival overgrowths.

Keywords: Initial periodontal treatment, gingival overgrowth, periodontal treatment, periodontitis

DİŞ HEKİMLİĞİNDE BİTKİSEL ÜRÜNLERE YÖNELİK KÜRESEL ARAŞTIRMA EĞİLİMLERİ VE GÜNCEL TEMALAR: WEB OF SCIENCE VERİTABANINA DAYALI BİBLİYOMETRİK BİR ANALİZ

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Özet

Bu çalışmanın amacı, diş hekimliğinde bitkisel ürünler alanında gerçekleştirilen bilimsel yayınların bibliyometrik olarak incelenmesiydi. Veriler, Web of Science Core Collection veri tabanında "herbal AND dent*" konu başlığı kullanılarak elde edildi. Dentistry, Oral Surgery & Medicine kategorisinde yer alan ve makale veya derleme olarak yayımlanan çalışmalar araştırmaya dahil edildi. Elde edilen veriler Bibliometrix paketinin Biblioshiny arayüzü kullanılarak incelendi. Çalışmada yıllık bilimsel üretim, en üretken kaynaklar, yazarlar ve ülkeler, sorumlu yazar ülkeleri, en çok atıf alan ülkeler, anahtar kelime sıklıkları, anahtar kelime eş-oluşum ağı ve eş-atıf ağı analizleri değerlendirildi. Analize 1995–2026 yılları arasında yayımlanmış toplam 249 yayın dahil edildi. Yayınlar 85 farklı kaynakta yayımlanmış olup yıllık büyüme oranı %9.36 olarak belirlendi. Toplam 1177 yazarın katkı sağladığı çalışmalarda uluslararası ortak yazarlık oranı %20.08 olarak bulundu. Yıllık bilimsel üretimin özellikle son yıllarda belirgin şekilde arttığı ve en yüksek yayın sayısına 2025 yılında (n=33) ulaştığı görüldü. En fazla yayın üreten dergiler Journal of Indian Association of Public Health Dentistry (n=14), International Journal of Dental Hygiene (n=12) ve Clinical Oral Investigations (n=10) oldu. En üretken yazarlar Pradeep AR (n=6) ve Naik SB (n=5) olarak belirlendi. Ülke bazında değerlendirildiğinde Hindistan (n=184), İran (n=82) ve Amerika Birleşik Devletleri (n=71) en yüksek bilimsel üretime sahip ülkeler olarak saptandı. Sorumlu yazar ülkeleri analizinde Hindistan (n=73), Amerika Birleşik Devletleri (n=22) ve İran (n=21) ilk sıralarda yer aldı. En yüksek atıf sayıları Hindistan (642 atıf), Amerika Birleşik Devletleri (439 atıf) ve Brezilya (349 atıf) tarafından elde edildi. En sık kullanılan anahtar kelimeler chlorhexidine (n=44), dental plaque (n=33), plaque (n=33), efficacy (n=32) ve gingivitis (n=32) olarak belirlendi. Anahtar kelime eş-oluşum ağı analizinde chlorhexidine, dental plaque, plaque, efficacy ve gingivitis en güçlü ilişkili anahtar kelimeler olarak belirlendi. Eş-atıf ağı analizinde Löe Harald'ın 1963 yılında yayımlanan çalışması alanın en merkezi referansı olarak öne çıktı. Sonuç olarak, diş hekimliğinde bitkisel ürünlere yönelik araştırmaların son yıllarda belirgin şekilde arttığı görüldü. Bu çalışma, alanın araştırma eğilimlerini, etkili araştırmacılarını, önde gelen ülkelerini ve temel araştırma odaklarını ortaya koymaktadır.

Anahtar Kelimeler: Bibliyometrik analiz, bitkisel ürünler, diş hekimliği, web of science.

GLOBAL RESEARCH TRENDS AND EMERGING THEMES IN HERBAL PRODUCTS IN DENTISTRY: A BIBLIOMETRIC ANALYSIS BASED ON THE WEB OF SCIENCE DATABASE

Abstract

The aim of this study was to bibliometrically analyse the scientific literature on herbal products in dentistry. Data were retrieved from the Web of Science Core Collection database using the topic search query "herbal AND dent*". Articles and reviews published within the Dentistry, Oral Surgery & Medicine category were included in the study. The retrieved data were analysed using the Biblioshiny interface of the Bibliometrix package. Annual scientific production, the most productive sources, authors and countries, corresponding author countries, the most cited countries, keyword frequencies, keyword co-occurrence network analysis, and co-citation network analysis were evaluated. A total of

249 publications published between 1995 and 2026 were included in the analysis. These publications were published in 85 different sources, and the annual growth rate was 9.36%. A total of 1,177 authors contributed to the publications, with an international co-authorship rate of 20.08%. Annual scientific production increased markedly in recent years and reached its highest level in 2025 (n=33). The most productive journals were *Journal of Indian Association of Public Health Dentistry* (n=14), *International Journal of Dental Hygiene* (n=12), and *Clinical Oral Investigations* (n=10). The most productive authors were Pradeep AR (n=6) and Naik SB (n=5). In terms of scientific production, India (n=184), Iran (n=82), and the United States (n=71) were identified as the leading countries. Corresponding author country analysis revealed that India (n=73), the United States (n=22), and Iran (n=21) ranked first. The highest citation counts were recorded for India (642 citations), the United States (439 citations), and Brazil (349 citations). The most frequently used keywords were *chlorhexidine* (n=44), *dental plaque* (n=33), *plaque* (n=33), *efficacy* (n=32), and *gingivitis* (n=32). Keyword co-occurrence network analysis identified *chlorhexidine*, *dental plaque*, *plaque*, *efficacy*, and *gingivitis* as the most strongly associated keywords. Co-citation network analysis revealed that the study published by Löe Harald in 1963 was the most central reference in the field. In conclusion, research on herbal products in dentistry has increased considerably in recent years. This study provides an overview of research trends, influential researchers, leading countries, and the main research focuses within the field.

Keywords: Bibliometric analysis, herbal products, dentistry, web of science.

ÇOCUKLARDA DENTAL TRAVMA ARAŞTIRMALARININ KÜRESEL VE TÜRKİYE PERSPEKTİFİNDEN BİBLİYOMETRİK ANALİZİ

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Özet

Amaç: Bu çalışmanın amacı, Web of Science veri tabanında yer alan çocuklarda dental travma literatürünü bibliyometrik yöntemlerle incelemek ve küresel araştırma eğilimlerini Türkiye kaynaklı yayınlarla karşılaştırmaktır.

Gereç ve Yöntem: Web of Science Core Collection veri tabanında 1995–2026 yılları arasında yayımlanan çocuk ve adölesanlarda dental travmaya ilişkin makaleler ve derlemeler bibliometrik olarak analiz edildi. Veriler bibliometrix R paketi kullanılarak değerlendirildi, istatistiksel analizlerde SPSS 27.0.1 programı kullanıldı. Yayın eğilimleri doğrusal regresyon analizi ile, atıf farklılıkları ise Mann–Whitney U testi ile incelendi.

Bulgular: Toplam 1.689 yayın analiz edildi. Bilimsel üretimde yıllık %4,72 büyüme oranı saptandı. En fazla yayın üreten ülkeler Brezilya, Amerika Birleşik Devletleri ve Türkiye oldu. Türkiye yayın sayısında üçüncü sırada yer almasına rağmen uluslararası iş birliği oranı (%3,28) en düşük ülke olarak belirlendi. Türkiye kaynaklı yayınlar ile diğer ülkelerden gelen yayınların atıf sayıları arasında istatistiksel olarak anlamlı fark bulunmadı ($p>0,05$). Anahtar kelime analizleri, Türkiye'deki araştırmaların küresel eğilimlerle büyük ölçüde uyumlu olduğunu, ancak klinik odaklı konulara daha fazla ağırlık verildiğini gösterdi.

Sonuç: Pediatrik dental travma alanındaki bilimsel literatür istikrarlı şekilde büyümektedir. Türkiye bu alanda önemli bir bilimsel üretkenliğe sahip olmakla birlikte, uluslararası araştırma iş birliklerinin artırılması bilimsel görünürlüğü ve etkiyi daha da güçlendirebilir.

Anahtar Kelimeler: Bibliyometrik analiz, çocuk, dental travma, travmatik dental yaralanmalar, Web of Science.

GLOBAL AND NATIONAL TRENDS IN PEDIATRIC DENTAL TRAUMA RESEARCH: A BIBLIOMETRIC ANALYSIS OF THE WEB OF SCIENCE DATABASE

Abstract

Objective: This study aimed to perform a bibliometric analysis of the pediatric dental trauma literature indexed in the Web of Science database and to compare global research trends with publications originating from Türkiye.

Materials and Methods: Articles and review papers published between 1995 and 2026 on pediatric dental trauma were retrieved from the Web of Science Core Collection database. Bibliometric analyses

were conducted using the bibliometrix package in R, while statistical analyses were performed using SPSS 27.0.1. Publication trends were evaluated by linear regression analysis, and citation differences were assessed using the Mann–Whitney U test.

Results: A total of 1,689 publications were included in the analysis. Scientific production demonstrated a steady annual growth rate of 4.72%. Brazil, the United States, and Türkiye were identified as the leading contributors to the literature. Although Türkiye ranked third in publication output, it had the lowest rate of international collaboration (3.28%). No statistically significant difference was observed between the citation counts of publications from Türkiye and those from other countries ($p>0.05$). Keyword analysis indicated that research trends in Türkiye were largely consistent with global patterns but showed a relatively greater emphasis on clinically oriented topics.

Conclusion: The literature on pediatric dental trauma has shown continuous and systematic growth over the past decades. While Türkiye is among the leading contributors in terms of publication output, strengthening international collaborations may further enhance its scientific visibility and global impact.

Keywords: Bibliometric analysis, children, dental trauma, traumatic dental injuries, Web of Science.

OPTIMIZATION OF PERIODONTAL TREATMENT IN PATIENTS WITH CHRONIC GENERALIZED PERIODONTITIS ASSOCIATED WITH OSTEOPOROSIS

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Abstract

Introduction: Chronic generalized periodontitis (CGP) is one of the most prevalent inflammatory diseases of the oral cavity and a leading cause of tooth loss in adults. The disease is characterized by progressive destruction of the supporting tissues of the teeth, including the gingiva, periodontal ligament, cementum, and alveolar bone. Systemic osteoporosis, a metabolic skeletal disorder characterized by reduced bone mineral density and deterioration of bone microarchitecture, has been recognized as a significant risk factor affecting periodontal health. Both diseases share common pathogenic mechanisms involving inflammatory mediators, disturbances in bone remodeling, and increased osteoclastic activity. The coexistence of osteoporosis and periodontitis may accelerate alveolar bone resorption, aggravate periodontal destruction, and reduce the effectiveness of conventional treatment. Therefore, the investigation of clinical manifestations, diagnostic criteria, and optimization of therapeutic approaches in patients with chronic generalized periodontitis associated with systemic osteoporosis is highly relevant.

Aim: To study the clinical features and diagnostic indicators of chronic generalized periodontitis occurring against the background of systemic osteoporosis and to evaluate the effectiveness of optimized treatment methods aimed at improving periodontal health and preventing disease progression.

Materials and Methods: The study involved patients diagnosed with chronic generalized periodontitis associated with systemic osteoporosis. Clinical examination included a comprehensive assessment of oral hygiene and periodontal status. Oral hygiene was evaluated using the Fedorov–Volodkina Hygiene Index and the Greene–Vermillion Oral Hygiene Index (OHI-S). The condition of periodontal tissues was assessed using the Muhlemann Bleeding Index, Svrakov's Iodine Number, Periodontal Index (PI), Community Periodontal Index of Treatment Needs (CPITN), Fuchs Index, and Ramfjord Periodontal Index. Additional clinical and radiographic examinations were performed to determine the severity of periodontal destruction and the extent of alveolar bone loss. Patients underwent a comprehensive treatment program consisting of professional oral hygiene measures, anti-inflammatory therapy, periodontal treatment, and supportive care. Clinical parameters were recorded before and after treatment to assess therapeutic effectiveness.

Results: The findings demonstrated that patients with chronic generalized periodontitis associated with systemic osteoporosis exhibited significantly poorer oral hygiene, increased gingival inflammation, greater bleeding tendency, deeper periodontal pocket formation, and more pronounced alveolar bone resorption compared with individuals without osteoporosis. The severity of periodontal destruction was positively associated with the degree of systemic bone mineral loss. Baseline examination revealed elevated values of periodontal and hygiene indices, indicating active inflammatory processes and advanced periodontal tissue damage. Following implementation of the optimized treatment protocol, significant improvements were observed in all clinical indicators. Oral hygiene scores decreased, gingival bleeding was reduced, inflammatory manifestations subsided, and periodontal tissue condition improved. Clinical stabilization of the disease was accompanied by a reduction in periodontal pocket depth and improvement in functional periodontal parameters. The treatment approach contributed to enhanced periodontal health and improved prognosis for patients affected by both conditions.

Conclusion: Systemic osteoporosis has a considerable impact on the clinical course of chronic generalized periodontitis, leading to more severe inflammatory changes and accelerated destruction of periodontal supporting structures. Comprehensive assessment using standardized periodontal and

hygiene indices provides valuable diagnostic information and facilitates accurate evaluation of disease severity. The optimized treatment strategy demonstrated favorable clinical outcomes, contributing to the reduction of inflammation, improvement of oral hygiene status, stabilization of periodontal tissues, and enhancement of overall treatment effectiveness. Early diagnosis and integrated management of patients with concomitant chronic generalized periodontitis and systemic osteoporosis are essential for preventing disease progression and preserving oral health.

Keywords: Chronic generalized periodontitis, osteoporosis, periodontal disease, oral hygiene, alveolar bone loss, periodontal diagnosis, inflammation.

NÖRODEJENERATİF HASTALIKLARIN TEDAVİSİNDE YENİ UMUT: LECANEMAB

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Özet

Alzheimer hastalığı (AH), dünya çapında milyonlarca insanı etkileyen ilerleyici ve yıkıcı bir nörodejeneratif hastalıktır. 2023 verilerine göre, 50 milyon kişiye bu hastalık teşhisi konulacak ve 2060 yılına kadar dünya çapında 13,8 milyar insanın bu hastalıktan etkileneceği tahmin edilmektedir. AH'deki ilerleyici bilişsel bozulma, günlük işlevlerde gerileme, kişilik değişiklikleri ve sorunlu davranışlarla kendini gösterir. Daha sonraki aşamalarda, hayati fonksiyonları etkileyen demansa yol açabilir (Atri, 2019; Rao, 2023).

Küresel nüfus yaşlandıkça, AH'nin yaygınlığı artmakta ve bu durum halk sağlığı ve hastaların ve ailelerinin yaşam kalitesi için önemli bir zorluk oluşturmaktadır. Bu hastalığın tedavisi üzerine yıllardır süren araştırmalara rağmen, henüz etkili bir tedavi mevcut değildir. Mevcut tedaviler yalnızca geçici semptomatik rahatlama sağlar. Geleneksel tedavi yaklaşımları öncelikle asetilkolinesteraz ve N-metil-D-Aspartat (NMDA) reseptörleri üzerindeki nöronal fonksiyonları inhibe etmeye odaklanmış olup, AD'nin ilerlemesini yavaşlatmada veya etkilerini tersine çevirmede sınırlı sonuçlar vermiştir. Örneğin: Takrin, Donepezil, Memantin, Galantamin ve Rivastigmin (Marucci, 2021). AD, beyinde amiloid-β (Aβ) plaklarının birikmesiyle karakterizedir. Bu nedenle, Aβ plaklarının birikmesi gibi AD'nin altında yatan nedenleri doğrudan ele alan tedavilerin geliştirilmesine kritik bir ihtiyaç vardır (Zhang, 2023). AD için tam FDA onayı alan ilk monoklonal antikor olan Lecanemab, amiloid-β protofibrillerine yüksek afiniteyle bağlanır (Hoy, 2023). Klinik öncesi çalışmalar, bu monoklonal antikorun kan-beyin bariyerini geçme ve Aβ plaklarına spesifik olarak bağlanarak, doğuştan gelen bağışıklık mekanizmaları yoluyla bunların ortadan kaldırılmasını destekleme yeteneğini göstermiştir. Faz I ve II klinik çalışmaları, Lecanemab'ın hafif ila orta şiddette AD'de Aβ plaklarını azaltma ve bilişsel işlevi iyileştirmedeki güvenliği ve etkinliğine dair ümit verici ön kanıtlar sağlamıştır. Bu bulgular, Lecanemab ile daha geniş ve daha uzun süreli faz III çalışmalarında klinik çalışmalara büyük ilgi uyandırmıştır. Lecanemab, AD için hastalığı modifiye edici tedavilerde önemli bir yenilik teşkil etse de, etkinliği, yüksek maliyeti, güvenlik profili ve hasta seçimi konusunda tartışmalar devam etmektedir. Tedavi, özellikle erken evre AD'de önemli faydalar göstermektedir. Ancak, uzun vadeli güvenlik verileri hala sınırlıdır ve sağlık sistemleri üzerindeki mali yük önemli bir faktör olarak kabul edilmektedir. Bu çalışmanın amacı, güncel araştırmaları ve Lecanemab'ın AD'deki mevcut kullanımındaki güvenlik marjını inceleyerek literatüre katkıda bulunmaktır.

Anahtar Kelimeler: Lecanemab, Alzheimer Hastalığı, Demans, Amiloid-β plakları, Takrin

TETRAKAİN TÜREVİ TİYOSEMİKARBAZİT BİLEŞİKLERİN SENTEZİ VE KARAKTERİZASYONU

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Özet

Tiyosemikarbazit bileşikleri, gösterdikleri çeşitli farmakolojik aktiviteler nedeniyle yeni ilaç moleküllerinin sentezinde yaygın olarak kullanılmaktadır. Literatürde özellikle antimikrobiyal aktivitelerini gösteren birçok çalışma detaylı bir şekilde rapor edilmiştir. Tetrakain, 4-aminobenzoik asit türevi bir bileşiktir. Göz, kulak veya burun ile ilgili kısa süreli işlemler sırasında topikal oftalmik anestezi için uygulanan bir lokal anesteziktir. Bu çalışma kapsamında, para konumunda butilamino grubu taşıyan ve ester bağı içeren tetrakain başlangıç maddesi kullanılarak, genel yapısı 2-[4-(bütilamino)benzoil]-N-(sübstitüe)hidrazin-1-karbotiyoamid türevi olan 18 adet orijinal bileşik sentezlenmiştir. Sentez çalışmaları iki basamakta gerçekleştirilmiştir. İlk basamakta başlangıç maddesi olarak 2-(dimetilamino)etil 4-(butilamino)benzoat (Tetrakain) kullanılarak ester bağı kırılmış, dimetilaminoetil yan zinciri koparılarak 4-(Butilamino)benzoik asit hidraziti sentezlenmiştir. İkinci basamakta 4-(butilamino)benzoik asit hidraziti ile eşit molde aromatik izotiyosiyanat reaksiyon balonuna tartılıp alınmıştır. Üzerine 50 mL eklenen bütanol ile geri çeviren soğutucu altında manyetik karıştırıcıda 80 ^{o}C'de ısıtılmıştır. 4 saat süren reaksiyon sonunda madde behere alınmış ve bütanolün ortamdan uçması sağlanmıştır. Elde edilen katı ürün önce su ile yıkanmış, ardından etanolden kristallendirilmiştir. Reaksiyon ilerlemesi ince tabaka kromatografisi (İTK) ile takip edilmiştir. Sentezlenen bileşiklerin yapısal karakterizasyonları, erime derecesi tayini, ^{1}H-NMR, ^{13}C-NMR ve HR-MS gibi spektroskopik yöntemler kullanılarak doğrulanmıştır. Sentezlenen bileşikler için SwissADME ve ProTox-3.0 araçlarıyla ADMET (emilim, dağılım, metabolizma, atılım ve toksisite) profili çeşitli farmakokinetik ve toksikolojik parametreler kullanılarak *in silico* olarak detaylı şekilde analiz edilmiştir. Elde edilen değerlerle birlikte sentezlenen moleküllerin farmasötik uygunluğu değerlendirilmiştir.

Anahtar Kelimeler: Tiyosemikarbazit, Tetrakain, Sentez, Karakterizasyon, İn-silico

Teşekkür: Bu araştırma Erciyes Üniversitesi Bilimsel Araştırma Projeleri Birimi tarafından TYL-2025-14975 proje numarası ile desteklenmiştir. Maddi desteklerinden dolayı BAP birimine teşekkür ederiz. Bu çalışma Erciyes Üniversitesi Sağlık Bilimleri Enstitüsü Yüksek Lisans öğrencisi Beyzanur AKTAŞ'ın Yüksek Lisans tezinin bir parçasını oluşturmaktadır.

SYNTHESIS AND CHARACTERIZATION OF TETRACAINE-DERIVED THIOSEMICARBAZIDE COMPOUNDS

Abstract

Thiocarbazide compounds are widely used in the synthesis of new drug molecules due to their various pharmacological activities. Numerous studies detailing their antimicrobial activities, in particular, have been reported in the literature. Tetracaine is a compound derived from 4-aminobenzoic acid. It is a local anesthetic used for topical ophthalmic anesthesia during short-term procedures involving the eye, ear, or nose. Within the scope of this study, 18 original compounds of the general structure 2-[4-

(butylamino)benzoyl]-N-(substituted)hydrazine-1-carbothioamide were synthesized using a tetracaine starting material containing a butylamino group in the para position and an ester bond. The synthesis was carried out in two steps. In the first step, 2-(dimethylamino)ethyl 4-(butylamino)benzoate (tetracaine) was used as the starting material; the ester bond was cleaved, and the dimethylaminoethyl side chain was removed to synthesize 4-(butylamino)benzoic acid hydrazide. In the second step, an equal molar amount of 4-(butylamino)benzoic acid hydrazide was weighed into a reaction flask containing an aromatic isothiocyanate. After adding 50 mL of butanol, the mixture was heated to 80 °C under a reflux condenser using a magnetic stirrer. At the end of the 4-hour reaction, the mixture was transferred to a beaker, and the butanol was allowed to evaporate. The resulting solid product was first washed with water and then recrystallized from ethanol. Reaction progress was monitored by thin-layer chromatography (TLC). The structural characterization of the synthesized compounds, including melting point determination, ^{1}H-NMR, ^{13}C-NMR, and HR-MS, was confirmed using spectroscopic methods. The ADMET (absorption, distribution, metabolism, excretion, and toxicity) profiles of the synthesized compounds were analyzed in detail in silico using the SwissADME and ProTox-3.0 tools, incorporating various pharmacokinetic and toxicological parameters. The pharmaceutical suitability of the synthesized molecules was evaluated based on the obtained values.

Keywords: Thiosemicarbazide, Tetracaine, Synthesis, Characterization, In silico

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CİLT MİKROBİYOTASI VE DERİ HASTALIKLARI: ENFEKSİYONLAR, DİSBİYOZİS VE GÜNCEL TEDAVİ YAKLAŞIMLARI

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Özet

Cilt mikrobiyomun pasif bir mikroorganizma topluluğudan ziyade cilt bariyerinin korunması, immün yanıtların düzenlenmesi ve patojenlere karşı savunma mekanizmalarının yürütülmesinde aktif rol oynayan dinamik bir ekosistemdir. Mikrobiyal dengenin bozulması akne vulgaris, atopik dermatit, psoriasis ve rozasea gibi çeşitli dermatolojik hastalıklarının patogenezinde önemli bir faktör olarak öne çıkmaktadır. Günümüzde geleneksel tedavi yaklaşımlarına alternatif olarak geliştirilen mikrobiyom bazlı stratejiler, özellikle probiyotik, prebiyotik ve postbiyotik içerikli ürünler öne çıkmaktadır. Bu ürünlerin cilt bariyerini güçlendirme, inflamasyonu azaltma ve mikrobiyal dengeyi yeniden sağlama potansiyeli, yeni formülasyon ve tedavi yaklaşımlarının geliştirilmesine olanak tanımaktadır. Bununla birlikte, uygun mikroorganizma seçimi, formülasyon stabilitesi, taşıyıcı sistemler ve klinik etkinlik gibi konular daha fazla araştırma gerektirmektedir. Ciltteki mikrobiyal ekosistemin daha iyi anlaşılması, dermatolojik hastalıkların önlenmesi ve tedavisinde yenilikçi ve hedefe yönelik yaklaşımların geliştirilmesine katkı sağlayacaktır. Gelecekte sürdürülecek çalışmaların, mikrobiyom-temelli ürünlerin klinik etkinliğini ve güvenilirliğini ortaya koyarak bu alandaki uygulamaların yaygınlaşmasına önemli ölçüde katkı sağlayacağı düşünülmektedir.

Anahtar Kelimeler: Cilt, Fekal Mikrobiyota Transplantasyonu, Mikrobiyota, Prebiyotik, Probiyotik, Postbiyotik.

SKIN MICROBIOTA AND DERMATOLOGY: INFECTIONS, DYSBIOSIS, AND CURRENT TREATMENT APPROACHES

Abstract

The skin microbiome is not a passive community of microorganisms, but rather a dynamic ecosystem that plays an active role in maintaining the skin barrier, regulating immune responses, and executing defense mechanisms against pathogens. Disruption of microbial balance is a significant factor in the pathogenesis of various dermatological diseases such as acne vulgaris, atopic dermatitis, psoriasis, and rosacea. Currently, microbiome-based strategies, particularly products containing probiotics, prebiotics, and postbiotics, are emerging as alternatives to traditional treatment approaches. The potential of these products to strengthen the skin barrier, reduce inflammation, and restore microbial balance allows for the development of new formulations and treatment approaches. However, issues such as appropriate microorganism selection, formulation stability, carrier systems, and clinical efficacy require further research. A better understanding of the microbial ecosystem in the skin will contribute to the development of innovative and targeted approaches in the prevention and treatment of dermatological diseases. It is believed that future studies will significantly contribute to the widespread adoption of microbiome-based products by demonstrating their clinical efficacy and safety.

Keywords: Skin, Fecal Microbiota Transplantation, Microbiota, Prebiotic, Probiotic, Postbiotic.

ADA ÇAYI ESANSİYEL YAĞININ FARKLI ANTİBİYOTİKLERLE KOMBİNASYONLARININ ÇEŞİTLİ BAKTERİLER ÜZERİNDEKİ ANTİBAKTERİYEL AKTİVİTELERİNİN İNCELENMESİ

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Özet

Tıp dünyasının karşı karşıya kaldığı zorlukların başında bakterilerin antibiyotiklere karşı geliştirdikleri direnç gelmektedir. Antibiyotik direnci enfeksiyon hastalıklarının tedavi başarısını önemli ölçüde düşürmektedir. Antibiyotik direncinde gözlenen artışla beraber yeni antibiyotiklerin keşfinin azalması enfeksiyon hastalıklarının tedavisinde farklı yollar aranmasına yol açmıştır. Bu nedenle bitkisel ürünler gösterdikleri antibakteriyel aktiviteleri dolayısıyla enfeksiyon hastalıklarının tedavisinde önemli bir destekleyici haline gelmişlerdir. Esansiyel yağlar, bitkilerin yaprak, gövde, çiçek, kabuk, kök gibi çeşitli kısımlarından elde edilen uçucu, berrak ve renkli sekonder metabolitlerdir. Esansiyel yağların başta bakteriler olmak üzere çeşitli mikroorganizmalar üzerinde antimikrobiyal etkileri olduğu tespit edilmiştir. Esansiyel yağlar bakteriler üzerinde hücre duvarının parçalanması, enzim aktivitelerinin engellenmesi, sinyal mekanizmalarının bloke edilmesi gibi çeşitli mekanizmalar ile antibakteriyel etki gösterebilmektedir. Bununla birlikte enfeksiyon hastalıklarının tedavisindeki önemli bir yaklaşım da kombinasyon tedavilerdir. Genellikle farklı antibiyotiklerin kombine edilerek uygulanmasını kapsayan kombinasyon tedavilerinin antibiyotik etkinliğini artırdığı, antibiyotiklerin etki spektrumu genişlettiği ve antibiyotik direncini önlediği gösterilmiştir. Buradan hareketle çalışmamızda farklı antibiyotikler ile ada çayı esansiyel yağı kombinasyonlarının çeşitli bakteriler üzerindeki antibakteriyel etkilerinin araştırılması amaçlanmıştır.

Çalışmada Gram pozitif bakteri olarak *Staphylococcus aureus* ATCC 29213, *Enterococcus faecalis* ATCC 29212 ve Gram negatif bakteri olarak *Escherichia coli* ATCC 25922, *Salmonella typhimurium* ATCC 14028 kullanılmıştır. Kombinasyonlarda ise Gram pozitif bakteri enfeksiyonlarının tedavisinde kullanılan linezolid ve Gram negatif bakteri enfeksiyonlarının tedavisinde kullanılan meropenem ile ada çayı esansiyel yağı kullanılmıştır. Antibiyotik ve ada çayı esansiyel yağı kombinasyonlarının antibakteriyel etkinlikleri dama tahtası metodu kullanılarak tespit edilmiştir.

Çalışma sonuçlarına göre *S. aureus* bakterisi üzerinde ada çayı esansiyel yağı ve linezolid kombinasyonunun kısmi sinerji etkisi olduğu tespit edilmiştir. Tespit edilen kısmi sinerji, *S. aureus* üzerinde tek başına MİK (Minimum inhibisyon konsantrasyonu) değeri 1 µg/ml olan linezolid antibiyotiğinin kombinasyon durumunda konsantrasyonunun 0.064 µg/ml'ye kadar düştüğünü (16 kat düşüş) göstermektedir. Yine linezolid antibiyotiğinin kullanıldığı diğer bakteri olan *E. faecalis* üzerine antibiyotik ve esansiyel yağ kombinasyonunun sinerjistik etki gösterdiği belirlenmiştir. Çalışma sonuçları *E. faecalis* üzerinde tek başına MİK değeri 2 µg/ml olan linezolid antibiyotiğinin kombinasyon durumunda konsantrasyonunun 0.25 µg/ml'ye kadar düştüğünü (8 kaç düşüş) göstermektedir. Gram negatif bakterilere uygulanan meropenem ve esansiyel yağ kombinasyonunun etkisi ise sinerji veya antagonizm sınırları içinde yer almamıştır.

Çalışma sonuçları esansiyel yağların farklı antibiyotikler ile kombine edilmesiyle sinerjistik etkiler elde edilebileceğini göstermektedir. Buna karşın belirli bir esansiyel yağın tüm antibiyotikler ile kombinasyonlarının aynı oranda etki göstermeyeceği ve antibiyotik-esansiyel yağ kombinasyonunun, antibiyotik ve bakteri özelinde belirlenmesi gerektiği tespit edilmiştir. Kombinasyon uygulamasının tek başına uygulanan antibiyotik MİK değerinde 16 kata varan düşmeye neden olması enfeksiyon

hastalıklarının tedavisinde antibiyotiklerin farklı antibakteriyel ürünler ile kombinasyon uygulamalarının önemini gözler önüne sermektedir.

Anahtar kelimeler: Linezolid, Ada çayı esansiyel yağı, Dama tahtası metodu, Antibakteriyel aktivite, *Staphylococcus aureus, Enterococcus faecalis*

INVESTIGATION OF THE ANTIBACTERIAL ACTIVITIES OF COMBINATIONS OF SAGE ESSENTIAL OIL AND DIFFERENT ANTIBIOTICS ON VARIOUS BACTERIA

Abstract

One of the main challenges facing the medical world is the development of antibiotic resistance in bacteria. Antibiotic resistance significantly reduces the success rate of infectious disease treatment. In addition to increasing in antibiotic resistance, decreasing in the discovery of new antibiotics has led to the search for alternative approaches to treating infectious diseases. Therefore, herbal products have become an important supportive agents in treatment of infectious diseases because of their antibacterial activity. Essential oils are volatile, clear, and colored secondary metabolites obtained from various parts of plants such as leaves, stems, flowers, bark, and roots. It was detected that essential oils have antimicrobial effects on various microorganisms, primarily bacteria. Essential oils can exert antibacterial effects on bacteria through different mechanisms such as destruction of cell wall, inhibition of enzymatic activity, blocking of signaling mechanisms. Furthermore, combination therapies are important approaches in the treatment of infectious diseases. Combination therapies, which generally involve the combination of different antibiotics, have been shown to increase antibiotic efficacy, broaden the activity spectrum of antibiotics, and prevent antibiotic resistance. Thus, our study aimed to investigate the antibacterial activities of different antibiotics and sage essential oil combinations on various bacteria.

In the study, *Staphylococcus aureus* ATCC 29213 and *Enterococcus faecalis* ATCC 29212 were used as Gram-positive bacteria, and *Escherichia coli* ATCC 25922 and *Salmonella typhimurium* ATCC 14028 were used as Gram-negative bacteria. In combination, linezolid, used in the treatment of Gram-positive bacterial infections, and meropenem, used in the treatment of Gram-negative bacterial infections and sage essential oil were used. The antibacterial efficacy of antibiotics and sage essential oil combinations was determined using the checkerboard method.

According to results of the study, the partial synergy of sage essential oil and linezolid combination was detected on *S. aureus*. This partial synergy showed that the concentration of linezolid antibiotic, which has an MIC (Minimum Inhibitory Concentration) of 1 µg/ml alone on *S. aureus*, decreased to 0.064 µg/ml (16-fold decrease) in the combination. Also, synergistic activity was observed on *E. faecalis*, another bacterium treated with linezolid. The study result showed that the concentration of linezolid antibiotic, which has an MIC of 2 µg/ml alone on *E. faecalis*, decreased to 0.25 µg/ml (8-fold decrease) in the combination. The combination of meropenem and essential oil applied to Gram-negative bacteria did not show any synergistic or antagonistic effects.

In conclusion, it was detected that synergistic effects can be obtained by combining essential oils with different antibiotics. However, it was determined that combinations of a particular essential oil with all antibiotics will not be equally effective, and that the antibiotic-essential oil combination should be determined on specific to the antibiotic and the bacteria. The fact that combination therapy can lead to a reduction of up to 16 times in the MIC value of antibiotic administered alone highlights the importance of combining antibiotics with different antibacterial products in the treatment of infectious diseases.

Keywords: Linezolid, Sage essential oil, Checkerboard method, Antibacterial activity, *Staphylococcus aureus, Enterococcus faecalis*

INHIBITORY ABILITY OF *Nasturtium officinale* METHANOL EXTRACT ON *Candida krusei* AND *Candida parapsilosis*

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Abstract

Introduction and Purpose: *Nasturtium officinale* belongs to the Brassicaceae family and is a plant particularly rich in vitamins A, B, and C, folic acid, iodine, iron, protein, and calcium. It has been used as a medicinal and food product for over 2,000 years. *In vitro* and *in vivo* studies have shown its antioxidant, anti-inflammatory, hepatoprotective, nephroprotective, and anti-hyperlipidemia properties. Studies to date have focused on the plant's antibacterial properties, and its effectiveness against non-*albicans Candida* species has not been tested. Therefore, this study focuses on testing the anti-*Candida* activity of *N. officinale* against *Candida krusei* and *Candida parapsilosis*.

Materials and Methods: The methanol extract of *N. officinale* was prepared using the maceration method. The objective of the antifungal activity assay was to determine the Minimum Inhibitory Concentration (MIC) values of *N. officinale* against *C. krusei* and *C. parapsilosis* strains. The MIC values were determined using the broth microdilution method.

Results: The anti-*Candida* activity results indicate that the inhibitory efficacy of the plant methanol extract against *C. krusei* and *C. parapsilosis* was non-selective, with similar values. The MIC value of the extract against *C. krusei* was determined to be 18,75 mg/mL, while the MIC value against *C. parapsilosis* was 9.375 mg/mL.

Discussion and Conclusion: The anti-*Candida* activity test results indicate that *N. officinalis* methanol extract possesses significant potential as a herbal pharmacological agent and natural antifungal therapeutic, attributable to its constituent compounds. Subsequent research should prioritize *in vivo* studies and a thorough evaluation of therapeutic efficacy, particularly for clinically challenging fungal infections.

Key Words: *Nasturtium officinale*; *Candida krusei*; *Candida parapsilosis*; anti-*Candida* activity; MIC values

THE CURRENT STATUS AND PROSPECTS OF THE PHARMACOLOGICAL POTENTIAL OF PLANT-DERIVED PREPARATIONS IN THE ETIOTROPIC TREATMENT OF LEISHMANIASIS IN AZERBAIJAN

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Abstract

Introduction Leishmaniasis is a parasitic infection included by the World Health Organization in the list of neglected tropical diseases. The disease is endemic in 98 countries, and approximately 350 million people are at risk of infection. Between 700,000 and 1,000,000 new cases are reported worldwide each year.

In current clinical protocols, etiotropic treatment is based on pentavalent antimonial compounds and amphotericin B. However, the use of these drugs is limited by cardiotoxic, nephrotoxic, and pancreatotoxic side effects. Additional problems include prolonged parenteral courses, high economic cost, and the development of resistant strains in parasites. Considering these issues, the search for natural, low-toxicity, and economically accessible alternative therapeutic agents has become a priority scientific direction in recent years.

Objective To conduct a systematic analysis of the scientific literature in order to evaluate the pharmacodynamic efficacy, molecular mechanisms of action, and clinical prospects of phytotherapeutic agents in the treatment of leishmaniasis, to perform a comparative analysis with traditional chemotherapeutic drugs, and to determine the potential of species belonging to the Azerbaijani flora.

Materials and Methods This study is based on a bibliometric analysis of more than 290 original articles and reviews indexed in the international databases *PubMed*, *Scopus*, and *Web of Science* from 2020 to 2025. Inclusion criteria were plant extracts, essential oils, and pure phytocomponents that demonstrated in vitro and in vivo antileishmanial activity against the promastigote and amastigote stages of *L. major*, *L. infantum*, *L. amazonensis*, *L. donovani*, and *L. tropica*.

Results Meta-analyses show that more than 50 higher plant species exhibit pharmacological activity against leishmaniasis. The highest therapeutic index was recorded in *Artemisia annua*, *Withania somnifera*, *Kalanchoe pinnata*, *Ferula assa-foetida*, *Thymus vulgaris*, *Salvia cuspidata*, *Berberis* spp., *Curcuma longa*, and *Nigella sativa*.

The main identified bioactive compounds are classified by pharmacological groups: isoquinoline alkaloids - berberine; monoterpene phenols - carvacrol, thymol; sesquiterpene lactones - artemisinin; flavonol glycosides - quercitrin; curcuminoids - curcumin; as well as thymoquinone and eugenol. Quercitrin isolated from *Kalanchoe pinnata* shows selective cytotoxic effects against *L. amazonensis* amastigotes.

The antileishmanial effect of phytocomponents is realized through three main pathogenetic mechanisms: direct parasitotoxic action - disintegration of the cytoplasmic membrane and mitochondrial dysfunction; induction of programmed cell death - thymoquinone induces caspase-dependent DNA fragmentation in *L. donovani*; and immunomodulatory effect - *Artemisia annua* and *Withania somnifera* enhance the Th1-type immune response and increase the NO-dependent leishmanicidal activity of macrophages.

Discussion: The local flora of Azerbaijan forms an economically efficient raw material base for the etiotropic phytotherapy of leishmaniasis. The development of standardized ointments, gels, and tinctures based on thyme, calendula, and wormwood for the local treatment of cutaneous leishmaniasis has real clinical prospects. Floristic similarity with Iran, the epidemiological dominance of the cutaneous form, and rich ethnopharmacological traditions provide a comparative advantage for Azerbaijan.

Studies in Iran by Bafghi et al. demonstrated that the oleo-gum-resin of *Ferula assa-foetida* exhibits high in vitro activity against *L. major* promastigotes. Najm et al. confirmed the effect of *Artemisia spicigera*, *A. persica*, and *A. fragrance* extracts on *L. major*. These species also grow in Nakhchivan and the Absheron Peninsula.

In India, Chandrasekaran et al. proved that *Withania somnifera* leaf fractions directly kill the parasite and enhance the Th1 immune response. Tiwari et al. reported that a combination of nanocurcumin and miltefosine reduced parasite load by more than 90% in experimental visceral leishmaniasis.

In Brazil, Muzitano et al. showed that quercitrin isolated from *Kalanchoe pinnata* has selective cytotoxic effects against *L. amazonensis* amastigotes. Troncoso et al. reported that two new diterpenoids from *Salvia cuspidata* had IC50 values below 10 µM.

In Turkey, Yıldırım et al. noted the antileishmanial activity of *Cannabis* seed and *Hypericum perforatum* oil against *L. tropica*. These plants are also widespread in the mountainous and Lankaran regions of Azerbaijan.

In Azerbaijan, Nikmehr et al. demonstrated the activity of methanolic extracts of *Calendula officinalis* and *Salvia officinalis* leaves against *L. major*. Both plants are cultivated in the country. Mancini et al. noted that the chemical composition of *Thymus vulgaris* essential oil varies depending on geographical origin, which highlights the importance of standardizing local thyme species.

Thus, plant-derived preparations should be considered a promising complementary and alternative pharmacotherapeutic group in the etiotropic treatment of leishmaniasis. Although phytotherapy does not fully replace synthetic chemotherapeutics, it reduces systemic toxicity, minimizes the risk of resistance, and ensures pharmacoeconomic efficiency. For endemic countries like Azerbaijan, the development of standardized phytopreparations based on local flora species is both clinically and economically justified. The experience of various countries shows that formulations such as nanocurcumin, berberine liposomes, and carvacrol nanoemulsions solve bioavailability problems and bring plant-based drugs closer to clinical application.

Key words: Leishmaniasis, Phytotherapy, Plant-derived preparations, Antileishmanial activity, Azerbaijani flora, Artemisia annua, Thymus vulgaris, Nanocurcumin, Berberine, Cutaneous leishmaniasis, Drug resistance, Ethnopharmacology

THE ROLE OF MONOAMINES AND SOMATOSTATIN IN THE REGULATION OF THE NEUROHORMONAL AND IMMUNE SYSTEMS OF THE BODY

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Abstract

The article presents the results of researches conducted to study the features of the functioning of the neuroimmunoendocrine system with changes in monoamines (MA) and somatostatin (ST) depending on the duration of normal and stress load.

The experiments were conducted in three groups on 30 female Wistar rats. The rats of the first group were in a normal state; the rats of the second and third groups were subjected to electric shock for 5 and 10 days, respectively, lasting 30 minutes. The levels of MA and ST were determined in the hypothalamus and blood of rats that reached puberty in a normal state of the body; in the adenohypophysis -ST, prolactin (PRL) and somatotropin (STH) in the blood-hormones, cytokines and immuno- globulins.

It has been established that, against the background of an imbalance in the mechanism of the relationship between dopamine (DA), norepinephrine (NA), serotonin (5-hydroxytryptamine or 5-HT) and ST, as a result of prolonged stress, deviations from the norm occur in cytokines (pro-inflammatory - IL-1β, IL-6, TNF- α, INF-γ and anti-inflammatory interleukins IL-4 and IL-10), immunoglobulins (IgG, IgA, IgM, IgE) in the blood, which leads to profound pathologies in the neuroimmunoendocrine system. Depending on the effect and intensity of the stress load, certain pathologies occur in the neuroimmunoendocrine function of the body. With prolonged exposure to stress, the interactions between the markers are further aggravated. Due to the disruption of the mechanisms of interaction between the neuroendocrine system, MA, and ST of the body as a result of stress in the blood, the content of cytokines – IL-1β – changes in two phases (with 5 days of stress, its level decreases, and increases after 10 days). Under the influence of stress, the concentration of IL-6 interleukins in the blood increases, and the level of TNF- α in the blood of animals decreases. The level of INF-γ varies in two phases: the content of its level of INF-γ in the blood of rats under stress first decreases and then increases. The concentration of IL-4 and IL-10 in the blood is significantly increased. Under the influence of stress, the amount of immunoglobulins in the blood changes in different directions. Based on these changes, deep disturbances occur in the neuroimmunoendocrine system of the body under the influence of stress. Thus,

in stressful situations, changes in the hormonal and mediator status of the body, leading to the occurrence of immune disorders and their timely detection based on comprehensive examinations can become a theoretical basis for the prevention of possible complications. Therefore, for the timely detection of neuroimmunoendocrine disorders developing in the body as a result of stress of various pathogenesis, it is recommended to conduct comprehensive neurohormonal and immune examinations. Due to the disruption of the neuroimmunoendocrine mechanism as a result of chronic stress, it is important to find ways to correct it. The study of neuroimmunoendocrine pathogenetic mechanisms under stressful conditions and the identification of the role of regulatory mechanisms allow solving various practical and theoretical tasks.

Key words: Stress load, hypothalamus, monoamines, neuropeptides, adenohypophysis, hormones, cytokines

THE INFLUENCE OF TOXIC STRESS ON HEMATOLOGICAL MARKERS OF THE BODY

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Abstract

In medicine, stress is considered a more important and pressing issue from a public health perspective. Stress, causing various physiological changes, leads to a number of diseases. Hematopoiesis in homeostasis is characterized by a certain stability, while the cellular composition of the blood is extremely sensitive to the effects of endogenous and exogenous factors. One of the most important tasks in modern physiology is studying the mechanisms of changes in blood cellular composition that occur under the influence of various types of stress

The aim of the study is to investigate changes in hematological blood parameters against the background of toxic stress caused by hydrogen sulfide (H_2S).

Materials and methods of research. Experiments were conducted (7 group) on female Chinchilla rabbits weighing 2.5±0,2 kq with electrodes inserted into the preoptic and arcuate nuclei of the hypothalamus. The first group was intact; the 2nd, 3rd, and 4th groups were exposed to toxic stress with H_2S at a dose of 120 ppm daily for 30 minutes for 5, 15, and 30 days, respectively. After inducing toxic stress using an identical method, groups 5, 6, and 7 were released for 5, 15, and 30 days, respectively. The frequency and amplitude of electroencephalic (EEG) waves of nuclei were recorded during the stress period and after the model. To study the effect of toxic stress on the dynamics of hematological parameters, rats were decapitated after 7, 14, and 21 days of the experiment, as well as 7, 14, and 21 days after cessation of treatment. Twenty different hematological markers were measured in the blood using a RAYTO (RT–7600) AUTO automated hematology analyzer. Statistical differences were considered significant at a P value of <0.05.

Results. After the 7th day of H_2S administration, the white blood cell count increased by 42.3%, after the 14th day it decreased by 41.4%, and on the 21st day it sharply increased to 141.5%. After discontinuing H_2S administration, the white blood cell count increased by 79.3%, 158.1%, and 178.2%. The number of medium-sized cells decreased on the 14th day of the experiment. The number of lymphocytes and granulocytes increased throughout the experiment. The percentage of lymphocytes did not change significantly. Although the percentage of medium-sized cells decreased slightly at the

beginning of the toxic stress period, after the 21st day, the percentage of MID cells increased by 43.1%. The percentage of granulocytes decreased on the 7th and 21st days of the experiment. However, after the 14th day, its percentage increased sharply (67.1%). During the experiment, the number of erythrocytes decreased by 2.4%, 20.2%, and 24.8%. Similar patterns were observed in the concentration of hemoglobin. The mean corpuscular hemoglobin volume did not change significantly. Over the course of the experiment, the mean corpuscular hemoglobin volume decreased by 23.5%, 25.2%, and 30.7%. Certain patterns were revealed in the difference between the smallest and largest red blood cells in the blood sample -RDW-SD- increased in all experimental groups. However, the percentage distribution of red blood cells by size (RDW-CV) remained virtually unchanged. The platelet count remained virtually unchanged. Certain patterns were identified in the PCT. Throughout the entire period of lead acetate administration, the PCT level and the percentage of platelets and large cells decreased.

Conclusion. Toxic stress alters the quantity, percentage composition, and distribution density of hematological parameters in peripheral blood. Therefore, it is advisable to conduct research aimed at developing methods for correcting xenobiotic-induced toxic stress.

Key words: hydrogen sulfide, hematological parameters, hematocrit, erythrocyte

THE ROLE OF INTERLEUKIN-6 IN PREECLAMPSIA: INSIGHTS FROM A RETROSPECTIVE COHORT STUDY

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Abstract

Background: Preeclampsia is a multifactorial hypertensive disorder of pregnancy characterized by endothelial dysfunction, systemic inflammation, and adverse maternal-fetal outcomes. Interleukin-6 (IL-6), a key pro-inflammatory cytokine, has been implicated in the pathophysiology of preeclampsia through its role in vascular inflammation and immune dysregulation. This study aimed to evaluate the relationship between IL-6 levels and clinical characteristics in patients diagnosed with preeclampsia.

Methods: A retrospective analysis was performed on 87 pregnant women diagnosed with preeclampsia. Clinical, hemodynamic, biochemical, and neonatal parameters were collected, including blood pressure values, proteinuria, gestational age at delivery, fetal weight, Apgar score, and serum IL-6 concentrations. Descriptive statistics and correlation analyses were used to investigate associations between IL-6 levels and disease-related variables.

Results: The mean serum IL-6 concentration was 31.0 ± 35.6 pg/mL, with values ranging from 1.2 to 145.4 pg/mL, indicating substantial variability in inflammatory activity among patients. Higher IL-6 levels were associated with increased proteinuria, suggesting a link between systemic inflammation and disease severity. Elevated IL-6 concentrations were also associated with unfavorable fetal growth patterns and altered perinatal outcomes. Correlation analysis demonstrated positive relationships between IL-6 and proteinuria (r=0.17), fetal weight-related parameters (r=0.21), and Apgar score

(r=0.27), highlighting the complex interaction between inflammatory pathways and maternal-fetal adaptation in preeclampsia.

Conclusions: IL-6 appears to be an important biomarker of inflammatory activation in preeclampsia and may contribute to disease progression through its effects on endothelial function and placental homeostasis. Assessment of IL-6 levels could improve risk stratification and provide additional insight into the severity of preeclampsia. Further prospective studies are warranted to clarify its prognostic value and potential role as a therapeutic target.

Keywords: preeclampsia; interleukin-6; inflammation; endothelial dysfunction; pregnancy; biomarkers.

MACHINE LEARNING-ASSISTED PREDICTION OF ABNORMAL CERVICAL CYTOLOGY OUTCOMES IN ROMANIA'S CERVICAL CANCER SCREENING PROGRAM (2012–2023)

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Abstract

Cervical cancer remains a major public health challenge in Romania despite the implementation of organized screening programs. The integration of machine learning (ML) techniques into screening surveillance may improve risk stratification and resource allocation by identifying patterns associated with abnormal cytological findings. **Methods:** A retrospective dataset derived from the Romanian Cervical Cancer Screening Program between 2012 and 2023 was analyzed. Screening indicators included smear adequacy, cervical appearance, hormonal status, infectious and inflammatory findings, cytological abnormalities, and final screening outcomes. Machine learning-based predictive modeling was applied to identify variables associated with positive cytological results. Feature importance analysis was performed to determine the strongest predictors of abnormal screening outcomes. **Results:** A total of 47,433 cervical cytology examinations were evaluated. Most smears were satisfactory for assessment, with transformation zone cells present in 73.9% of cases. Negative cytology accounted for 78.0% of examinations, while 21.8% showed abnormal findings. The most frequent epithelial abnormalities were ASC-US (2.8%), LSIL (2.7%), and HPV-associated LSIL (1.6%). Feature importance analysis identified inflammatory changes, infectious findings, visible cervical lesions, menopausal status, and specimen adequacy as the variables most strongly associated with abnormal

cytological outcomes. Predictive modeling demonstrated the feasibility of classifying screening results using routinely collected program indicators. **Conclusions:** Machine learning approaches can support cervical cancer screening programs by identifying patterns associated with abnormal cytology and facilitating risk-based patient management. The integration of predictive analytics into national screening databases may improve early detection strategies and optimize follow-up recommendations. Future studies using patient-level datasets are required to validate predictive performance and develop clinically applicable decision-support tools.

Keywords: machine learning; cervical cancer screening; Pap smear; predictive analytics; cervical cytology; artificial intelligence.

CARDIOVASCULAR RISK AND CORONARY SYNDROMES IN POSTMENOPAUSAL WOMEN: CLINICAL CHARACTERISTICS AND OUTCOMES

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Abstract

Introduction: Coronary artery disease (CAD) remains the leading cause of mortality among women worldwide. Although endogenous estrogen exerts a protective cardiovascular effect during the premenopausal period, hormone replacement therapy has failed to demonstrate a significant reduction in cardiovascular morbidity and mortality in postmenopausal women. The burden of conventional cardiovascular risk factors increases after menopause, contributing to a higher incidence of adverse cardiac events.

Materials and Methods: This comparative observational study included 50 consecutive postmenopausal women admitted to the Cardiology Department with acute or chronic coronary syndromes. Their clinical characteristics were compared with those of 50 premenopausal women and 50 age-matched men. All participants underwent comprehensive cardiovascular assessment, including clinical examination, electrocardiography (ECG), heart rate variability analysis, echocardiography, 24-hour Holter monitoring, and laboratory investigations to evaluate diagnosis, functional status, and cardiovascular risk profile.

Results: Postmenopausal women exhibited a significantly higher prevalence of major cardiovascular risk factors, including diabetes mellitus, obesity, metabolic syndrome, smoking, and physical inactivity. These factors were associated with an increased susceptibility to myocardial infarction and angina.

Silent myocardial ischemia was more frequently observed in postmenopausal women, potentially contributing to delayed diagnosis and increased exposure to acute coronary syndromes. Furthermore, coronary microvascular dysfunction appeared to play a more prominent role in this population, leading to more pronounced adverse myocardial remodeling. No significant differences were identified between women with natural menopause and those with surgically induced menopause.

Conclusions: Coronary syndromes in postmenopausal women are associated with a less favorable clinical course compared with premenopausal women and age-matched men presenting similar comorbidities. These findings highlight the need for enhanced cardiovascular risk assessment, early detection strategies, and closer follow-up in postmenopausal women to improve clinical outcomes.

Keywords: coronary artery disease; menopause; cardiovascular risk factors; myocardial ischemia; coronary syndromes.

QUALITY ASSESSMENT AND CYTOLOGICAL CHARACTERISTICS OF CERVICAL SMEARS IN THE CERVICAL CANCER SCREENING PROGRAM: A 12-YEAR RETROSPECTIVE ANALYSIS

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Abstract

Introduction: Cervical cytology remains the cornerstone of cervical cancer screening, with specimen quality representing a critical factor for accurate diagnosis and patient management. The aim of this study was to evaluate the quality of cervical smears and the distribution of cytological findings within a large population included in a cervical cancer screening program. **Materials and Methods:** A retrospective descriptive study was conducted using data collected between 2012 and 2023 within the cervical cancer screening program. A total of 47,433 cervical cytology tests with complete records were analyzed. Smear quality, specimen adequacy, cytological abnormalities, and final diagnostic categories were assessed using descriptive statistical methods.**Results:** Most cervical smears were satisfactory for evaluation, with endocervical/transformation zone cells present in 35,052 cases (73.9%) and absent in 12,124 cases (25.6%). Unsatisfactory smears represented less than 1% of all examinations, being mainly associated with excessive leukocytes (84 cases), excessive erythrocytes (36 cases), or other technical limitations. The majority of cytological examinations were negative for intraepithelial lesions or malignancy, accounting for 37,021 cases (78.0%). Positive cytological findings were identified in 10,356 cases (21.8%). Among epithelial abnormalities, the most frequent lesions were ASC-US (1,311 cases; 2.8%), LSIL (1,261 cases; 2.7%), and LSIL associated with HPV-related changes (751 cases; 1.6%). High-grade lesions were less frequent, including HSIL (200 cases; 0.4%), HSIL suspicious for invasion (86 cases; 0.2%), and ASC-H (208 cases; 0.4%). Glandular abnormalities were rare, with only isolated AGC cases identified. Inflammatory and infectious changes represented common associated findings, reflecting the high prevalence of benign cervical pathology in the screened population. **Conclusions:** The cervical cancer screening program demonstrated a high proportion of satisfactory smears and a low rate of inadequate specimens, supporting the quality of sample collection and

cytological evaluation. Most examinations were negative for significant lesions, while low-grade squamous abnormalities represented the most common pathological findings. Continuous quality monitoring of cervical cytology remains essential for maintaining the effectiveness of cervical cancer prevention programs.

Keywords: cervical cytology; Pap smear; specimen adequacy; cervical cancer screening; ASC-US; LSIL; HSIL.

THE CLINICAL ROLE OF THROMBOPHILIA SCREENING IN PREGNANCY: CURRENT PERSPECTIVES AND CHALLENGES

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Abstract

Introduction: Thrombophilia represents an important risk factor for thromboembolic events and adverse pregnancy outcomes. In recent years, increasing attention has been focused on thrombophilia screening among pregnant women, particularly those with a history of pregnancy loss. However, the role of routine screening and its clinical benefits remain subjects of ongoing debate. **Materials and Methods:** This study aimed to evaluate the epidemiological characteristics of thrombophilia and its implications in pregnancy. Data collected between 2020 and 2025 were analyzed using Microsoft Excel, SPSS v17, and Epi Info, in collaboration with the "Victor Babeș" University of Medicine and Pharmacy, Timișoara. Statistical analyses were performed to identify clinically relevant associations and trends. **Results:** A progressive increase in the number of diagnosed thrombophilia cases was observed during the study period. Thrombophilia was classified as inherited or acquired, with Factor V Leiden and prothrombin (Factor II) mutations being the most common inherited forms. Antiphospholipid syndrome represented the most frequent acquired thrombophilia. The presence of thrombophilic disorders was associated with an increased risk of recurrent pregnancy loss, preeclampsia, intrauterine growth restriction (IUGR), placental abruption, and other obstetric complications. **Conclusions:** Thrombophilia assessment should be considered in pregnant women with a personal or family history of thromboembolism and in those presenting recurrent pregnancy loss or severe placental complications. Early identification of high-risk patients may contribute to improved maternal and fetal outcomes. Further studies are needed to establish standardized screening and management protocols.

Keywords: thrombophilia; pregnancy; recurrent pregnancy loss; antiphospholipid syndrome; screening.

SEARCHES OF MEDICAL OFFICES: LEGAL PERSPECTIVES

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Abstract

Medical offices are among the primary settings in which healthcare professionals carry out their activities. Legal scholars have expressed differing views regarding the extent to which a search constitutes an intrusion into an individual’s right to privacy. Nevertheless, judicial practice demonstrates that, when healthcare professionals are suspected of committing criminal offenses, a search of a medical office may prove to be a valuable means of identifying and securing relevant evidence.

In general, such searches are most commonly conducted in investigations involving bribery, corruption-related offenses, or abuse of office. Documents and records found within medical offices may serve as important evidence in establishing the commission of the alleged offenses by the accused individuals.

The manner in which searches of medical offices are conducted is of particular importance. These procedures must strictly comply with the applicable rules of criminal procedure, and any deviation from the legal requirements may result in the nullity of the procedure and the exclusion of the evidence obtained.

The purpose of this study is to examine and compare the legal frameworks governing searches of medical offices in different countries, with particular attention to the procedural safeguards designed to balance the interests of criminal investigations with the protection of privacy and professional confidentiality.

Keywords: medical offices, search warrants, procedural safeguards

ISOLATION OF ANTIBIOTIC-RESISTANT BACTERIA FROM PIG FARM WASTE IN VIETNAM

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Abstract

In recent decades, the pig farming industry has expanded rapidly to meet the increasing demand for food, resulting in the widespread use of antibiotics for disease prevention and treatment in livestock. In Vietnam, this issue is of particular concern, as numerous studies have reported high rates of antibiotic resistance among microorganisms associated with livestock farming. The increasing emergence of antibiotic-resistant bacteria not only reduces the effectiveness of antimicrobial therapy in animals but also poses a potential risk to public health through the transmission of resistant bacteria and resistance genes via the food chain and the environment. Therefore, continuous monitoring of antibiotic resistance in livestock-associated microorganisms is essential.

In this study, microorganisms were isolated from pig fecal samples collected directly from pig farms and evaluated for their antibiotic resistance. Isolation on NA medium yielded 21 bacterial strains and 2 fungal strains. Among the bacterial isolates, 06 strains were resistant to the macrolide group, 03 to the beta-lactam group, 02 to both the macrolide and beta-lactam groups, 03 to the macrolide, beta-lactam, and sulfonamide groups, 01 to the macrolide, beta-lactam, and tetracycline groups, and 01 strain was resistant to all four antibiotic groups tested. These findings indicate a relatively high prevalence of antibiotic-resistant bacteria in the study samples, highlighting the need for more responsible antibiotic use, strengthened antibiotic stewardship, and regular surveillance programs to mitigate the spread of antibiotic resistance in pig farming and support sustainable livestock production.

Keywords: Antibiotics, Antibiotic resistance, Pig farming, Antibiotic resistance genes, Antibiotic-resistant bacteria.

EFFECTIVENESS OF ACUPUNCTURE ON LOWER EXTREMITY PERFORMANCE FOR OVERALL HEALTH

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Abstract

Lower extremity muscle strength is a critical determinant of overall physical health, functional independence, and mortality risk. While exercise remains the cornerstone for improving musculoskeletal performance, acupuncture has emerged as a potential adjunctive therapy. However, comprehensive evidence regarding its specific role in enhancing lower extremity function remains limited.

This review synthesizes current evidence on the efficacy of acupuncture in improving lower extremity performance, identifies commonly used acupoints, and elucidates potential mechanisms of action. A systematic literature search was conducted across PubMed, Cochrane Library, and Scopus databases (2016–2026) using keywords related to acupuncture, lower extremities, and performance outcomes. Seven studies meeting inclusion criteria were analyzed, comprising randomized controlled trials and one systematic review with meta-analysis.

The most frequently utilized acupoints included ST36 (Zusanli), ST39 (Shangjuxu), ST34 (Liangqiu), SP6 (Sanyinjiao), SP10 (Xuehai), KI3 (Taixi), and BL60 (Kunlun). Acupuncture interventions demonstrated significant improvements in multiple performance parameters: explosive force production (effect size 1.06–1.86), muscle strength (maximal voluntary contraction increases of 0.27–0.64 effect size), hamstring flexibility (p=0.03), proprioception (WMD 1.71–2.13), and balance (SMD 0.54). Mechanistic pathways involve metabolic regulation via carnitine and glutathione metabolism, neuromuscular enhancement through post-activation potentiation, neurophysiological effects including dopamine-serotonin ratio optimization, and improved sensorimotor integration. Notably, electroacupuncture demonstrated slightly superior effects compared to manual acupuncture, though differences were not statistically significant.

Acupuncture shows promising potential as an effective intervention for improving lower extremity performance through multi-target mechanisms for increasing overall health. However, heterogeneity in acupoint selection, stimulation protocols, and outcome measures necessitates larger, standardized clinical trials to establish definitive evidence for clinical implementation.

Keywords: Acupuncture, Lower Extremity, Performance, Wellness

TRAUMA, MEMORY, AND HEALING IN LOUISE ERDRICH'S *THE SENTENCE*: A MEDICAL HUMANITIES APPROACH

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Abstract

1. Introduction: The interdisciplinary field of Medical Humanities can be of much value to explore the relationship between Literature, Health and Human Experiences of suffering. The present study explores the portrayal of trauma, memory and healing in Louise Erdrich's novel *The Sentence* (2021) from Medical Humanities perspective. This study examines the potential intersection of psychological distress as it is experienced in the context of incarceration, colonial violence, grief, racial injustice, and the Covid19 pandemic. It also examines the contribution of Indigenous culture and connection to community to resilience and recovery.

2. Objectives

- To discuss how *The Sentence* portrays trauma, memory and healing.
- To explore the psychological and social impacts of imprisonment, colonial violence, racism and the Covid-19 pandemic.
- To explore the importance of cultural practices and community care in healing.
- To understand the role of literary narratives in the comprehension of psychological well-being in Medical Humanities.

3. Methodology: This study is using a qualitative research design with a close textual analysis. The exploration is based on the principle of Medical Humanities and takes into account theoretical approaches in trauma studies, psychology and public health. The analysis will mainly look at the experiences of the main character Tookie, the symbolic nature of Flora, and the depiction of memory, loss, and healing in the narrative. Special emphasis is placed on the healing power of storytelling, indigenous practices and rituals.

4. Results and Discussion: Findings show that trauma in *The Sentence* is a phenomenon that is multidimensional and affected by personal, historical and sociocultural experiences. Flora's haunting presence represents unhealed grief and psychological burden, as Indigenous ceremonial practices and community networks promote emotional healing and resilience. As the novel has shown, there are many aspects of recovery beyond biomedical recovery – emotional, cultural, social, and spiritual recovery. In addition, the literary narratives offer new perspectives on health experiences which are not always given prominent attention in traditional medical discourse.

5. Conclusion: In conclusion, the authors argue that *The Sentence* has a valuable contribution to make to Medical Humanities, as it exemplifies the complex interrelationship between trauma, memory and healing. The novel highlights the importance of Indigenous knowledge systems and narrative practices

in promoting psychological recovery. The results suggest that literary texts can be used to improve scientific and interdisciplinary understandings of mental health, resilience and human well-being.

Keywords: *Medical Humanities, Trauma, Memory, Healing, Indigenous Knowledge, Psychological Wellbeing, Louise Erdrich, COVID-19, Resilience.*

SYNTHESIS, STRUCTURAL CHARACTERIZATION, AND BIOLOGICAL ACTIVITY OF A NEW COMPOUND: DIAQUATETRAKIS (PHOSPHORIC ACID) COBALT(II) CHLORIDE DIHYDRATE $[Co(H_3PO_4)_4(H_2O)_2]Cl_2 \cdot 2H_2O$

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Abstract

The cobalt(II) complex, diaquatetrakis(phosphoric acid)cobalt(II) chloride dihydrate, $[Co(H_3PO_4)_4(H_2O)_2]Cl_2 \cdot 2H_2O$, belongs to a class of coordination compounds in which cobalt(II) ions are surrounded by neutral phosphoric acid and water ligands. Such systems are of interest due to their rich hydrogen-bonding networks and potential applications in catalysis, materials science, and bioinorganic chemistry. Investigating their structural and physicochemical properties provides insight into metal–phosphate interactions and the role of hydration in complex stability.

The elaboration and development of innovative multifunctional complexes represent a cross-disciplinary research area. This is not only because of their fascinating structures and diverse forms but also due to their wide-ranging uses in catalysis, magnetism, optoelectronics, biological and medical sciences. In this context, we have focused our work on the synthesis of a new, unreported cobalt(II) complex with the formula $[Co(H_3PO_4)_4(H_2O)_2]Cl_2 \cdot 2H_2O$. This compound crystallizes in the monoclinic $\boldsymbol{P2_1/n}$ space group with lattice parameters a = 7.2317(2) Å, b = 11.0769(2) Å, c = 1.0769(3) Å and β= 100.197(2)°. The structure was solved and refined using full-matrix least-squares methods on F^2, leading to reliability factors R (F) = 4.41% and wR (F^2) = 15.58%. The central cobal(II) ion is coordinated by four O atoms from phosphoric acid ligands and two oxygen atoms from coordinated water molecules, forming a distorted octahedral environment.

The formed layers are interconnected to the framework through O-H…O hydrogen bonds between adjacent ligands. The synthesized complex was further characterized by infrared spectroscopy and thermogravimetric (TG) analysis, confirming its composition and thermal behavior. In addition, Hirshfeld surface analysis was performed to investigate the intermolecular interactions governing crystal packing. The optical properties were examined through band-gap energy determination, providing insight into the electronic characteristics of the material.

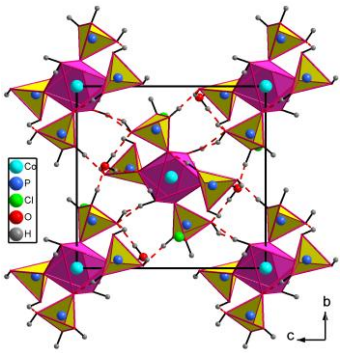

Figure 1: Structure of $[Co(H_3PO_4)_4(H_2O)_2]Cl_2 \cdot 2H_2O$ viewed along the a-axis, showing the succession of mixed layers parallel to the (011) plane. The red dotted lines represent hydrogen bonds.

The biological potential of the compound was evaluated through in vitro antibacterial assays against both Gram-positive and Gram-negative bacterial strains. The results demonstrated promising

antibacterial activity, indicating that this new cobalt(II) phosphoric acid complex may represent a valuable candidate for further bioinorganic and pharmaceutical investigations.

Key words: Cobalt complex, structural study, TG analysis, Band gap Energy, Hirshfeld surface analysis and antibacteriel activity.

SUBCRITICAL WATER EXTRACT FROM *ROSA DAMASCENA* MILL. CAN DECREASE GENOTOXICITY OF DIRECT MUTAGEN MNNG IN HIGHER PLANTS AND HUMAN LYMPHOCYTES *IN VITRO*

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Abstract

Rosa damascena Mill. is known worldwide for its valuable essential oil and other extraction products. Owing to the rich composition of biologically active compounds, rose extracts are widely used in perfumery, cosmetics and show a good **pharmacological potential**. The extraction method applied is of fundamental importance for the biological activity of the extracts. Subcritical water extraction is an eco-friendly technique that has recently caught attention for its reduced energy use, lower safety risks, and high efficiency in extracting valuable biologically active compounds from plants compared to conventional extraction methods.

In the present study, we assess the ability of a *Rosa damascena* Mill. subcritical water extract (SWE) to reduce the genotoxic effect of the direct mutagen N-methyl -N'-nitro-N-nitrosoguanidine (MNNG). We applied experimental schemes with combined treatment with SWE and mutagen using cytogenetic methods for analysis in *Hordeum vulgare* and human lymphocytes *in vitro.* Induction of chromosome aberrations (CA) and micronuclei (MN) were endpoints for genotoxicity and for cytotoxicity - mitotic index (MI) and nuclear division index (NDI).

Our study revealed that combining SWE with MNNG significantly decreased the genotoxic effect of MNNG, lowering ($p < 0.001$) the number of chromosome aberrations and micronuclei in both test-systems. The protective potential of the extract was observed regardless of the experimental conditions, with or without a 4-hour inter-treatment time. A similar mitigation of MNNG-induced genotoxicity was observed when assessing micronucleus frequency after treatment with rose SWE and MNNG in both

test- systems under both treatment schemes. Co-treatment with SWE, also, attenuated the cytotoxicity of MNNG as demonstrated by improvement of the MI and NDI values in both test-systems.

Our data show well expressed cyto-/genoprotective activity of SWE against MNNG, which is probably due to its phytochemical constituents.

The obtained results are promising and demonstrate the potential of this extract as an effective supplement for use in foods and pharmaceutical formulations.

Key words: *R. damascena* Mill. subcritical extract, cytogenetic analysis, protective potential, test-systems

ELECTROACUPUNCTURE IN TRIGEMINAL NEURALGIA: A PROMISING ADJUNCTIVE APPROACH FOR PATIENTS WITH INADEQUATE RESPONSE TO PHARMACOTHERAPY

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Abstract

Trigeminal neuralgia (TN) causes recurrent episodes of severe facial pain and markedly impairs daily activities and quality of life. Anticonvulsants remain the first-line treatment. However, prolonged use may lead to drug intolerance, reduced efficacy, and persistent symptoms in some patients. Electroacupuncture (EA) has shown analgesic benefits in neuropathic pain conditions and may serve as an adjunctive option for patients with refractory TN. This review summarizes current evidence on the efficacy and clinical application of EA in TN management.

We searched PubMed, Scopus, and the Cochrane Central Register of Controlled Trials (CENTRAL) to identify studies investigating EA in patients with TN. We extracted data on treatment protocols, pain outcomes, recurrence, and quality-of-life measures and synthesized the findings narratively.

Five studies met the inclusion criteria. Overall, EA reduced pain intensity, reduced pain frequency, improved sleep disturbances, and enhanced quality of life. One study found that combining EA with pharmacotherapy achieved the greatest reduction in pain attacks compared with other treatment approaches. In contrast, other studies reported no significant differences in pain reduction between EA, pharmacotherapy, and botulinum toxin injection. A systematic review and meta-analysis demonstrated higher treatment responsiveness with combining EA with pharmacotherapy than pharmacotherapy alone (OR=4.22; 95% CI: 2.35–7.57; I^2=0%) and a lower recurrence rate (OR=0.14; 95% CI: 0.05–0.45; I^2=0%). Most studies administered EA once or twice weekly for 30 minutes over four weeks, commonly using ST7, ST2, SI18, LI4, and LR3, with additional points individualized according to the affected trigeminal branch.

Electroacupuncture appears to be a safe and potentially effective adjunctive intervention for trigeminal neuralgia, particularly in patients experiencing inadequate responses to long-term pharmacotherapy. Although current evidence remains limited, EA may serve as a valuable component of integrative pain management strategies for refractory TN, warranting further high-quality randomized controlled studies.

Keywords: electroacupuncture, pain management, tic doloureux, trigeminal neuralgia

CHEMICAL SYNERGISM IN PHARMACEUTICAL FORMULATIONS: A THERMODYNAMIC PERSPECTIVE ON NON-ADDITIVE DRUG SOLUBILIZATION AND STABILIZATION

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Abstract

The development of pharmaceutical formulations often involves the combined use of several excipients to improve drug solubility, dissolution, stability, and bioavailability. In some systems, the observed effect of an excipient mixture differs substantially from the effect expected from the separate action of its individual components. This behaviour is usually described as synergism, but its quantitative interpretation in formulation science remains insufficiently defined.

This work presents a thermodynamic approach for identifying and interpreting chemical synergism in pharmaceutical formulations. The approach is based on non-additivity, where the response of a multicomponent system is compared with the response predicted from the independent contributions of its constituents. Drug–cyclodextrin–amino acid systems are considered as representative examples, since they combine inclusion complexation, acid–base equilibria, ionic interactions, and possible precipitation of poorly soluble drug species.

The analysis distinguishes additive, synergistic, and antagonistic behaviour by comparing observed solubility or stabilization effects with theoretical additive expectations. Particular attention is given to coupled equilibria and cooperative molecular interactions that may enhance apparent solubility and suppress precipitation under physiologically relevant pH conditions. In this context, the free-energy change associated with the deviation from additivity provides a useful thermodynamic measure of the combined excipient effect.

The results indicate that chemical synergism in pharmaceutical formulations can be interpreted as a measurable non-additive effect arising from interactions among formulation components. Establishing quantitative criteria for such behaviour may support the rational design of excipient combinations, reduce empirical screening, and improve the predictive understanding of solubility enhancement and precipitation suppression in drug delivery systems.

Keywords: chemical synergism; non-additivity; pharmaceutical formulations; cyclodextrins; amino acids; drug solubilization; precipitation suppression; thermodynamics.

Acknowledgment: This research was supported by the State Subprogram “Advanced research in computational and ecological chemistry, identification of technological treatment processes and formation of water quality and quantity”, code 010603.

THE ROLE OF ACUPUNCTURE IN WEANING FROM MECHANICAL VENTILATION: A NARRATIVE REVIEW

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Abstract

Weaning from mechanical ventilation (MV) is a critical phase in intensive care, where weaning failure significantly elevates the risk of complications and mortality. While acupuncture has demonstrated positive effects on respiratory functions, clinical studies evaluating complementary therapies in the Intensive Care Unit (ICU) remain remarkably scarce due to profound ethical constraints and complex clinical challenges. Consequently, its specific role in facilitating MV weaning remains poorly synthesized. This narrative review aims to evaluate the scientific evidence regarding the efficacy and underlying mechanisms of acupuncture in MV weaning among critically ill patients. A comprehensive literature search was conducted across PubMed, Embase, and Google Scholar databases using combinations of the keywords: acupuncture, ventilator weaning, mechanical ventilator weaning, and respirator weaning. Applying strict inclusion criteria, the available clinical evidence was identified and analyzed. The reviewed evidence demonstrates that acupuncture significantly enhances MV weaning success through three pivotal mechanisms: optimizing diaphragmatic function, improving respiratory effort efficiency, and modulating the autonomic nervous, neuroendocrine, and immune systems. Furthermore, acupuncture intervention correlates with a reduction in total ventilator days and alleviated patient anxiety during the weaning process. In conclusion, acupuncture serves as a potent intervention to improve respiratory function and facilitate successful MV weaning in critically ill patients. As a safe, non-pharmacological adjuvant therapy, integrating acupuncture into standard intensive care weaning protocols holds substantial clinical promise for accelerating patient recovery, reducing ICU length of stay, and lowering healthcare burdens.

Keywords: Acupuncture, Critically Ill Patients, Ventilator Weaning, Mechanical Ventilation, Intensive Care Unit

THE ROLE OF TACTILITY AND PERCEPTION IN THE TRAINING OF DENTAL TECHNOLOGY AND DENTAL MEDICINE STUDENTS

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Abstract

The education of future dental technicians and dental medicine professionals involves not only the acquisition of theoretical knowledge but also the development of complex psychomotor and sensory abilities. Tactility and perception are essential components of professional competence, as they influence fine motor control, hand–eye coordination, spatial awareness, and the accurate interpretation of clinical and laboratory information.

This paper presents a theoretical review of the importance of tactile perception in the educational process of Dental Technology and Dental Medicine students. The relationship between sensory feedback and practical skill development is discussed, with emphasis on activities requiring precision, such as tooth morphology reproduction, prosthetic fabrication, manipulation of dental materials, clinical examination, and restorative procedures. The role of repeated practical training, simulation environments, and modern educational technologies in improving tactile-perceptual abilities is also analyzed.

Tactile skills develop gradually through experience and structured practice, transforming sensory information into professional actions and decision-making. Understanding the contribution of tactility and perception may support the improvement of teaching methods and curriculum design in dental education.

The paper highlights the need for further experimental studies evaluating tactile sensitivity, perceptual abilities, and their relationship with clinical performance among dental students. Future research could contribute to the development of objective assessment methods and innovative educational strategies aimed at enhancing practical competence.

Keywords: tactility, perception, dental education, dental technology, dental medicine, psychomotor skills, sensory perception.

A TISSUE-ENGINEERING APPROACH TO VASCULAR GRAFT DEVELOPMENT USING HUMAN DECELLULARIZED BLOOD VESSELS AND ADIPOSE-DERIVED MESENCHYMAL STROMAL CELLS

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Abstract

Vascular tissue engineering (VTE) represents a promising approach to address the shortage of suitable vascular grafts for the treatment of vascular diseases. This study aimed to establish a reproducible protocol for the decellularization of human blood vessels and to assess their suitability as biological scaffolds for recellularization with human adipose-derived mesenchymal stromal cells (hADMSCs).

Twenty human blood vessels were decellularized using a detergent-based protocol including SDS, Triton X-100, and antibiotics. Decellularization efficiency was evaluated through histological analyses and residual DNA quantification. hADMSCs were isolated from adipose tissue samples (n = 16), characterized for mesenchymal markers, and induced toward endothelial differentiation using specific growth factors. Differentiated cells were subsequently seeded onto decellularized human blood vessel (Hd-BV) scaffolds.

Histological assessment demonstrated complete cell removal while preserving the extracellular matrix architecture, including collagen and elastic fibers, with minimal residual DNA content. hADMSCs exhibited typical mesenchymal morphology and marker expression, while endothelial induction resulted in the acquisition of a cobblestone-like morphology and expression of endothelial-specific markers. Following seeding onto Hd-BV scaffolds, cells adhered efficiently, remained viable, and formed an intima-like layer along the luminal surface, expressing endothelial markers.

These findings demonstrate that decellularized human blood vessels provide a favorable microenvironment for hADMSC adhesion, survival, and endothelial differentiation, supporting their potential use in the development of functional endothelialized vascular grafts.

Keywords: decellularization; vascular tissue engineering; human adipose tissue-derived stem cells; human blood vessels

BIOTECHNOLOGICAL PRODUCTION OF ACETYLCHOLINESTERASE-INHIBITING ALKALOIDS FROM *UNGERNIA VICTORIS* AND *PTELEA TRIFOLIATA* TISSUE CULTURES

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Abstract

The increasing prevalence of neurodegenerative disorders has intensified the search for sustainable sources of acetylcholinesterase (AChE) inhibitors. This study evaluated the biotechnological potential of *Ungernia victoris* and *Ptelea trifoliata* tissue cultures for the production of the pharmaceutically valuable alkaloids galanthamine and kokusaginine. In vitro propagation, callus induction, indirect organogenesis, and phytochemical analyses were performed using Murashige and Skoog (MS) and Vollosovich (Vch) media supplemented with different combinations of auxins and cytokinins. Alkaloid content was quantified together with antioxidant activity using DPPH and ABTS assays.

Callus cultures of *U. victoris* accumulated substantially higher amounts of galanthamine than naturally grown plants or regenerated plantlets. The maximum galanthamine concentration reached 5.10% DW in callus cultures grown on Vch medium supplemented with 2,4-D (1.0 mg L^{-1}) and kinetin (1.0 mg L^{-1}), whereas regenerated leaves contained up to 1.41% DW, and natural populations contained 0.28–0.64% DW. Similarly, callus cultures of *P. trifoliata* produced the highest kokusaginine content, reaching 1.12% DW on MS medium containing 2,4-D (0.5 mg L^{-1}) and kinetin (0.5 mg L^{-1}), exceeding botanical garden specimens (0.54–0.78% DW), while regenerated plants did not accumulate detectable amounts of this alkaloid. Antioxidant analyses demonstrated that callus cultures exhibited the strongest free radical scavenging activity, with the best DPPH and ABTS performance corresponding to the most productive hormone combinations for secondary metabolite biosynthesis.

The obtained results demonstrate that optimized callus cultures represent an efficient and sustainable platform for producing acetylcholinesterase-inhibiting alkaloids, significantly outperforming naturally grown plants. The developed protocols provide promising opportunities for the conservation of valuable medicinal species while supporting future pharmaceutical production of galanthamine and kokusaginine.

The research was carried out within the framework of the 2025–2029 State Program, “Conservation of Botanical Garden Collections, Introduction of Promising Plant Species, and Their Recommendation for Various Sectors of the Republic”.

Keywords: Alzheimer's disease; acetylcholinesterase inhibitors; galanthamine; kokusaginine; callus culture; plant tissue culture; medicinal plants; *Ungernia victoris.*

CALLUS CULTURES OF INTRODUCED CONIFER SPECIES AS A PROMISING SOURCE OF THE BIOACTIVE ANTIOXIDANT QUERCETIN

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Abstract

Quercetin is one of the most important plant flavonoids due to its pronounced antioxidant, anti-inflammatory, and pharmacological properties. However, its industrial production from natural plant material is constrained by seasonal availability, slow growth of woody species, and environmental variability. Plant tissue culture offers a sustainable alternative for producing biologically active compounds under controlled conditions. The present study evaluated the feasibility of using callus cultures of introduced conifer species as a source of quercetin. Callus cultures were established from selected conifer species maintained in the Tashkent Botanical Garden using Murashige and Skoog medium supplemented with different combinations of auxins and cytokinins. Quercetin content was determined by high-performance liquid chromatography and compared with that of naturally grown plants. The highest quercetin accumulation in callus tissue reached 0.27 mg g^{-1} dry weight in *Abies nordmanniana*, followed by 0.19 mg g^{-1} in *Cryptomeria japonica* and 0.12 mg g^{-1} in *Thuja occidentalis*. Although these values were lower than those measured in mature plants, all investigated species synthesized detectable amounts of quercetin under in vitro conditions. The results demonstrate that secondary metabolite biosynthesis is maintained in callus cultures and can potentially be enhanced through optimization of nutrient media, phytohormone composition, and elicitation strategies. These findings support the use of plant tissue culture as a promising biotechnological platform for sustainable quercetin production while reducing harvesting pressure on valuable woody plant resources.

The research was carried out within the framework of the 2025–2029 State Program, “Conservation of Botanical Garden Collections, Introduction of Promising Plant Species, and Their Recommendation for Various Sectors of the Republic”.

Keywords: quercetin; callus culture; conifers; plant tissue culture; flavonoids; biotechnology; secondary metabolites; HPLC.

IN VITRO BIOTECHNOLOGY AS A PLATFORM FOR THE CONSERVATION OF MEDICINAL PLANTS AND SUSTAINABLE PRODUCTION OF BIOACTIVE COMPOUNDS

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Abstract

Medicinal plants remain one of the most important sources of biologically active compounds used in the prevention and treatment of numerous human diseases. Increasing demand for plant-derived pharmaceuticals, together with the rapid decline of natural populations, highlights the need for sustainable technologies that combine biodiversity conservation with the production of valuable secondary metabolites. Plant tissue culture has emerged as an effective biotechnological platform for the propagation of rare medicinal species and the controlled biosynthesis of pharmacologically important compounds.

This review summarizes current advances in *in vitro* biotechnology for medicinal plants and presents practical experience gained at the Tashkent Botanical Garden. Modern approaches, including micropropagation, callus induction, indirect organogenesis, somatic embryogenesis, and acclimatization, are discussed with particular emphasis on their application to rare and introduced species possessing pharmaceutical potential. The developed protocols for *Ptelea trifoliata*, *Forestiera neo-mexicana*, and *Morus rubra* demonstrate that optimized combinations of plant growth regulators enable efficient regeneration while preserving valuable genetic resources. In addition to rapid multiplication, tissue cultures provide a promising experimental system for producing secondary metabolites such as alkaloids, flavonoids, and other antioxidant compounds with demonstrated neuroprotective, anti-inflammatory, and therapeutic activities.

The experience of the Tashkent Botanical Garden demonstrates that plant tissue culture represents an important component of modern medical biotechnology by linking biodiversity conservation with the production of biologically active compounds for pharmaceutical and healthcare applications.

The research was carried out within the framework of the 2025–2029 State Program, “Conservation of Botanical Garden Collections, Introduction of Promising Plant Species, and Their Recommendation for Various Sectors of the Republic”.

Keywords: medicinal plants; plant tissue culture; micropropagation; bioactive compounds; phytopharmaceuticals; secondary metabolites; medical biotechnology; biodiversity conservation.

PHARMACEUTICAL MARKET TRENDS AND BIOTECHNOLOGICAL PRODUCTION OF GALANTHAMINE FOR ALZHEIMER'S DISEASE THERAPY

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Abstract

Alzheimer's disease is the leading cause of dementia worldwide and represents one of the greatest challenges for modern healthcare because of its increasing prevalence, aging populations, and limited therapeutic options. Among currently available symptomatic treatments, galantamine remains one of the most widely prescribed acetylcholinesterase inhibitors due to its dual mechanism of action, combining reversible inhibition of acetylcholinesterase with positive allosteric modulation of nicotinic acetylcholine receptors. This review evaluates the clinical importance of galantamine, current production technologies, and its pharmaceutical and investment potential in the rapidly expanding market for neurodegenerative disease therapies.

The historical development of galantamine demonstrates the successful transformation of a naturally occurring Amaryllidaceae alkaloid into a globally marketed pharmaceutical product. Traditional production based on extraction from medicinal plants is constrained by low alkaloid content, seasonal availability, and pressure on natural populations, whereas total chemical synthesis remains technologically demanding and expensive. Recent advances in plant biotechnology, particularly the application of *in vitro* cell and tissue cultures, offer a sustainable alternative for standardized galantamine production. Studies on *Ungernia* species indicate that tissue culture technologies provide promising opportunities for scalable production of this pharmacologically important alkaloid while supporting the conservation of endangered medicinal plants.

The global Alzheimer's disease therapeutics market continues to expand, driven by increasing disease prevalence and growing healthcare expenditures. Within this market, galantamine maintains a stable clinical position because of its proven efficacy, established safety profile, and broad availability. Integration of plant biotechnology with pharmaceutical manufacturing represents an innovative strategy for sustainable production of active pharmaceutical ingredients while creating attractive opportunities for biotechnology investment, technology transfer, and future development of plant-derived medicines.

Keywords: Alzheimer's disease; galantamine; acetylcholinesterase inhibitors; plant biotechnology; in vitro culture; pharmaceutical market; neurodegenerative diseases; technology transfer.

WHOLE-FACE DECELLULARIZATION FOR THE GENERATION OF VASCULARIZED EXTRACELLULAR MATRIX SCAFFOLDS

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Abstract

Facial transplantation represents a valuable reconstructive option for patients with severe facial defects; however, complete restoration of aesthetic appearance and function remains challenging. Furthermore, long-term outcomes are limited by lifelong immunosuppression and the risk of graft failure. Decellularized composite tissue scaffolds may provide a promising platform for facial tissue engineering and regenerative reconstruction.

This study aimed to assess the feasibility of generating vascularized whole-face extracellular matrix (ECM) scaffolds while preserving three-dimensional (3D) architecture, ECM composition, and vascular network integrity.

Full-thickness rat faces (n=4), including both ears and harvested with the vascular pedicle consisting of the external carotid artery (ECA) and the external jugular vein (EJV), were obtained from animals sacrificed in accordance with EU directives. Specimens were decellularized in flasks containing Triton, SDS and antibiotics.

Macroscopic evaluation showed preservation of facial architecture with tissue whitening, consistent with effective decellularization. Hematoxylin and Eosin (H&E) staining and residual dsDNA quantification (12.13 ± 2.94 ng/mg dry tissue) confirmed successful cell removal. Sirius Red, Masson's and Mallory's staining, specific quantitative assays for glycosaminoglycans (GAGs), collagen and elastin, and immunohistochemistry for laminin, fibronectin and tenascin showed the preservation of the ECM. Vascular patency was observed by antegrade and retrograde dye injections, showing an even distribution of the dye throughout the decellularized facial graft.

This study demonstrates that the decellularization procedure can be applied to a whole rat face model to produce decellularized ECM composite scaffolds with preserved 3D architecture and vascular network for facial bioengineering applications.

Keywords: Decellularization; Extracellular matrix; Reconstructive surgery; Vascular network

APPLICATION AND CLINICAL SIGNIFICANCE OF ENDOSCOPIC AND MINIMALLY INVASIVE TECHNOLOGIES IN ABDOMINAL SURGERY

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Abstract

Introduction. Along with the increasing number of surgical procedures performed on abdominal organs, the incidence of postoperative intra-abdominal complications remains a significant challenge in clinical practice. These complications can adversely affect patients' quality of life, prolong the duration of hospitalization, increase the need for repeat surgical interventions, and, in some cases, result in high mortality rates. In this regard, the early diagnosis of such complications and their management using minimally traumatic approaches are considered among the principal directions of modern surgery.

The aim of the study was to develop modern methods for the diagnosis and treatment of early postoperative adhesive intestinal obstruction.

Materials and Methods. The study included 70 patients who had undergone various abdominal surgical procedures and were divided into two groups: the study group (n=46) and the control group (n=24). Patients were diagnosed with adhesive intestinal obstruction in the early postoperative period.

Patients in the control group underwent relaparotomy, whereas those in the study group were treated by relaparoscopy.

The numerical data obtained during the study were statistically analyzed using the nonparametric – Wilcoxon (Mann-Whitney U) test to assess differences between the groups.

Results and Discussion. Preoperative ultrasonographic examination revealed the intraluminal fluid sequestration syndrome in 40 (86.9%, p=0.615) patients, antiperistalsis in 36 (78.3%, p=0.003) patients, and thickening of the small intestinal wall exceeding 6 mm in 11 (23.9%, p<0.001) patients. 5 (57.2%, p<0.001) patients were found to have free fluid in the abdominal cavity, while in 5 (28.6%, p=0.330) patients, peristalsis was completely absent. As a result of the conducted study, intraoperative complications were observed in 8 (33.3%, p=0.009) patients included in the control group, postoperative complications were recorded in 5 (20.8%, p=0.006) patients, and 4 (16.6%, p=0.021) patients died. In the main group, although intraoperative complications were observed in 4 (8.7%, p=0.009) patients, no postoperative complications or mortality were recorded.

Different results were also obtained regarding the duration of surgery and the length of hospital stay of the patients (M±m). Thus, in patients of the control group, the operation was performed within 65.5±8.5 minutes, whereas in the main group it was completed within 48.2±5.3 minutes (p=0.051). Patients in the main group recovered more rapidly and had a shorter hospital stay, with a mean duration of 5.8±2.3 days compared with 14.5±3.4 days in the control group (p=0.045).

In conclusion, it can be stated that the application of endoscopic and minimally invasive technologies in abdominal surgery enables the expansion of diagnostic capabilities, reduction of surgical trauma, and, most importantly, improvement of treatment effectiveness, thereby enhancing patients' quality of life. In recent years, the advancement of medical technologies, video camera systems, optical equipment, and surgical instruments, including laparoscopic and endoscopic techniques, has created opportunities for further improvement of abdominal surgery in the future, as well as for enhancing safety in both diagnostic and therapeutic aspects.

Keywords: surgery, adhesive intestinal obstruction, relaparotomy, relaparoscopy.

MODERN POSSIBILITIES OF LAPAROSCOPIC APPROACHES IN THE DIAGNOSIS AND TREATMENT OF POSTOPERATIVE PERITONITIS

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Abstract

Relevance of the topic. Despite the advances in modern surgery, the widespread implementation of minimally invasive technologies, and the significant improvement of diagnostic capabilities, the early detection, accurate assessment, and selection of the optimal treatment strategy for postoperative intra-abdominal complications remain highly relevant challenges in contemporary surgical practice. In this regard, scientific research aimed at improving the effectiveness of surgical treatment, reducing postoperative complications, and enhancing patients' quality of life is of great importance for both theoretical and clinical medicine.

The aim of the study was to comparatively evaluate the applicability of modern diagnostic and treatment methods for postoperative peritonitis and to identify the advantages of minimally invasive technologies.

Materials and Methods. The study was conducted on 102 patients who exhibited clinical signs of peritonitis in the early postoperative period. Relaparoscopy was performed in 72 patients, whereas 30 patients underwent relaparotomy. Patients who underwent relaparotomy were assigned to the control group, while those who underwent relaparoscopy were included in the study group.

The numerical data obtained during the study were statistically analyzed using the nonparametric – Wilcoxon (Mann-Whitney U) test to assess differences between the groups.

Results and Discussion. During laparoscopy, localized peritonitis was identified in 23 (37.7%) patients, while diffuse peritonitis was detected in 38 (62.3%) patients. Similarly, in the control group, 11 (36.6%) patients were found to have localized peritonitis, whereas 19 (63.4%) patients had diffuse peritonitis. No significant difference was observed between the groups regarding the extent of peritonitis, with diffuse peritonitis predominating in the majority of patients.

A comparative analysis of the outcomes of surgical interventions performed for peritonitis demonstrated more favorable clinical results in the study group.

Specifically, postoperative complications were recorded in only 7 (9.7%) patients in the study group, whereas this figure was 11 (36.6%) patients in the control group. The difference between the groups was statistically highly significant ($p=0.001$).

The effectiveness of the treatment methods was also reflected in the duration of the surgical procedure and the length of hospital stay. The mean duration of therapeutic relaparoscopy was 19.3±4.7 minutes, while the average postoperative hospital stay was 13.5±2.3 days. In patients who underwent relaparotomy, the mean operative time was 55.2±15.9 minutes, and the average duration of hospital stay was 25.8±12.4 days. Differences in both parameters were statistically significant ($p<0.001$). Furthermore, the mortality rate was 8.3% (n=6) in the study group and 43.3% (n=11) in the control group, with the difference being statistically significant ($p<0.001$).

Conclusion. Thus, the obtained results demonstrate that, compared with relaparotomy, relaparoscopy is not only a less invasive approach but also contributes to a shorter operative time, a significant reduction in the length of hospitalization, and a lower incidence of postoperative complications. Moreover, its use is associated with a substantial decrease in mortality, confirming the advantages of minimally invasive technologies in the diagnosis and treatment of postoperative peritonitis. This further confirms that relaparoscopy is a more effective and safer method for the management of patients with peritonitis.

Keywords: surgery, peritonitis, relaparotomy, relaparoscopy

PATHOGENETIC ASPECTS OF THE JOINT IMPACT OF HYPOXIC AND INFECTIOUS FACTORS ON THE FUNCTION OF ENDOCRINE GLANDS

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Abstract

Relevance of the Topic. Hypoxia and infectious processes are considered among the major etiopathological factors that disrupt homeostasis in the body. These factors can significantly affect the functioning of the endocrine system, leading to disturbances in hormonal regulation, metabolic alterations, and the development of organ damage. It is well known that the endocrine system, particularly the thyroid and adrenal glands, due to their high metabolic activity, is especially sensitive to oxygen deficiency and infectious toxins. Under the influence of these factors, these glands undergo morphological and functional alterations of varying severity. These alterations may lead to impaired hormone synthesis, weakening of adaptive mechanisms and immune responses, as well as exacerbation of existing diseases.

Therefore, investigating the combined effects of hypoxia and infection on endocrine glands is of considerable scientific and practical importance for the early diagnosis of endocrine dysfunctions and for improving preventive and therapeutic strategies.

The main objective of the study was to comprehensively investigate, using an experimental model, the pathogenetic aspects of the combined effects of hypoxic and infectious factors on the morpho-functional state of the thyroid and adrenal glands.

Materials and Methods. The experimental study was conducted on laboratory rats. Following intraperitoneal inoculation with a *Staphylococcus aureus* culture, the animals were maintained for 15 and 30 days in a specially ventilated hypobaric chamber with atmospheric pressure corresponding to an altitude of 2,000–3,000 meters above sea level. During the experiment, the temperature inside the hypobaric chamber was maintained at 19-20°C. To remove carbon dioxide generated during respiration, granules of soda lime containing 81% $Ca(OH)_2$, 3.4% NaOH, and 15.6% H_2O were used. Experimental animals were divided into two groups: a control group and an experimental group. No interventions were performed on the control group animals (n = 10), whereas a combined hypoxic and infectious model was established in the 30 animals of the experimental group. At the end of the study, specimens obtained from the thyroid and adrenal glands were comprehensively examined using histological and morphometric methods.

Results. The experimental study demonstrated that the combined effects of hypoxic and infectious factors induce significant morpho-functional alterations in both the thyroid and adrenal glands. These changes were primarily characterized by alterations in the ratio of epithelial to connective tissue components. However, the obtained results showed that the adrenal glands exhibited greater sensitivity to these pathological influences compared with the thyroid gland.

On the 15th day of the experiment, the effects of stress factors were characterized in both glands by pronounced destructive changes in the epithelium. In the thyroid gland, some cells, and in the adrenal gland, the majority of adrenocorticocytes, were arranged in separated clusters, with the formation of slit-like spaces between them. In addition, necrobiotic and necrotic processes led to depletion of the parenchymal cells through atrophy and apoptosis. At the same time, the interstitial spaces became markedly enlarged, and focal or diffuse hypertrophy and proliferation of connective tissue developed. Stromal proliferation continued to increase throughout the course of the experiment and became even more pronounced by the end of the study (day 30). As a result, a significant reduction in the number of parenchymal cells was observed.

In the examined animals, the proportion of adrenocorticocytes decreased to 26.1% in the zona glomerulosa, 24.3% in the zona fasciculata, and 32.4% in the zona reticularis. Compared with the control

group, these values were lower by 19.7%, 20.3%, and 12.7%, respectively (p=0.001). The proportion of thyrocytes was also reduced, accounting for 27.3% in the central region and 15.8% in the peripheral region of the thyroid gland, which was 6.5% (p=0.001) and 7.1% (p=0.065) lower, respectively, than the corresponding values in the control group.

Conclusion. Thus, the combined effects of hypoxic and infectious factors intensify destructive processes in both the thyroid and adrenal glands. Although the thyroid gland exhibits relatively greater resistance, prolonged exposure to these pathological influences ultimately leads to significant morpho-functional alterations, as evidenced by the findings at the end of the study. These alterations contribute to the development of hormonal imbalance in the body and lead to the impairment of metabolic mechanisms and adaptive responses. The obtained findings have important scientific and practical significance for the early diagnosis and targeted correction of endocrine dysfunctions.

Keywords: hypoxia, infection, endocrine glands, hormonal imbalance, thyroid gland, adrenal gland, thyrocytes, adrenocorticocytes.

ÜÇÜNCÜ BASAMAK BİR ÜNİVERSİTE HASTANESİNDE SAĞLIK ÇALIŞANLARININ SESSİZ İSTİFA TUTUMLARININ DEĞERLENDİRİLMESİ

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Özet

Sessiz istifa (Quiet Quitting), çalışanın işini fiilen bırakmadan yalnızca görev tanımının asgari gerekliliklerini yerine getirmeyi tercih etmesi olarak tanımlanmaktadır. Sağlık hizmetleri gibi yüksek risk ve yoğun duygusal emek gerektiren sektörlerde hasta güvenliğini ve bakım kalitesini doğrudan tehdit eden bir örgütsel davranış biçimi olarak değerlendirilmektedir. Bu çalışma, üçüncü basamak bir üniversite hastanesinde görev yapan sağlık profesyonellerinin sessiz istifa tutumlarını sosyodemografik ve mesleki değişkenler bağlamında çok boyutlu olarak ele almayı amaçlamaktadır.

Kesitsel ve tanımlayıcı tasarımla yürütülen araştırmaya, 1272 kişilik evrenden G*Power analizi ile belirlenen asgari örneklem büyüklüğü gözetilerek gönüllülük esasıyla katılan 233 sağlık çalışanı (109 hekim, 60 intörn hekim, 64 hemşire) dahil edilmiştir. Ölçüm aracı olarak Kişisel Düşünce, Olumlu Tutum ve Mobbing Algısı alt boyutlarından oluşan, geçerlik ve güvenirliği kanıtlanmış Sessiz İstifa Tutum Ölçeği (SİTÖ) kullanılmış; veriler tek yönlü MANOVA, ANOVA/Welch ve post-hoc testleri aracılığıyla analiz edilmiştir.

Bulgular, örneklemin orta düzeyde sessiz istifa tutumu sergilediğini ortaya koymaktadır (SİTÖ toplam puan ortalaması: 3,31). Alt boyut analizlerinde mobbing algısının yüksek (Ort.=4,16), örgüte yönelik olumlu tutumun ise belirgin biçimde düşük (Ort.=2,41) olduğu saptanmıştır. Çok değişkenli analizler; şiddet ve mobbing maruziyeti, ekonomik yetersizlik algısı ile iş-yaşam dengesinin bozulmasının sessiz istifa tutumunun en güçlü yordayıcıları olduğunu göstermektedir ($p<0,05$). Kadro değişkeni açısından hemşirelerin Kişisel Düşünce ($p<0,05$) ve Mobbing Algısı ($p<0,001$) puanları hekimlere kıyasla istatistiksel olarak anlamlı düzeyde yüksek; Olumlu Tutum puanları ise anlamlı biçimde düşük ($p=0,012$) bulunmuştur. Mesleki kıdem açısından on yıl ve üzeri deneyime sahip çalışanların Kişisel Düşünce puanlarının belirgin biçimde yükseldiği saptanmıştır ($p<0,05$).

Sağlık çalışanlarında sessiz istifa tutumu orta düzeydedir; ancak mobbing algısı yüksek, kuruma yönelik olumlu tutum ise zayıftır. Hemşireler, deneyimli çalışanlar ve şiddet/mobbinge maruz kalanlar özellikle risk altındadır. Adil ödüllendirme sistemleri, şiddete karşı önleyici programlar, ücret eşitliği ve destekleyici liderlik anlayışının hayata geçirilmesi sağlık kurumlarında sessiz istifanın tutumunun azaltılmasına katkı sağlayabilir.

Anahtar Kelimeler: Sessiz İstifa, Tutum Ölçeği, Sağlık Çalışanları, Tükenmişlik, Üçüncü Basamak Hastane

EVALUATION OF QUIET QUITTING ATTITUDES AMONG HEALTHCARE WORKERS IN A TERTIARY UNIVERSITY HOSPITAL

Abstract

Quiet quitting (QQ) is defined as an employee choosing to fulfill only the minimum requirements of their job description without actually resigning. It is regarded as an organizational behavior that directly threatens patient safety and quality of care in sectors requiring high-risk decision-making and intensive emotional labor, such as healthcare. This study aims to comprehensively examine the quiet quitting attitudes of healthcare professionals employed at a tertiary university hospital within the context of sociodemographic and occupational variables.

This cross-sectional and descriptive study included 233 healthcare workers (109 physicians, 60 intern physicians, and 64 nurses) who participated on a voluntary basis, with the minimum sample size determined through G*Power analysis from a target population of 1,272. The Quiet Quitting Attitude Scale (SİTÖ), a validated and reliable instrument comprising three subscales (Personal Thoughts, Positive Attitude, and Perception of Mobbing) was administered as the measurement tool. Data were analyzed using one-way MANOVA, ANOVA/Welch, and post-hoc tests.

Findings indicate that participants exhibited a moderate level of quiet quitting attitude (mean total SİTÖ score: 3.31). Subscale analyses revealed that Perception of Mobbing was markedly high (mean=4.16), whereas Positive Attitude toward the organization was considerably low (mean=2.41). Multivariate analyses demonstrated that exposure to violence and mobbing, perception of economic inadequacy, and work-life imbalance were the strongest predictors of quiet quitting attitudes ($p<0.05$). Regarding staff composition, nurses scored significantly higher than physicians on Personal Thoughts ($p<0.05$) and Perception of Mobbing ($p<0.001$) subscales, while their Positive Attitude scores were significantly lower ($p<0.05$). In terms of professional experience, Personal Thoughts scores were found to increase markedly among workers with ten or more years of seniority ($p<0.05$).

Quiet quitting attitudes among healthcare workers are at a moderate level; however, perception of workplace mobbing is high and positive organizational commitment remains weak. Nurses, experienced staff, and those exposed to violence and mobbing are particularly at risk. Implementation of fair reward systems, anti-violence prevention programs, pay equity policies, and supportive leadership approaches may contribute to reducing quiet quitting attitudes in healthcare institutions.

Keywords: Quiet Quitting, Attitude Scale, Healthcare Workers, Burnout, Tertiary Care Hospital

ÜÇÜNCÜ BASAMAK BİR ÜNİVERSİTE HASTANESİNDE ASİSTAN HEKİMLERİN KRONİK AĞRILI HASTALARA YÖNELİK TUTUMLARININ DEĞERLENDİRİLMESİ

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Özet

Amaç: Bu çalışma, üçüncü basamak bir üniversite hastanesinde görev yapan asistan hekimlerin kronik ağrılı hastalara yönelik tutumlarını ve bu tutumları etkileyen mesleki değişkenleri incelemeyi amaçlamaktadır.

Gereç ve Yöntem: Kesitsel tasarımlı çalışma, Van Yüzüncü Yıl Üniversitesi Tıp Fakültesi Hastanesi'nde Ocak–Mayıs 2026 tarihleri arasında yürütülmüş; dahili ve cerrahi tıp birimlerinden 214 asistan hekim örnekleme dahil edilmiştir. Veri toplama aracı olarak Sağlık Çalışanlarının Kronik Ağrılı Hastalara Yönelik Tutum Ölçeği (SÇKAHYTÖ) kullanılmıştır. Ölçek; duyarlılık yönelimi (11 madde) ve yanılgı yönelimi (7 madde) olmak üzere iki alt boyuttan oluşmaktadır. Analizlerde bağımsız örneklem t-testi, tek yönlü ANOVA ve Spearman korelasyon analizi uygulanmıştır.

Bulgular: Katılımcıların yaş ortalaması 31,13±5,12 yıl olup %58,9'u erkektir. Duyarlılık yönelimi puan ortalaması 3,66±0,58, yanılgı yönelimi puan ortalaması 3,04±0,61 ve toplam tutum puanı 3,42±0,48 olarak saptanmıştır. Kronik ağrı yönetiminde kendini yeterli hisseden hekimlerde her iki alt boyut puanı anlamlı düzeyde daha yüksek bulunmuştur (duyarlılık: p=0,005; yanılgı: p=0,015). Klinikte yeterli zaman ayırabildiklerini bildiren hekimlerde de benzer farklılık gözlemlenmiştir (duyarlılık: p=0,029; yanılgı: p=0,033). Günlük 80 ve üzeri hasta muayene edenlerde duyarlılık puanı anlamlı biçimde düşük saptanmıştır (F=3,554, p=0,008). Anesteziyoloji-Reanimasyon ve Fiziksel Tıp-Rehabilitasyon asistanları, diğer branşlara kıyasla anlamlı düzeyde yüksek duyarlılık puanlarına sahip olmuştur (F=3,189, p=0,001). Tükenmişlik algısının düşük olduğunu bildirenlerde yanılgı yönelimi puanı anlamlı biçimde yüksek bulunmuştur (p=0,002). Cinsiyet, yaş, medeni durum ve mesleki deneyim süresine göre anlamlı farklılık saptanmamıştır.

Sonuç: Asistan hekimlerin kronik ağrılı hastalara yönelik tutumları orta düzeyde olumlu olmakla birlikte, yanılgı ve önyargılar eş zamanlı olarak varlığını sürdürmektedir. Yüksek hasta yükü ve tükenmişlik algısı tutumları olumsuz etkileyen başlıca sistemik etkenlerdir. Bulgular, tutum geliştirmeye yönelik müdahalelerin biyopsikososyal model temelli eğitim, müfredat reformu ve kurumsal politikalar düzeyinde ele alınması gerektiğine işaret etmektedir.

Anahtar Kelimeler: Kronik Ağrı, Asistan Hekim, Tutum Ölçeği, Biyopsikososyal Model

ASSESSMENT OF RESIDENT PHYSICIAN'S ATTITUDES TOWARD PATIENTS WITH CHRONIC PAIN AT A TERTIARY CARE UNIVERSITY HOSPİTAL

Abstract

Objective: This study aimed to evaluate the attitudes of resident physicians at a tertiary care university hospital toward patients with chronic pain and to examine the professional variables associated with these attitudes.

Materials and Methods: This cross-sectional study was conducted between January and May 2026 at Van Yüzüncü Yıl University Faculty of Medicine Hospital, enrolling 214 resident physicians from internal medicine and surgical departments. The Health Care Professionals' Attitudes Toward Patients with Chronic Pain Scale (HCPACPS), comprising two subscales — sensitivity orientation (11 items) and fallacy orientation (7 items) — was used as the primary measurement tool. Independent samples t-test, one-way ANOVA, and Spearman correlation analysis were applied.

Results: The mean age of participants was 31.13±5.12 years; 58.9% were male. Mean scores were 3.66±0.58 for sensitivity orientation, 3.04±0.61 for fallacy orientation, and 3.42±0.48 for the total attitude score. Physicians who perceived themselves as competent in chronic pain management scored significantly higher on both subscales (sensitivity: p=0.005; fallacy: p=0.015). Physicians reporting sufficient clinical time showed similarly higher scores (sensitivity: p=0.029; fallacy: p=0.033). Sensitivity scores were significantly lower among physicians seeing 80 or more patients daily (F=3.554, p=0.008). Anesthesiology-Reanimation and Physical Medicine-Rehabilitation residents demonstrated significantly higher sensitivity scores compared to other specialties (F=3.189, p=0.001). Physicians with lower perceived burnout reported significantly higher fallacy orientation scores (p=0.002). No significant differences were found according to gender, age, marital status, or years of experience.

Conclusion: Resident physicians demonstrated moderately positive attitudes toward patients with chronic pain; however, misconceptions and biases persisted concurrently. High patient workload and perceived burnout emerged as the primary systemic factors adversely affecting attitudes. These findings indicate that attitude improvement in chronic pain management requires intervention not only at the individual level but also through biopsychosocial model-based education, curriculum reform, and institutional policy development.

Keywords: Chronic Pain, Resident Physician, Attitude Scale, Biopsychosocial Model

TIBBİ UYGULAMALARDA KÖTÜ HABER VERME

Prof Dr Dilek TOPRAK

İstanbul Atlas Ün, Tıp Fak, Aile Hekimliği AD

Özet

Kötü haber verme, sağlık profesyonellerinin meslek yaşamlarında sıklıkla karşılaştıkları ancak çoğu zaman yeterli eğitim almadan yürütmek zorunda kaldıkları karmaşık bir iletişim sürecidir. Kötü haber; bireyin mevcut yaşam düzenini, geleceğe ilişkin beklentilerini ve psikolojik iyilik halini olumsuz etkileyen bilgi olarak tanımlanmaktadır. Kanser tanısı, ölümcül hastalıklar, tedavi başarısızlıkları veya ölüm haberleri bu kapsamda değerlendirilmektedir. Kötü haberin verilme şekli, hastanın hastalığa uyumu, tedaviye katılımı, psikolojik durumu ve sağlık çalışanına duyduğu güven üzerinde doğrudan etkili olmaktadır. Bu makalede kötü haber verme sürecinin etik temelleri, hasta ve hekim üzerindeki etkileri, hastaların verdikleri psikolojik tepkiler ve günümüzde yaygın olarak kullanılan SPIKES, ABCDE ve BREAKS protokolleri incelenmiştir. Literatür verileri, yapılandırılmış iletişim modellerinin hem hasta memnuniyetini artırdığını hem de sağlık çalışanlarının yaşadığı mesleki stresi azalttığını göstermektedir.

Anahtar Kelimeler: Kötü haber verme, hekim-hasta iletişimi, SPIKES, tıbbi etik, hasta psikolojisi.

10/07/2026

Topic: Akademik Teşvik **CA-26.25000**

İlgili makama;

9. Tıp ve Sağlık Bilimleri Kongresi 05-09 Temmuz 2026 tarihleri arasında Kıbrıs Final Üniversitesi'nde 27 farklı ülkenin akademisyen/araştırmacılarının katılımıyla gerçekleşmiştir. Kongre kapsamında sunumu yapılan 264 bildirinin 128 adeti Türkiye'den katılımcılar tarafından; 136 bildiri ise 26 ülkeden katılımcılar tarafından sunulmuştur. Kongre 16 Ocak 2020 Akademik Teşvik Ödeneği Yönetmeliğine getirilen "Tebliğlerin sunulduğu yurt içinde veya yurt dışındaki etkinliğin uluslararası olarak nitelendirilebilmesi için Türkiye dışında en az beş farklı ülkeden sözlü tebliğ sunan konuşmacının katılım sağlaması ve tebliğlerin yarıdan fazlasının Türkiye dışından katılımcılar tarafından sunulması esastır." değişikliğine uygun düzenlenmiştir.

Prof. Dr. H. Turan AKKOYUN
PRESIDENT OF THE CONGRESS

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