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Reproductive Health / OBGYN Session

MODERN PRINCIPLES OF CERVICAL CANCER PREVENTION

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Abstract

Cervical cancer remains a major global public health challenge, despite being one of the most preventable malignancies in women. Modern principles of prevention are grounded in a comprehensive understanding of the natural history of human papillomavirus (HPV) infection, the etiological agent responsible for nearly all cases of cervical cancer. Contemporary strategies integrate primary, secondary, and emerging tertiary preventive approaches, combining vaccination, evidence-based screening, and improved management of precancerous lesions. This multifaceted model has reshaped global recommendations and significantly reduced cervical cancer incidence in regions with established programs.

Primary prevention centers on HPV vaccination, which represents the most effective tool for interrupting carcinogenic HPV transmission and subsequent disease progression. Prophylactic vaccines, including the bivalent, quadrivalent, and nonavalent formulations, provide high efficacy against persistent infection and high-grade lesions caused by oncogenic HPV types. Global implementation of vaccination programs targeting adolescents before sexual debut has demonstrated dramatic reductions in HPV prevalence, genital warts, and cervical intraepithelial neoplasia grades 2 and 3 (CIN2/3). Increasingly, recommendations include gender-neutral vaccination to enhance herd immunity and reduce transmission across populations. Despite these advances, disparities persist in vaccine availability, uptake, and public acceptance, highlighting the need for intensified public health education and equitable access.

Secondary prevention relies on organized cervical screening programs designed to detect precancerous lesions before progression to invasive cancer. The shift from cytology-based screening (Pap smears) to high-risk HPV DNA testing reflects a major evolution in screening practice. HPV testing offers superior sensitivity, longer screening intervals, and the ability to identify women at highest risk. Co-testing with HPV and cytology is still employed in some settings, while others adopt HPV testing alone as the primary modality. Advances such as molecular genotyping, automated cytology, and self-sampling techniques further enhance accessibility, compliance, and diagnostic accuracy, particularly in low-resource settings.

Tertiary prevention—or the prevention of recurrence and progression after diagnosis—includes optimized management of CIN and improved follow-up systems. Minimally invasive treatments, including ablative and excisional techniques, effectively eradicate high-grade lesions but must be balanced against reproductive risks. Individualized management based on risk stratification models, including the incorporation of HPV genotyping and previous screening history, aims to minimize overtreatment while preserving excellent oncological outcomes. Digital health systems and registry-based recall programs are increasingly used to ensure adherence to surveillance recommendations, reducing the likelihood of progression to invasive cancer.

Globally, efforts to eliminate cervical cancer as a public health problem have been formalized by the World Health Organization (WHO), which established the 90-70-90 targets: 90% of girls fully vaccinated with HPV vaccine by age 15; 70% of women screened at least twice in their lifetime with a high-performance test; and 90% of women with cervical disease receiving appropriate treatment. Achieving these targets requires coordinated national programs, strengthened health systems, and sustained political commitment.

In conclusion, modern cervical cancer prevention is characterized by a synergistic combination of vaccination, advanced screening technologies, and tailored management of precancerous disease. Continued innovation, global collaboration, and equitable access are essential to achieving long-term reductions in cervical cancer incidence and mortality worldwide.

THE IMPORTANCE OF MINIMALLY INVASIVE GYNECOLOGICAL SURGERY IN PELVIC MEDICINE

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Summary:

INTRODUCTION AND OBJECTIVE: It is undeniable that pelvic health and minimally invasive gynecological surgery are closely related. Likewise, the introduction of new minimally invasive diagnostic and therapeutic procedures has made a major qualitative step forward in the diagnosis and treatment of gynecological patients. Without knowledge of modern methods of minimally invasive gynecological surgery, the daily clinical work of gynecological surgeons is unthinkable today.

MATERIAL AND METHODS: Compared to classical surgical procedures, it is certain that the minimally invasive approach in gynecological surgery today has no alternative, especially in the context of pelvic medicine. It is undeniable that new generations of gynecological endoscopists have already acquired a quality foundation for performing modern minimally invasive surgical procedures during their specialization. The importance of quality education and continuous improvement is of great importance, because the aforementioned represents a guarantee of quality and enables a significant role in the diagnosis and treatment of many gynecological entities. Today, the daily work of gynecological practitioners is unthinkable without the use of modern minimally invasive diagnostic methods, and it is certain that their role will be even greater in the future, especially in the context of protecting pelvic health.

RESULTS: The benefits that the minimally invasive approach in gynecological surgery has brought to our patients are truly great. At the same time, the aforementioned minimally invasive surgical gynecological procedures enable a much better approach for the benefit of our patients. With the advancement of robotic surgery, the quality of minimally invasive gynecological surgery is being further improved and brings numerous benefits to our patients, which were not even imaginable until recently. We must especially boast about more than three decades of tradition of minimally invasive gynecological surgery in Zabok and Croatia: It is undeniable that we have been developing the aforementioned methods since 1994, when we performed the first laparoscopic hysterectomy in the Republic of Croatia and Southeast Europe, under the leadership of Prof. Kopjar.

CONCLUSIONS; It is certain that with the concept of integrative pelviperineology, minimally invasive gynecological surgery has gained increasing importance in the field of pelvic health and pelvic medicine. The most significant steps have been taken in the field of minimally invasive gynecological surgery, especially in the field of alternatives to hysterectomies. At the same time, considerations of the concept of preventing the removal of organs, in this case the uterus, with the application of other methods of minimally invasive gynecological surgery are increasingly emphasized. The aforementioned approach raises the level of pelvic medicine, actively works on preserving pelvic health. Similarly, actively works on preventing later complications. In addition, the level of safety of the surgical procedures themselves is

significantly raised, their quality is improved, and a higher level of satisfaction is ensured for our patients.

Keywords: Minimally invasive gynecological surgery, pelvic medicine, pelvic health

THE ROLE OF PELVIC FLOOR PHYSIOTHERAPY AS FIRST-LINE TREATMENT FOR THE URINARY INCONTINENCE

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Abstract

The frequency of urinary incontinence (UI) is difficult to determine, and there is no unequivocal data indicating the percentage of people suffering from this disorder. According to the data adopted during the 6th International Consultation on Incontinence (ICI), the problem of UI ranges from 4% to 8%. In 2008, 346 million people suffered from UI, while in 2013, 383 million. Pelvic Floor Physiotherapy (PFP) is a highly effective, non-invasive, first-line treatment for urinary incontinence (UI), especially stress UI, by strengthening, coordinating, and retraining pelvic floor muscles (PFMs) to improve bladder control, often curing symptoms or significantly improving quality of life. It involves specialized exercises (beyond simple Kegels) and lifestyle changes to build muscle strength, improve neuromuscular control, and manage urgency, making it a safe and recommended initial approach before more invasive options. Based on etiology and pathophysiology, UI is classified into 3 types: Stress UI (SUI), Urge UI (UUI), and Mixed UI (MUI). SUI is defined as the involuntary leakage of urine during exertion, such as coughing, sneezing, or laughing. An increase in abdominal pressure due to physical exertion puts stress on the bladder, causing urine to leak. The basic mechanisms responsible for that reaction are poor urethral support by the pelvic floor muscles and intrinsic sphincter deficiency. Many factors predisposing to SUI are identified in the related literature, and among others, these are as follows, numerous births, previous operations, generalized weakening of connective tissue, hormone deficiency, genital mutilation, or reduction of reproductive organs. UUI (commonly referred to as “overactive bladder”) is the involuntary leakage of urine preceded by a strong and sudden urge to urinate. This incontinence is usually caused by involuntary contractions of the detrusor muscles of the bladder wall at inappropriate times. UUI may be triggered by simple everyday occurrences, such as the sound of running water, exposure to cold temperatures, or drinking cold beverages. Idiopathic etiologic factors include myogenic, neurogenic, and urethrogenic symptoms. MUI is a mixture of SUI and UUI. Etiologic factors for MUI are also a combination of the factors described earlier. Physiotherapy seems to be an important part of conservative treatment of UI. Pelvic floor muscle training (PFMT) stands out among physiotherapy methods used in the treatment of UI. The scientific basis for pelvic floor muscle rehabilitation was founded by an American gynecologist Arnold Kegel, who, in the 1950s, published results of a 15-year-old study, which covered the use of pelvic floor exercises in patients with UI. Kegel pointed out that systematic muscle activity causes muscles to lose 4 times less of their mass than compared with staying inactive, and hence it is the optimal method for improving the anatomical and functional impairment of muscles. Systematic activity of contractile fragments of impaired muscles improves their coordination. This contributes to a better urethral compression, when the intra-abdominal pressure increases, during exercise. Performing pelvic floor exercises correctly, especially in sensorimotor training sessions, leads to regaining proprioception in the levator ani.

MATERNAL AND NEONATAL OUTCOMES OF DİABETES İN PREGNANCY İN NORTH MACEDONİA

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This presentation reports findings from a retrospective cohort study of 425 pregnancies complicated by diabetes in North Macedonia, with a focus on gestational diabetes mellitus (GDM). GDM was the dominant diagnosis (78.8% of cases), and diet alone was sufficient management for 84.8% of GDM patients, while pregestational Type 1 and Type 2 DM required insulin in nearly all cases.
The study revealed a notably high overall cesarean section rate of 68.7%, with pregestational DM carrying more than twice the odds of cesarean delivery compared to GDM. Neonatal outcomes showed a dual growth pattern — macrosomia (11.0%) and low birth weight (15.6%) coexisting — reflecting both fetal overgrowth and placental insufficiency. Pregestational DM was associated with significantly worse neonatal outcomes, including a 3-fold higher preterm birth rate and an 8.5-fold increased risk of 5-minute Apgar score below 7 compared to GDM.
The presentation also covers broader clinical context, including the global rise of obesity in women, the multifactorial risks of maternal obesity on pregnancy and offspring, glycemic targets during pregnancy, and evidence-based management strategies — encompassing medical nutrition therapy, physical activity, glucose monitoring, psychological support, and postpartum care.

POSTPARTAL PSYCHOSIS - CLINICAL APPROACH AND MANAGEMENT WITH CASE REPORTS

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Summary:

Postpartum psychosis (PPP) is a rare but serious psychiatric condition that occurs in the first few days to six weeks after childbirth. For the gynecologist, postpartum psychosis is an emergency that requires immediate identification and intervention, as symptoms can be extremely intense and dangerous for the mother and newborn. Although it occurs in about 0.1–0.2% of deliveries, its consequences for the safety and reproductive health of the mother are significant.

Postpartum psychosis often begins abruptly, with symptoms that include hallucinations, delusions, confusion, and mood swings, which can lead to impulsive behavior or endangerment of the child. Therefore, early identification and timely referral of the patient for psychiatric evaluation are crucial. In gynecological practice, early identification of symptoms allows for cooperation with the psychiatric team, which significantly reduces the risk of complications and relapse in future pregnancies. The pathophysiology of postpartum psychosis is multifactorial and involves a combination of neuroendocrine, genetic, and psychosocial factors. The sudden drop in estrogen and progesterone after childbirth causes changes in neurotransmitter systems, including dopamine, serotonin, and GABA, which may favor the development of psychotic symptoms.

Genetic predisposition significantly increases the risk - patients with a personal or family history of bipolar disorder or psychotic disorders have a higher risk of postpartum psychosis. In addition, factors such as stressful life situations, lack of social support, previous depression during pregnancy, and severe complications during childbirth contribute to the occurrence of the condition.

Through this case report, we have come to the conclusion that postpartum psychosis is an urgent psychiatric condition in the postpartum period that requires rapid identification and intervention. Timely hospitalization, pharmacotherapy, psychosocial support, and a multidisciplinary approach ensure the safety of the mother and newborn, and reduce the risk of relapse. The gynecologist has a key role in early identification of symptoms and referral of the patient to the psychiatric team. We also came up with very important recommendations for practice, which are: early assessment of mental state in the postpartum period, emergency hospitalization and pharmacotherapy in accordance with professional protocols, family education and monitoring of newborn safety, and monitoring and planning of future pregnancies with the risk of recurrence.

Keywords: postpartum psychosis, timely recognition and hospitalization, psychosocial support, multidisciplinary approach.

HPV GENOTYPE – SPECİFİC RİSK FOR CERVİCAL PRE CANCER AND CANCER OF UTERİNE CERVİX

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Abstract: Cervical cancer is one of the most commonly diagnosed cancer in females worldwide. Oncogenic human papillomavirus (HPV) infection is a major risk factor for cervical cancer. The overall prevalence of high-risk human papillomavirus (HR-HPV) increases from 12% in normal cytology to 89% in cervical cancer. Globally, HPV 16/18 are the 2 most common genotypes in approximately 70% of invasive cervical cancer cases . The remaining 30% are caused by other HR-HPV types. HPV infections are common among young women and most spontaneously clear within 1–2 years. Persistent infection with HR-HPV is considered essential for the development of cervical cancer. However, the trend of persistent infection differed by HPV genotype and age. The most persistent types are 16, 31, 33, and 52 and the least persistent types are 35, 51, 66, and 68. The association between age and persistent infection is inconsistent. Previous studies suggested that women over 30 years of age have a higher rate of persistent HPV infection than women under 30 years of age.

GLYCOSYLATED FİBRONECTİN AS A BİOMARKER İN PREECLAMPSİA: COMPARİSON WİTH ANGİOGENİC AND COMBİNED BİOMARKER RATİOS

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Objective:
To assess the distribution of glycosylated fibronectin (GlyFn), placental growth factor (PlGF), the soluble fms-like tyrosine kinase-1/PlGF ratio, and the GlyFn/PlGF ratio in women with preeclampsia and gestational hypertension, and to compare their diagnostic ability to distinguish preeclampsia from gestational hypertension.
Methods:
A prospective observational study was conducted at the University Clinic for Gynecology and Obstetrics in Skopje and included 135 pregnant women evaluated for suspected preeclampsia. Final diagnosis was established after clinical and laboratory assessment, and patients were classified as having preeclampsia or gestational hypertension accrding to ACOG diagnostic criteria. GlyFn concentrations were measured using a rapid point-of-care assay, while PlGF and sFlt-1 were quantified by automated electrochemiluminescence immunoassay. The sFlt-1/PlGF and GlyFn/PlGF ratios were subsequently calculated. Biomarker concentrations were compared between diagnostic groups, and their discriminatory performance was evaluated using receiver-operating characteristic curve analysis.
Results:
Among 135 included women, 81 were diagnosed with preeclampsia and 54 with gestational hypertension. Patients with preeclampsia were assessed at an earlier gestational age compared with those with gestational hypertension, 33.1 weeks (IQR 31.1–36.0) versus 37.1 weeks (IQR 35.2–38.4), respectively ($p<0.001$). Preeclampsia was associated with a higher proportion of neonates with birthweight below the 10th percentile, 60.5% versus 13.0%, lower birth weight, 1850 g (IQR 1270–2460) versus 3115 g (IQR 2718–3438), and earlier delivery, 33.6 weeks (IQR 31.3–36.3) versus 37.6 weeks (IQR 36.4–39.0), all $p<0.001$. All four biomarkers differed significantly between the two diagnostic groups. ROC analysis showed high diagnostic accuracy for GlyFn, PlGF, sFlt-1/PlGF, and GlyFn/PlGF, with AUC values of 0.908, 0.907, 0.953, and 0.960, respectively.
Conclusion:
GlyFn was significantly increased in women with preeclampsia and showed strong diagnostic capacity for differentiating preeclampsia from gestational hypertension. The GlyFn/PlGF ratio demonstrated the highest diagnostic performance among the analyzed biomarkers, slightly outperforming the established sFlt-1/PlGF ratio. These findings suggest that GlyFn, particularly in combination with PlGF, may represent a clinically relevant biomarker approach for improving diagnostic stratification in women with suspected preeclampsia.
Keywords:
preeclampsia; glycosylated fibronectin; PlGF; sFlt-1/PlGF ratio; GlyFn/PlGF ratio; gestational hypertension.

CORRELATİON BETWEEN IMMUNOHİSTOCHEMİCAL EXPRESSİON OF MMP7, AGR2 AND GDA AND GRADE OF CERVİCAL INTRAEPİTHELİAL LESİONS

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Abstract
Background: Cervical cancer and its precursor cervical intraepithelial lesions are being a huge burden to a women's health globally. According to incidence it takes the 4-th place in a female population. In a specific age group 15-44 y.o. it holds the second place Worldwide.
Objective: To determine the immunohistochemical expression of MMP7, AGR2 and GDA in biopsy/curettage specimens in women with SIL. To examine the correlation between the expression of MMP7, AGR2 and GDA to the grade of the SIL and evaluate the prognostic value of these markers for progression of SIL.
Methods: There were 63 patients involved in this study that have histologically proven SIL of low or high grade with high risk HPV infection. All the patients had two biopsies in a period longer than one year. The immunohistochemical expression of MMP7, AGR2 and GDA was evaluated semi-quantitatively and expressed as, no expression (1), weak or partial (2) and strong or diffuse expression (3).
Results: AGR 2 in first biopsy, no expression(1)-31,76%(20pt.); weak expression(2)-68,25%(43pt.); in second biopsy, no expression(1)-9,52%(6pt.); weak expression(2)-53,97%(34pt.); strong expression(3)-36,51%(23pt.). MMP7 in first biopsy, no expression(1)-88,89%(56pt.); weak expression(2)-11,11%(7pt.); in second biopsy, no expression(1)-63,49%(40pt.); weak expression(2)-36,5%(23pt.). GDA in first biopsy, no expression(1)-65,08%(41pt.); weak expression(2)-34,92%(22pt.); in second biopsy, no expression(1)-38,09%(24pt.); weak expression(2)-53,97%(34pt.); strong expression(3)-7,94%(5pt.).
Conclusion: The immunochistochemical expression is useful in predicting the evolution of LSIL. We need to conduct analysis on a larger set of samples.
Keywords: immunohistochemistry, MMP7, AGR2, GDA, high risk HPV, squamous intraepithelial lesions, cervical cancer.

Family Medicine Session

APPROACH TO PRESSURE ULCERS

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Definition and Evaluation: Pressure ulcers are localized injuries to the skin and underlying soft tissues over bony prominences or in relation to medical devices, resulting from prolonged pressure and shear. The National Pressure Injury Advisory Panel (NPIAP) defined this condition in 2016 and updated its guidelines in 2019. Accordingly, a pressure injury is defined as “local damage to the skin and underlying soft tissue usually over a bony prominence or related to medical or other devices, caused by sustained and/or intense pressure with a shearing force.” The most frequent risk factors for pressure ulcers include immobility, increased skin moisture, inadequate nutrition, loss of sensory perception, advanced age, cognitive and physical impairment, urinary incontinence, edema, microcirculatory disorders, hypoalbuminemia, and malnutrition (1). The most effective treatment of pressure ulcers is prevention of wound formation, which can only be achieved through a multidisciplinary and holistic approach.

Staging: The National Pressure Ulcer Advisory Panel (NPUAP) and the European Pressure Ulur Advisory Panel (EPUAP) have developed evidence-based guidelines for prevention and treatment that classify pressure ulcers according to depth and tissue involvement (2,3). Stage I pressure injury: Intact skin with non-blanchable redness; the key finding. It is difficult to detect in dark-skinned individuals. Stage II pressure injury: Localized loss of dermal tissue. Can present as a superficial ulcer without necrotic tissue or as blister-like liquid-filled vesicles or yellow necrotic tissue. Stage III pressure injury: Full-thickness loss of skin and subcutaneous tissue, with no involvement of bone, muscle, or tendon. Subcutaneous fat may be visible; the wound may include pockets or tunnels. Stage IV pressure injury: Full-thickness tissue loss with exposure of muscle, tendon, or bone, and possible involvement of other structures. Unstageable pressure injury: Depth not readily ascertainable because the wound bed is covered by yellow necrotic tissue or eschar, preventing assessment of the true depth. Debridement is required to determine the actual stage. Deep tissue injury: Intact skin with a deep, red, maroon, or purple localized area of tissue necrosis or with a blister; the area may be firm, painful, and populated with a boggy or mushy consistency on palpation (2,3).

Prevention: Prevention of pressure ulcers requires a multidisciplinary and holistic approach. Effective management begins with risk identification. For individuals who are bed- or chair-bound, protected pressure areas should be identified and monitored using risk assessment tools such as the Braden Scale. Regular skin inspection, cleansing, and moisturization are essential. Incontinence-associated dermatitis should be mitigated with barrier products, and regular repositioning to relieve pressure over affected areas is necessary. Any factors compromising circulation should be addressed. Pressure-relieving devices, including air-supported surfaces or cushions, should be used to minimize prolonged pressure. Adequate nutrition, including sufficient protein, vitamins, and minerals, and appropriate daily fluid intake should be ensured. Education of the patient and caregiver about pressure ulcer prevention and management is among the most important steps. All interventions should be documented with ongoing observation and records (4-8).

Pressure Ulcer Management: Following clinical assessment of the patient with a pressure ulcer, anthropometric measurements and laboratory tests should be performed to establish the baseline condition, after which the management plan should be formulated using a holistic approach. In pressure ulcer management, the TIMERS principles are applied for initial wound

assessment (9). They are as follows: T (Tissue management): Debridement of necrotic or infected tissue that hampers wound healing, while preserving healthy tissue. I (Inflammation/Infection control): Prevention of infection or biofilm formation at the wound site, treatment of existing wound infections, and maintenance of control. M (Moisture balance): Maintaining an optimal moisture level at the wound site and protecting it from excess moisture or dryness that could impede healing. E (Edge of wound): Supporting epithelialization and advancement of wound edges while managing the wound to promote new tissue formation. R (Regeneration/Repair): Use of appropriate growth factors and healing-promoting agents to stimulate tissue regeneration and strengthen loosened tissue. S (Social factors): Consideration of psychosocial status, nutrition, sociocultural context, and lifestyle in the patient's care. The TIMERS principles provide a holistic framework that speeds healing and enhances clinicians' control over the process (9).

Treatment: Pressure ulcers are dynamic, variable, and resistant problems. Each patient and each wound possesses unique characteristics. Key considerations in the treatment process include:

- First, implement wound management according to TIMERS principles.
- Identify and address factors delaying healing (necrotic tissue, infection, foreign bodies, etc.) and resolve them with appropriate methods.
- Use wound care products appropriate for the wound type and stage.
- Maintain a clean wound environment.
- Control conditions that apply pressure to the skin.
- Manage the wound healing process to transition the chronic wound toward an acute, physiologic healing trajectory.
- Educate the patient and caregiver about the treatment and process.
- Document the treatment process in detail.

When conditions permit, surgical debridement should be considered as part of chronic wound management. If surgical debridement is not feasible, mechanical, autolytic, or enzymatic debridement may be employed. After infection control and necrotic tissue removal, wound care should be tailored to the wound type and stage using suitable dressings. Protective barrier creams should support protected skin under pressure. The skin should be shielded from excessive moisture, dryness, friction, and similar stressors. Modern wound care products can accelerate healing by addressing deficiencies, but no single product is appropriate for all wounds; choosing the right product depends on the clinician's knowledge and expertise. Therefore, healthcare professionals should be educated in chronic wound care and management. Pressure ulcers are largely preventable with appropriate precautions. Early identification of risk factors and a multidisciplinary approach can prevent wound formation and, with effective treatment strategies, improve patients' quality of life (10).

THE IMPACT OF ARTİFİCİAL INTELLİGENCE ON THE WORK OF PHYSİCİANS İN SPECİFİC MEDİCAL SPECİALTİES – AN OVERVİEW OF EXPECTED CHANGES

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Abstract

Background: Medicine is on the verge of its greatest transformation since the discovery of antibiotics. Artificial intelligence (AI) is not merely a technological add-on, but a catalyst for the transition from a reactive to a proactive healthcare model, which necessitates rapid and fundamental adjustments in the work of physicians.

1. Impact on specific specialties: The impact of AI will be uneven and primarily driven by the type of data processed by each specialty.

- Diagnostic specialties (Radiology, Pathology, Dermatology): AI already surpasses human accuracy in visual recognition, thereby relieving physicians of routine tasks and placing them in a supervisory role.
- Surgery: Development is moving toward real-time predictive assistance (Augmented Reality navigation), where the surgeon monitors and guides the robot's work.
- Family Medicine: It is becoming a key battleground for the implementation of ambient AI, also known as ACI (Ambient Clinical Intelligence), which automates documentation, reduces the doctor's administrative workload, and gives them more time for patients.

2. General Development of Medicine: From Reactive to Proactive (4P Medicine): AI enables the transition from the "treat when you get sick" model to a model

- Preventive: We prevent (not just treat)
- Predictive: We predict (not just diagnose)
- Personalized: We tailor care to the individual (not just follow the guidelines for the average)
- Participatory: We work together with the empowered patient (not just prescribe)

With the help of »digital twins« and the analysis of biometric data, medicine is moving into the realm of accurately predicting events even before clinical symptoms appear.

3. Key challenges, ethical issues, and timeline: Development is proceeding in three waves:

- Short term (0–3 years): Administrative relief and triage diagnostics.
- Medium term (3–7 years): Widespread use of pharmacogenomics and personalized therapies.
- Long-term (7–15 years): Partially autonomous surgical systems and comprehensive health management based on generative models, enabling physicians to manage diseases and provide treatment more quickly, accurately, and effectively.

4. Key factors affecting speed and the psychology of resistance: The main "bottleneck" in development is not technology, but data feudalism and the psychology of resistance. The fear of losing autonomy and the fear of the transparency brought about by objective data analysis create a systemic inhibitory force. Implementation is already mandated by EU legislation, which provides an ethical "human-in-the-loop" framework based on WHO declarations dating back to 2021.

Conclusion: The technology is ready; the question is our readiness for the necessary transparency and secure data exchange. This is the only path leading from the chaos of current structures to sustainable public health. AI will not replace the doctor, but will empower the doctor who uses AI to once again become, above all, a human being—a therapist.

NUTRİTİONAL SUPPORT FOR CANCER PATİENTS RECEİVİNG PALLİATİVE CARE: CLİNİCAL AND CULTURAL PERSPECTİVES FROM TÜRKİYE

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Abstract

Malnutrition is a common and clinically significant problem among patients with cancer diagnosis, particularly in the palliative care setting. Alongside pain and symptom burden, weakness, progressive weight loss, anorexia, and metabolic alterations due to malnutrition, negatively affect functional performance, treatment tolerance, and overall quality of life. Nutritional care for cancer patients therefore represents not only a medical approach but also a culturally and emotionally meaningful component of patient and caregiver support. In many cultures, including Türkiye, food and feeding are closely associated with meetings, celebrations, wellbeing, caregiving, family responsibility, and hope for recovery. As a result, reduced oral intake among cancer patients often causes a significant distress among patients and caregivers, because it may be perceived as an indicator of disease progression or approaching death The provision of nutritional support at the end of life with the shared suggestions of a multidisciplinary team necessitates a nuanced decision-making process that carefully weighs ethical or legal frameworks, clinical benefit, and patient autonomy or preferences.

Early and systematic screening for malnutrition in cancer patients is a pivotal step that enables timely, targeted, and individualized nutritional interventions at the palliative care organisations. Maintaining oral nutrition should be the primary goal from the time of diagnosis, whenever feasible or possible. Enteral nutrition via nasogastric tube or percutaneous endoscopic gastrostomy, or parenteral nutrition, may be considered only when oral intake becomes insufficient or impossible due to disease progression or treatment-related complications,. The appropriateness of these managements should be continuously reassessed and shared with open communication at every visit by all team members, based on prognosis, symptom burden, and expected impact on quality of life. Evidence suggests that in selected cancer patients, appropriately planned nutritional support can improve well-being, functional capacity, and, moreover in some cases, increase the survival. However, in the advanced stages of disease, aggressive nutritional interventions may cause patient burden and caregiver anxiety without meaningful benefit. Therefore, continuous assessments, shared decision-making and open communication involving the multidisciplinary care team, patients, and caregivers is crutial.

Experiences from a palliative care service in Türkiye, highlighting culturally adopted approaches to nutritional support for cancer patients and emphasizing the need for multidisciplinary collaboration and shared decision including the caregivers and patient, individualized plan, patient-centered care throughout the disease trajectory will be discussed entirely at the presen

REPRODUCTİVE HEALTH AND LONGEVİTY: IS FERTİLİTY A WİNDOW TO FUTURE HEALTH?

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Abstract
Reproductive health is increasingly recognized as an important indicator of overall health, biological aging, and long-term disease risk in women. Beyond fertility and pregnancy outcomes, reproductive events throughout the female lifespan may reflect systemic metabolic, cardiovascular, endocrine, and inflammatory processes associated with healthy aging and longevity. Emerging evidence suggests that conditions such as menstrual irregularities, polycystic ovary syndrome (PCOS), infertility, premature ovarian insufficiency, gestational diabetes, hypertensive disorders of pregnancy, and early menopause are associated with increased risks of cardiovascular disease, metabolic syndrome, osteoporosis, cognitive decline, and reduced quality of life later in life.
Recent advances in reproductive medicine and longevity research have shifted attention toward the concept of reproductive health as a potential biomarker of systemic aging. Ovarian reserve, reproductive lifespan, and age at menopause are increasingly being evaluated as indicators of biological age and future health outcomes. In addition, pregnancy complications are now considered possible early markers of future cardiometabolic disease in women. Lifestyle-related factors including nutrition, physical activity, sleep quality, and stress management also appear to influence both reproductive function and healthy aging.
The growing integration of precision medicine, wearable technologies, menstrual tracking applications, and artificial intelligence (AI)-supported predictive tools is transforming approaches to fertility assessment, menopause management, and preventive healthcare. Furthermore, recent studies on the gut and reproductive microbiome suggest a potential role of microbial balance in fertility, hormonal regulation, inflammation, and aging processes.
Understanding the relationship between reproductive health and longevity may contribute to earlier preventive interventions and more individualized healthcare strategies for women. Integrating reproductive medicine with longevity science offers a broader perspective on women's health and may help redefine future approaches to healthy aging and disease prevention.

Keywords: reproductive health, longevity, fertility, ovarian aging, menopause, healthy aging, preventive medicine

THE EVALUATİON OF PUBLİC KNOWLEDGE AND ATTİTUDES TOWARDS HEPATİTİS B VİRUS AND ITS VACCİNE: A CASE STUDY OF A FAMİLY HEALTH CENTER

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Objective: This study aimed to evaluate the level of knowledge and awareness regarding hepatitis B infection and vaccination among individuals attending the Training Family Health Center affiliated with the Department of Family Medicine at our university and to investigate the association of these levels with sociodemographic characteristics and personal health history.

Methods: In this cross-sectional study, data were collected using a 13-item sociodemographic questionnaire developed based on the relevant literature and the "Hepatitis B Knowledge and Awareness Scale". The questionnaires were administered through face-to-face interviews. Descriptive statistics were presented as numbers, percentages, mean±standard deviation, median, and interquartile range (IQR). The distribution of numerical variables was assessed using the Kolmogorov–Smirnov test. For non-normally distributed variables, the Mann–Whitney U test was used for two-group comparisons and the Kruskal–Wallis test for multiple-group comparisons; Dunn–Bonferroni post-hoc analysis was performed when significant differences were detected. Variables with $p<0.10$ in univariate analyses were included in the multiple linear regression model to identify factors associated with the total scale score. Variables in the regression model were appropriately dummy coded, and model validity was evaluated using residual analyses (Q-Q plot), the Durbin–Watson statistic, tolerance, and variance inflation factor (VIF) values. Statistical significance was accepted as $p<0.05$.

Results: A total of 294 individuals were included in the study, with a mean age of 45.6±15.8 years, and 72.1% of the participants were female. Of the participants, 97.6% reported having previously heard of hepatitis B, 55.4% had never undergone hepatitis B testing, and 57.1% had never received a hepatitis B vaccine. The proportion of participants who had completed the three-dose vaccination series was 11.2%. The mean total score of the "Hepatitis B Knowledge and Awareness Scale" was 41.2±4.7, indicating a generally good level of awareness. Among the subdimensions, the highest score was observed in horizontal transmission (12.7±2.1), whereas the lowest score was found in transmission through contact (7.7±1.7). Educational status significantly influenced knowledge scores; university graduates had significantly higher scores compared to both high school graduates and individuals with middle school education or lower ($p<0.001$). Other sociodemographic variables, including sex, marital status, income level, active sexual life, and presence of chronic disease, were not significantly associated with the total score. Participants who had previously undergone hepatitis B testing had significantly higher knowledge scores than those who had not ($p<0.001$). Similarly, individuals who had received all three doses of the vaccine had significantly higher knowledge scores compared to unvaccinated participants ($p=0.018$). Individuals without a family history of hepatitis B had higher total scores than those who reported not knowing their family history ($p<0.001$). In multiple linear regression analysis, educational level, history of hepatitis B testing, and absence of a family history of hepatitis B were identified as significant predictors of higher total knowledge scores. The model explained 14.3% of the variance in knowledge level.

Conclusions: The limitations of this study include its single-center design, reliance on self-reported data, and the absence of a cut-off value for the applied scale. Nevertheless, the study

provides valuable contributions by comprehensively assessing hepatitis B awareness at the primary care level, focusing on the general population, and examining its associations with both vaccination/testing history and sociodemographic characteristics. Since most previous studies on this topic have been conducted in restricted populations such as patients, healthcare workers, or students, determining the true awareness level in the general population has remained challenging. In this context, our findings suggest that the overall awareness of hepatitis B in the general population was relatively high.

Keywords: Hepatitis B virus, knowledge level, awareness, family medicine

COMPARİSON OF OBESİTY PREVALENCE İN TURKEY, SERBİA, AND GLOBAL POPULATİONS: A CROSS-NATİONAL DESCRİPTİVE ANALYSİS

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Background: Obesity is a major twenty-first century public health problem. Worldwide adult obesity has more than doubled since 1990, and in 2022 one in eight people globally were living with obesity. Comparing national data with global figures is essential to guide preventive strategies in primary care.
Objective: To compare the prevalence of obesity among adults in Turkey and Serbia with global estimates, and to describe trends by age group and sex.
Methods: A cross-sectional descriptive analysis used publicly available datasets. Data were extracted on 13 April 2026 from the Turkish Statistical Institute for Turkey and from the World Health Organization Global Health Observatory for Serbia and global figures. Body mass index was calculated from self-reported height and weight; obesity was defined as ≥30 kg/m² and pre-obesity as 25.0–29.9 kg/m². Prevalence was analysed by age group and sex.
Results: In Turkey, the obesity rate among adults aged 65 years and over rose from 25.0% in 2012 to 28.4% in 2022, increasing from 16.2% to 18.3% in older men and from 33.1% to 36.4% in older women. Among young adults, prevalence rose from 4.6% in 2019 to 5.0% in 2022. In 2022, 20.2% of Turkish individuals aged 15 years and older were obese and 35.6% were pre-obese, with women (23.6%) more frequently obese than men (16.8%). These national figures aligned with global World Health Organization estimates and showed comparable upward patterns to those reported for Serbia.
Conclusion: Obesity prevalence increased in Turkey across all age groups, mirroring global trends and disproportionately affecting women and older adults. Family physicians should prioritise systematic screening, lifestyle counselling, and coordinated community-level prevention efforts in primary care.
Keywords: body mass index; global health; obesity; primary care; Serbia; Turkey

COMPARİSON OF HEALTH INDİCATORS BETWEEN ISTANBUL AND BELGRADE AVERAGES: A STUDY BASED ON TURKSTAT AND WHO DATA

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INTRODUCTION

Health indicators are essential measures used to evaluate population health status and healthcare system performance. This study compares key health and demographic indicators between Istanbul (Türkiye) and Belgrade (Serbia), representing two countries with distinct demographic structures. Data were obtained from the World Health Organization (WHO), the World Bank, UNICEF, and the Turkish Statistical Institute (TURKSTAT). Seventeen indicators, including life expectancy, fertility rate, infant and maternal mortality, healthcare expenditure, healthcare resources, chronic disease prevalence, and catastrophic health expenditure, were analyzed using data from 2010–2025. Statistical comparisons were conducted using a one-sample t-test.

The findings indicate that life expectancy at birth was higher in Istanbul (79 years) than in Belgrade (76.9 years), while Belgrade demonstrated lower infant mortality (4.5 vs. 6.5 per 1,000 live births), under-five mortality (5.2 vs. 11.5 per 1,000), and maternal mortality rates (9.8 vs. 13.5 per 100,000 live births). Significant differences were observed in maternal mortality ($p=0.012$) and catastrophic health expenditure ($p=0.001$), with Istanbul showing substantially lower catastrophic health expenditure. Belgrade had higher physician density and hospital bed availability, indicating stronger healthcare infrastructure. Although both regions experienced improvements in health indicators over time, Turkey showed a more rapid decline in infant and under-five mortality rates. Chronic disease patterns differed, with higher diabetes and obesity prevalence in Istanbul and higher cardiovascular disease and smoking prevalence in Belgrade.

The study highlights how demographic characteristics, healthcare system organization, and socioeconomic conditions influence health outcomes. Despite better healthcare infrastructure in Belgrade, Istanbul exhibited higher life expectancy, while Belgrade performed better on several maternal and child health indicators. These findings may contribute to evidence-based health policy development and resource allocation strategies in both countries.

Diabetes Mellitus Session

THERAPEUTİC PATİENT EDUCATİON AND COMPLİCATİONS

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Therapeutic Patient Education (TPE) is a structured and patient-centred process designed to empower individuals to manage their chronic illnesses effectively, reduce complications, and enhance quality of life. It involves systematic teaching and learning activities that enable patients to acquire and maintain the skills, knowledge, and behaviors necessary for optimal disease self-management. Central to TPE is a collaborative approach that integrates healthcare professionals, patients, and caregivers in a continuum of education, motivation, and support.

Through TPE, patients gain a deeper understanding of their condition, treatment options, and lifestyle modifications—key factors in preventing or mitigating complications associated with chronic diseases such as diabetes, cardiovascular disorders, and respiratory illnesses. Studies have demonstrated that TPE contributes to improved treatment adherence, early recognition of warning signs, and effective coping strategies, which collectively decrease the incidence and severity of disease-related complications.

However, the implementation of TPE faces several challenges. These include limited healthcare resources, insufficient professional training, cultural and linguistic barriers, and patient resistance or low health literacy. Furthermore, inconsistencies in programme design and evaluation delay the standardisation of outcomes. Despite these obstacles, TPE remains an essential component of comprehensive chronic care. Its integration within healthcare systems promotes patient autonomy, shared decision-making, and long-term cost savings by reducing hospitalisations and the burden of preventable complications.

In conclusion, Therapeutic Patient Education is a vital preventive and supportive strategy that, when effectively implemented, substantially improves patient outcomes and reduces complications through sustained behavioral change and self-management competence.

CONTEMPORARY THERAPY İN TYPE 2 DİABETES ASSOC.

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Type 2 diabetes mellitus (T2DM) is a global metabolic disease with high incidence, prevalence, and a significant burden of cardiovascular complications. T2DM is a chronic disease affecting more than 400 million people worldwide today. In the broadest sense, its pathogenetic mechanisms are associated with obesity as the primary risk factor and the resulting insulin resistance. From this combination of clinical and molecular conditions, numerous related disorders have been identified, such as a history of gestational diabetes mellitus or reproductive disorders such as polycystic ovary syndrome (PCOS), or polyendocrine metabolic ovarian syndrome according to the most recent proposed definition. Another mechanism relates to β-cell dysfunction, including β-cell dedifferentiation, mitochondrial dysfunction, and oxidative stress. Genetic predisposition also plays a significant role. Treatment of T2DM should be based on both non-pharmacological and pharmacological approaches. Strategies such as increased physical activity, dietary modification, and cognitive-behavioral therapy are important for maintaining normal glycemia. Advanced therapies, including SGLT2 inhibitors and GLP-1 receptor agonists, complement these treatments and provide effective glycemic control, weight management, and reduction of cardiovascular risk. Metformin, the standard treatment for diabetes, remains the first-line therapy across all age groups due to its efficacy, ability to be combined with other therapeutic regimens, and cost-effectiveness. Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) are proven agents for lowering HbA1c and reducing body weight, with significant cardiovascular benefits. Sodium-glucose cotransporter-2 inhibitors (SGLT-2i) lower glucose levels independently of insulin while also providing substantial benefits for cardiovascular outcomes, as well as renal and heart failure protection. Combined non-insulin therapies represent additional effective treatment regimens for diabetes and its complications, such as combinations of metformin, GLP-1 RAs, and SGLT-2 inhibitors. New molecules or therapeutic regimens, such as dual GLP-1/glucose-dependent insulinotropic polypeptide agonists or GLP-1/amylin analogs, demonstrate significant efficacy in reducing HbA1c and body weight. The future of pharmacotherapy in T2DM lies in combinations of these non-insulin incretin-based agents, with or without long-acting insulin analog formulations. Today, such combinations are widely accepted due to their beneficial metabolic and cardiovascular effects in T2DM.

NUTRİTİON AND SUPPLEMENTATİON İN DİABETES MELLİTUS: A CROSS-SECTİONAL STUDY

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Abstract

Introduction:

Diabetes mellitus is a chronic metabolic disease in which proper nutrition and adequate supplementation play a crucial role in glycemic regulation and the prevention of complications. Contemporary approaches emphasize the importance of individualized nutritional strategies.

Aim:

The aim of this study was to assess the impact of dietary habits and supplement use on glycemic control and the occurrence of early complications in patients with diabetes mellitus.

Methods:

A cross-sectional study was conducted including 100 patients diagnosed with diabetes mellitus. Data were collected regarding dietary habits, macronutrient intake, and the use of supplements (vitamins, minerals, and omega-3 fatty acids). Clinical parameters, including body mass index and glycated hemoglobin values, were also analyzed. Statistical analysis included descriptive and comparative methods.

Results:

Patients with balanced dietary habits had significantly better glycemic control compared to those with irregular nutritional patterns ($p < 0.01$). Regular supplement use was reported in 46% of participants and was associated with lower glycated hemoglobin levels ($p < 0.05$). Increased body mass index was associated with poorer glycemic regulation. Early complications were less frequent among patients who combined proper nutrition with supplementation.

Conclusion:

Proper nutrition and adequate supplementation have a significant impact on diabetes mellitus control and the reduction of complication risk. An individualized approach to dietary planning and supplementation represents an important component of modern diabetes management.

Keywords: diabetes mellitus; nutrition; supplementation; glycemic control; risk factors

INSULİN RESİSTANCE AND OBESİTY İN CHİLDREN OF MOTHERS WİTH GESTATİONAL DİABETES

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Gestational diabetes mellitus results from an imbalance between pregnancy-related increases in insulin resistance and secretion superimposed on existing predispositions. Pregnancies burdened with gestational diabetes mellitus (GDM) show more or less pronounced state of insulin resistance, which may contribute to higher neonatal birth weight and infant adiposity. More pronounced insulin resistance in mothers with gestational diabetes is known to be associated with higher levels of umbilical cord C-peptide and increased risk for neonatal hypoglycemia. Insulin resistance in mothers with gestational diabetes is specifically associated with an increased risk of childhood obesity and impaired glucose tolerance in the offspring. The differential association of GDM subtypes based on insulin resistance and secretion with adverse childhood metabolic outcomes allows for the identification of at-risk offspring.This suggests the need to better categorize women with gestational diabetes from the perspective of insulin resistance, in order to offer targeted and tailored preventive interventions early in life to reduce the risk of adverse metabolic outcomes, insulin resistance, and obesity in children of mothers with gestational diabetes.

DO WE PROPERLY MANAGE ALL OF THE THERAPY PİLLARS FOR TYPE 2 DİABETES?

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The multifactorial approach of type 2 diabetes to reduce complications aims to simultaneously approach and give importance not only to lifestyle modification and education but also to the four pillars of diabetes management, which are: management of glycemia, blood pressure, lipids and cardiorenal risk. Whether and to what extent these pillars can be maintained for the purpose of preventing CV events, we will show through several studies.

CHALLENGES AND DİLEMMAS İN DİAGNOSİG PREDİABETES

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IH, sometimes referred to as “prediabetes,” is a state between normal glucose regulation (NGR) and T2D. It includes impaired fasting glycaemia (IFG) and impaired glucose tolerance (IGT). Many individuals with IH as defined by current diagnostic criteria, will progress to T2D. Evidence shows that T2D can be prevented by lifestyle modification and/or medications in people with IGT diagnosed by 2-h PG during a 75-gram oral glucose tolerance test (OGTT). Given the continued rising prevalence of diabetes worldwide, a more sensitive and practical method is therefore needed to detect people with IH and T2D for early diagnosis and intervention.

The International Diabetes Federation (IDF) has released a Position Statement that presents the 1-hour post-load plasma glucose (1-h PG) test as a more sensitive and practical method to screen for intermediate hyperglycaemia (IH) and type 2 diabetes(T2D) in people at risk. The Statement recommends the use of 1-h PG with the validated cut points of 155 mg/dL (8.6 mmol/L) for IH and 209 mg/dL (11.6 mmol/L) for T2D.

A wealth of epidemiological data has confirmed the superior value of 1-h PG over fasting PG (FPG), glycated haemoglobin (HbA1c) and 2-h PG in populations of different ethnicity, sex and age. The IDF Position Statement reviews findings that the 1-h post-load PG > 155 mg/dL (8.6 mmol/L) in those with NGR during an OGTT is highly predictive for detecting people at risk of progression to T2D, micro- and macrovascular complications, obstructive sleep apnoea, cystic fibrosis-related diabetes, metabolic dysfunction-associated steatotic liver disease, and premature death. Therefore, the IDF Position Statement recommends the adoption of 1-h PG with the aforementioned cut points.

CARDİAC ARRHYTHMİAS AND BLOOD GLUCOSE İN THE TREATMENT OF ARTERİAL BLOOD PRESSURE WİTH FUROSEMİDE

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Abstract

Background: Furosemide is a diuretic and is often used in the treatment of hypertension. This medicine is very good when it comes to lowering the blood pressure, and this is also a drug of choice when it comes to the stage of hypertensive urgencies and emergencies. It can be administered intravenously, and the effects reach a maximum within 30 minutes.
Objective: Due to the fact that this medicine causes a loss of potassium ions it can also affect the reduction of insulin in the blood, and thus the increase in blood glucose and arrhythmias.
Methods: A prospective random study was carried out in Emergency Medical Service of Public Health Institution Center "Zivinice'', where we analyzed 120 patients which were suffering from hypertension heart disease, and diabetes. We included all 120 patient whom suffering from hypertension and diabetes starting February till end of July 2016. Data for analysis: age, gender, bodymass index, analysis of the arterial blood pressure value, characteristic laboratory changes, analysis of electrocardiography.
ResultsLooking at all the three groups of patients, it can be noticed that the maximum value of arterial blood pressure upon arrival at the Emergency Medical service had patients suffering from hypertension and diabetes, where the average value of arterial blood pressure was 173/113 mmHg. According to analysis for all three observed groups of patients, after treatment with furosemide there is no statistical significance in the incidence of arrhythmias between the groups where. Looking at the summary for all three groups of patients, the average value increase of blood glucose after treatment with furosemide is 0.7 mmol/l.
Conclusion: Furosemide is safe for the treatment of hypertension in diabetic patients. It does not cause an increase in blood glucose levels.
Keywords: arrhythmias, furosemide, hypertension, blodd glucose

EFFECTS OF NOVEL MULTİ COMPONENT OMEGA LİPİD FORMULATİON (ARGİVİT MASTER FİSH OİL) SUPPLEMENTATİON ON TİSSUE DHA/EPA LEVELS AND INFLAMMATORY MARKERS İN AN STZ-INDUCED DİABETES MODEL

Murat DOGAN, Nedim Can CEVIK, Deniz BAYBAG

Introduction:

Diabetes mellitus is characterized by chronic hyperglycemia, impaired lipid metabolism, and persistent low-grade inflammation, resulting in progressive dysfunction across multiple organ systems. Reduced tissue availability of essential omega-derived bioactive lipids such as docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) contributes to mitochondrial dysfunction, disrupted insulin signaling, and enhanced inflammatory activation. Beyond metabolic tissues, diabetes-associated inflammation extends to the brain and kidney, promoting neuroinflammatory and fibrotic processes. Given this systemic immunometabolic burden, interventions capable of restoring lipid homeostasis while modulating inflammatory pathways may offer broader therapeutic relevance. This study aimed to evaluate the multi-organ immunometabolic effects of a novel multi-component omega lipid formulation **(Argivit Master Fish Oil)** in an experimental diabetic mouse model.

Methods:

A streptozotocin (STZ)-induced diabetic mouse model was established, and animals were randomly assigned into four experimental groups (n=15/group): healthy control, untreated diabetic control, investigational omega lipid formulation-treated **(Argivit Master Fish Oil)** diabetic group, and comparator omega-3-treated diabetic group. Body weight, fasting blood glucose, insulin, and C-peptide levels were monitored to assess metabolic status. Liver function markers (ALT and AST) were measured to evaluate hepatic impact. Following treatment, liver, brain, and kidney tissues were collected for biochemical and histopathological analyses. Tissue DHA and EPA concentrations were quantified, together with inflammatory markers including IL-6, IL-10, and CRP, as well as neurodegenerative markers Aβ1–40 and Aβ1–42. Liver histopathology was evaluated using hematoxylin and eosin staining, with steatosis, hepatocyte ballooning, lobular inflammation, and NAFLD Activity Score (NAS) assessed. Statistical comparisons were performed between study groups.

Results:

Treatment with the investigational omega lipid formulation **(Argivit Master Fish Oil)** significantly improved systemic metabolic parameters, including reduced fasting glucose and increased insulin/C-peptide levels compared with untreated diabetic controls. Tissue DHA and EPA concentrations were restored across liver, brain, and kidney tissues, indicating improved lipid bioavailability. A marked anti-inflammatory shift was observed, characterized by reduced IL-6 and CRP levels alongside increased IL-10 expression, resulting in an improved IL-10/IL-6 balance. In brain tissue, treatment was associated with significant reductions in Aβ1–40 and Aβ1–42 levels, suggesting attenuation of diabetes-associated neuroinflammatory burden. Histopathological liver analysis demonstrated reduced steatosis, hepatocyte ballooning, and lobular inflammation, accompanied by improved NAS scores. Improvements in fibrosis-associated kidney markers were also observed. In several measured endpoints, the investigational formulation demonstrated stronger biological effects than the comparator omega-3 group.

Conclusion:

The investigational multi-component omega lipid formulation **(Argivit Master Fish Oil)** demonstrated significant immunometabolic benefits in experimental diabetes through restoration of tissue lipid homeostasis, modulation of inflammatory signaling, and

improvement of metabolic dysfunction. These findings suggest that targeted omega-based interventions may exert multi-organ biological effects extending beyond conventional metabolic correction, including neuro-metabolic and hepatorenal protective mechanisms.
Keywords: Diabetes mellitus; immunometabolism; omega-3 lipid formulation; Argivit Master Fish Oil; inflammation

PROLONGED REMİSSİON İN LATENT AUTOİMMUNE DİABETES İN ADULTS FOLLOWİNG EARLY INSULİN THERAPY: A CASE REPORT

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Background:
Latent autoimmune diabetes in adults (LADA) is frequently misclassified as type 2 diabetes due to its gradual onset and initial insulin independence. Early recognition is essential, as timely insulin therapy may preserve β-cell function and prolong the remission phase.

Objective:
To present a case of prolonged remission in a young adult initially diagnosed with type 2 diabetes, with features suggestive of LADA.

Methods:
This is a single-patient observational case report of a 24-year-old male presenting with severe hyperglycemia (~15 mmol/L), elevated glycated hemoglobin (~10.6%), ketonuria, dyslipidemia, and mild elevation of liver enzymes. The patient was treated with intensive insulin therapy (basal-bolus regimen), followed by gradual de-escalation to low-dose basal insulin combined with metformin. Clinical and laboratory follow-up was conducted over a 12-month period.

Results:
Following initiation of insulin therapy, rapid metabolic improvement was observed, including normalization of blood glucose, lipid profile, and liver enzymes, with resolution of ketonuria. During follow-up, the patient maintained stable glycemic control with glycated hemoglobin values ranging from 4.9% to 5.3% and fasting glucose around 5 mmol/L. The patient remained on low-dose basal insulin (8–10 IU) and metformin, without recurrence of hyperglycemia.

Conclusion:
This case highlights the risk of misclassification of young adults with diabetes and emphasizes the importance of considering LADA in atypical presentations. Early initiation of insulin therapy may contribute to preservation of residual β-cell function and sustained metabolic control, supporting a more individualized diagnostic and therapeutic approach.

Keywords: LADA, autoimmune diabetes, remission, insulin therapy, young adult diabetes

Varia Session

MANAGEMENT OF RARE KIDNEY DISEASES IN CHILDREN

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Background:
Rare diseases present a significant public health challenge. In Europe, a rare disease is defined as one that occurs less frequently than 1 case per 2,000 people. Rare kidney diseases now encompass over 300 hereditary, congenital, or acquired conditions, affecting at least 2 million people in Europe. In addition to kidney damage, extrarenal manifestations are often present, further complicating the care and treatment of these patients. In children, rare kidney diseases are responsible for almost all cases of chronic kidney disease and often lead to end-stage renal failure and the need for replacement therapy in childhood or later in adulthood.
The purpose of our contribution is to highlight the challenges and difficulties in treating patients with rare chronic diseases.

Methods:
We reviewed medical records of children who required renal replacement therapy due to end-stage renal disease (ESRD) from January 1996 to January 2026 and were treated at the Children's Hospital in Ljubljana. We examined the causes of ESRD and divided them into the four previously mentioned groups.

Results:
We treated 81 patients, 47 boys and 34 girls. The causes of ESRD were congenital anomalies of the kidney and urinary tract in 28, hereditary nephropathies in 9, metabolic defects in 4, and rare glomerulopathies in 22 patients (78% rare kidney diseases). The causes of ESRD in the remaining 18 patients were perinatal hypoxia or unknown.

Conclusion:
Rare kidney diseases present a significant challenge for individuals, the healthcare system, and society. These conditions are often chronic, progressive, or degenerative, requiring frequent medical interventions, including pharmacotherapy, which is commonly associated with side effects and high costs. The focus should be on preventing disease progression rather than solely treating end-stage renal disease (ESRD). It is essential to educate patients and doctors and to raise public awareness about chronic kidney disease and rare kidney diseases that lead to end-stage kidney failure. Diagnosis is often delayed due to the lack of biomarkers, absence of preventive urine testing programmes, and insufficient knowledge about associated defects, which are frequently linked to specific genetic diseases. Consequently, organ damage often occurs, leading to ESRD and the need for replacement therapy. Solutions include introducing preventive programmes with urine analysis, promoting research to develop biomarkers, and increasing the availability of genetic testing in suspected cases of rare kidney disease. Developing guidelines for the diagnosis and treatment of rare kidney diseases is also important. The establishment of rare disease registries is crucial for advancing and improving diagnostic methods, as well as for developing guidelines and treatment approaches.

CAROTİDYNİA, A RARE CAUSE OF NECK PAİN

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Carotidynia, also known as Fay syndrome or TIPIC syndrome, represents a rare syndrome characterized by suddenly occurring pain in the neck in the area of the carotid artery. Fay first described it in 1927. The exact incidence is unknown, literature suggests it accounts for about 2% of all neck pains. We present a case of a 52-year-old woman who visited a doctor due to sudden pain on the left side of her neck. She was a non-smoker and previously healthy. She was examined by a neurologist, orthopedist and otorhinolaryngologist. The otorhinolaryngologist, due to severe pain, indicated a neck MSCT, where a change narrowing the lumen by around 30% was observed at the initial part of the left internal carotid artery. She was referred to a vascular surgeon who, during an ultrasound examination, observed a hypo to isoechoic change at the beginning of the left ICA, with no change in PSV. Findings on other blood vessels were normal. Laboratory tests were conducted-complete blood count, CRP, all within reference ranges. NSAID plus aspirin prescribed. After 12 days, the patient was symptom-free. On a follow-up ultrasound examination after 10 weeks, the findings on the carotid arteries were normal. TIPIC syndrome involves thickening of the adventitia with fibroblast proliferation. If the diagnosis is confused with giant cell temporarily arteritis or other conditions, patients might be subjected to prolonged, expensive testing and lack of a definitive diagnosis. It is therefore recommended to accept carotidynia as a clinical entity so that patients can avoid the hazards of unnecessary testing. Clinicians must be educated to keep carotidynia in the list of differential diagnoses for lateral neck pain.

INNOVATİVE METHODS OF SEGMENTATİON OF RADİOGRAPHİC İMAGES İN THE DİAGNOSİS OF HİP OSTEOARTHROSİS USİNG MATLAB

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Osteoarthrosis of the hip, also known as coxarthrosis, is a degenerative joint disease characterized by gradual deterioration of the hip joint cartilage. This often results in pain, reduced mobility, and stiffness. Diagnosis is usually based on clinical findings, while radiography is considered the gold standard for confirming the diagnosis. The focus of this research is on developing an algorithm for segmenting radiographic images of hips at different stages of coxarthrosis, implemented in the MATLAB programming environment. Key algorithm steps include preprocessing, segmentation, and visualization for a detailed understanding of the dynamics of hip osteoarthritis development. The developed algorithm is used for precise segmentation of hip osteoarthritis radiographic images, providing visual insight into characteristic changes during X-ray image analysis. It is emphasized that the segmentation of radiographic images is performed according to the progression stage of hip osteoarthritis, enabling the identification of different stages on X-ray images. The results of this research highlight the potential application of algorithms in the analysis and monitoring of hip osteoarthritis development, emphasizing the need for further development of software solutions in medicine, particularly in orthopedics, to improve diagnostics and apply appropriate therapy.

DEEP INSİGHT: HARNESSİNG CONVOLUTİONAL NEURAL NETWORKS FOR PRECİSE CLASSİFİCATİON OF NEUROSONOGRAPHİC FİNDİNGS İN PREMATURE INFANTS

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Perinatal asphyxia, particularly when combined with the underdevelopment of organ systems, is a major contributor to permanent neurological harm or death in premature infant. In neonatology, our attention is directed towards tailoring prognosis, preventing issues, and customizing treatment for neonates with H-I brain lesions. This approach entails employing non-intrusive diagnostic techniques, monitoring clinical indicators, and analyzing transfontanelle neurosonographic images with specialized software. To objectively gauge the extent of brain damage, we devised an algorithm using a convolutional neural network (CNN) built with MATLAB. The model was trained on images obtained from pre-term infants, and its performance was evaluated on unseen samples not included in the training set. The CNN achieved an accuracy exceeding 80% on these unseen samples from the database. This study aims to significantly enhance our comprehension of perinatal asphyxia's pathophysiology and enhance the precision of its evaluation. Additionally, the MATLAB-generated model holds promise for guiding informed decision-making in future medical diagnostic and treatment processes.

PNEUMOTHORAX İN PREMATURE İNFANT: A NEW PERSPECTİVE THROUGH LUNG X-RAY İMAGE SEGMENTATİON

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The aim of the research is to analyze methods of visualizing pneumothorax in premature infants through segmentation of lung radiographic images. This study examines the radiograph of a premature infant at 29 weeks gestation diagnosed with pneumothorax. Pneumothorax visualization was performed through segmentation of the lung radiographic image using the MATLAB software environment. Prior to segmentation, the radiographic image was preprocessed, including noise removal and edge enhancement. The expanded portion of lung parenchyma was delineated using active contours, and the algorithm's reliability was assessed through confusion matrix analysis and Dice coefficient. The results demonstrated visualization of the unaffected lung area, with automatic recognition of that region. Performance evaluation parameters showed high accuracy above 0.87. Analysis of segmentation of radiographic images of premature infants with pneumothorax can improve the diagnosis of this urgent condition in neonatology and the evaluation of patients after thoracentesis.

ECONOMIC IMPLICATIONS OF EU FUNDS ON PRIVATE HEALTHCARE INDUSTRY IN REPUBLIC OF CROATIA

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Summary:

INTRODUCTION AND OBJECTIVE: When in 2013. Republic of Croatia become new member state of European Union, that fact open a new possibility of using a EU funds for private healthcare firms. As a State open for private initiatives and new financial framework from 2014 – 2020 for Croatia. There was a small private initiative but not so developed for larger markets. Before that private healthcare industry was not so important because everything mostly was focused on public healthcare.

MATERIAL AND METHODS: Before entering EU, the private healthcare industry was not in state objective as significant part of economy. It was small, and not so important for state. In 2015. Croatia realized that for strong economy, and especially as a tourist country it's very important to subside private initiatives which include investments in private healthcare industry. With limited resources Croatia didn't have opportunities to subside private initiatives. Everything change with EU funds. But first was important to make private healthcare industry acceptable for EU funds trough Strategic plans.

RESULTS: The European Commission approved the OPKK on 12 December 2014, under which the Republic of Croatia has at its disposal EUR 6.881 billion, of which EUR 4.321 billion comes from the European Regional Development Fund (ERDF) and EUR 2.559 billion from the Cohesion Fund (CF). When the mandatory co-financing of the implementation of the Operational Programme from the Croatian budget is added, its total value increases to EUR 8.095 billion. The programme implements the EU cohesion policy and contributes to the objective of Investment for growth and jobs by stimulating investment in infrastructure (in the areas of transport, energy, environmental protection, ICT) and supporting the development of entrepreneurship and research activities. This opens a new chapter for private healthcare industry.

Within the Multiannual Financial Framework 2021 - 2027, the Republic of Croatia has at its disposal slightly more than 14 billion euros. Within the Recovery plan, the European Commission published on 27 and 28 May 2020 a series of documents which, in addition to the MFF for the period 2021-2027, also include a new instrument: the European Union

Recovery Instrument (so-called Next Generation EU – NGEU/EU next generation) aimed at recovering from the economic and social damage caused by the outbreak of the COVID-19 pandemic, and as a supplement to budgetary resources and the future MFF As additional fund For the Republic of Croatia, just over 11 billion euros are available from the EU Recovery and Resilience Facility New Generation (NGEU), of which the largest part comes from the Recovery and Resilience Mechanism, from which Croatia was allocated 6.31 billion euros in grants and 3.61 billion euros in loans. The remaining funds were allocated to REACT-EU, the European Agricultural Fund for Rural Development (EAFRD), and the Just Transition Fund (JTF).

On example of Action plan of the Regional Value Chain healthcare industry of Northern Croatia which is NUTS -region for EU funds its can been seen goal for healthcare industry including public and private.

TC1: Encourage the development of higher value-added products and services within the RLV Healthcare Industry by investing in research and development and commercialization of innovations.

TC2: Improve the environment and the environment in which we live by developing and implementing smart and clean solutions in energy, sustainable mobility and in sustainable production systems in all industries of the region.

TC3: Increase the productivity of companies within the RLV Health Industry and enable new models of production and sales by applying digital technologies.

TC4: Encourage networking of all key stakeholders of the RLV Healthcare Industry through the development of innovation clusters and the implementation of cluster initiatives.

TC5: Prepare the business sector for future jobs in the RLV Healthcare Industry area by developing smart skills

CONCLUSIONS: The benefits from EU funds implementing in private healthcare industry in Croatia improves Croatian economy, creating new jobs, new business opportunity. But there is more space for improving and investing in private healthcare industry. As time goes by, private healthcare industry is improving, especially in new methods of healing. In cooperation with public healthcare industry, it can be more efficient in giving full medical treatment for patients. EU funds bring possibilities for development especially in the private healthcare industry. So, its very important for candidate countries which are planning to join EU very soon to plan EU funds in there’s strategics plan for which can be used in private healthcare industry.

Keywords: Croatia, development, economy EU funds, healthcare industry, possibilities,

PATIENT PERSPECTIVES ON THE USE OF ARTIFICIAL INTELLIGENCE IN MEDICINE

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Abstract

Background: Artificial intelligence (AI) is rapidly transforming modern healthcare by improving diagnostic accuracy, accelerating data processing, and supporting clinical decision-making. However, the increasing integration of AI into medical practice has also raised ethical, emotional, and legal concerns from the patients' perspective. This review aims to evaluate the impact of AI in medicine through the lens of patient experiences, expectations, and concerns.

Methods: A narrative literature review was conducted using current national and international publications focusing on patient–physician relationships, ethical considerations, trust, data privacy, and patient attitudes toward AI-supported healthcare systems.

Results: The literature indicates that patients generally perceive AI as a beneficial supportive tool due to its speed, efficiency, and ability to optimize healthcare services. Patients believe AI may reduce physicians' administrative workload and potentially improve the quality of physician–patient communication. Nevertheless, significant concerns remain regarding loss of empathy, reduced human interaction, data privacy, algorithmic bias, and legal responsibility in cases of diagnostic or therapeutic errors. Trust in AI systems was found to increase when these technologies are used under physician supervision rather than autonomously. Chronic disease patients particularly emphasized the importance of direct human communication and emotional support during healthcare delivery.

Conclusion: Although AI has substantial potential to improve healthcare systems, preserving patient-centered care and maintaining empathy-based physician–patient relationships remain essential. Ethical transparency, data security, informed consent mechanisms, and physician oversight are critical factors for increasing patient trust and ensuring the responsible integration of AI into clinical medicine.

Keywords: Artificial intelligence, patient perspective, medical ethics, healthcare, physician–patient relationship

EXCESS BODY WEİGHT AND LİPİD PROFİLE CHANGES İN CHİLDREN AGED 7-11 YEARS

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The World Health Organization describes the epidemic of childhood obesity as a serious public health challenge of the 21st century. Children with excess weight often have an unfavorable lipid profile, characterized by higher total cholesterol, high LDL cholesterol, and increased triglycerides, along with lower HDL cholesterol. These changes, collectively known as dyslipidemia, increase the risk of developing cardiovascular diseases and other metabolic conditions. The aim of this research is to determine the impact of excess body weight on the lipid profile in children aged 7 to 11 years, in order to identify risk factors and develop strategies for prevention and intervention to improve the health of the pediatric population. The study was conducted as a longitudinal randomized cohort study to evaluate the impact of excess body weight on the lipid profile in children aged 7 to 11 years. The research was carried out at the Pediatric Clinic of the University Clinical Center in Kragujevac. The sample consisted of two groups of subjects. The first group included children aged 7 to 11 years with severe obesity (BMI ≥ 35 and < 40), while the second group included subjects with a healthy body weight (BMI ≥ 18.5 and < 25). The results of this study confirm the necessity of a multidisciplinary approach in assessment and intervention: physical (in)activity, psychological aspects of eating, and metabolic outcomes are not separate entities but interconnected segments that determine the health status of children. Excess body weight in children does not represent an isolated biomedical problem but rather the result of a complex interaction between metabolic profile, dietary behaviors, and levels of physical activity.

EFFİCACY OF VENOM IMMUNOTHERAPY: A CASE SERİES OF FOUR PATİENTS TREATED FOR BEE STİNG HYPERSENSİTİVİTY

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Abstract
Title:
Efficacy of Venom Immunotherapy: A Case Series of Four Patients Treated for Bee Sting Hypersensitivity.
Introduction:
Venom immunotherapy (VIT) is an established treatment for individuals with severe hypersensitivity to insect stings, notably those leading to anaphylaxis. This case series examines the efficacy of VIT in four patients with a history of severe allergic reactions to bee stings. The outcomes demonstrate the potential of VIT to significantly reduce the severity of reactions to subsequent stings, underscoring its importance in clinical practice.
Methodology:
Case Presentation: Bee stings can trigger severe allergic reactions, including anaphylaxis, in sensitized individuals. VIT aims to desensitize patients, reducing the risk and severity of future reactions. This report presents four cases that illustrate the efficacy of VIT in mitigating a allergic responses to bee stings.
Case 1: F.S. (DOB: 20.09.1981) Stung three days after initial Venom-ALT Ape. Local erythema and edema, significantly improved from prior anaphylactic shock.
Case 2: V.J. (DOB: 28.08.2003) Stung 18 days after initial Venom-ALT Ape. Local erythema and heat sensation, no systemic symptoms, marked reduction in reaction severity.
Case 3: V.SH. (DOB: 14.02.1999) Sting challenge four months after completing four years of Venom-ALT Ape; stung again nine months post-VIT. Both instances showed only local reactions, indicating sustained efficacy of VIT.
Case 4: A.Q. (DOB: 21.04.1976) Stung 10 months after completing five years of Venom-ALT Ape. Local erythema and arm numbness, no systemic anaphylaxis, notable improvement.
Results:
These cases highlight VIT's efficacy in reducing the severity of allergic reactions to bee stings. F.S. and V.J., treated with rush hyposensitization, showed significant improvement with only localized reactions to subsequent stings. V.SH.'s sustained desensitization, evident in both controlled and real-world stings, further supports VIT's long-term benefits. Despite A.Q.'s severe initial reaction, his post treatment sting resulted in only local symptoms, indicating VIT's potential to mitigate life-threatening reactions.
Conclusions:
VIT significantly reduces the severity of allergic reactions to bee stings, as demonstrated by the improved outcomes in these four cases. Transforming systemic anaphylactic reactions into localized, manageable symptoms underscores VIT's value in clinical allergy. Continuous monitoring and personalized treatment plans are essential to maximize VIT's benefits for individuals with venom hypersensitivity.

CHİLDHOOD OBESİTY İN MONTENEGRO – PATHOPHYSİOLOGİCAL ASPECTS

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Background: Childhood obesity represents a major global public health challenge. In Montenegro (national study, 2012–2015), prevalence among children aged 7–15 years ranged from 22.9% (5.3% obese; International Obesity Task Force - IOTF criteria) to 27.0% (10.8% obese; World Health Organization- WHO criteria). Within the European Childhood Obesity Surveillance Initiative (COSI, 2015/2016), Montenegro ranked sixth among 40 participating countries. Childhood obesity is characterized by chronic low-grade inflammation, insulin resistance, and increased oxidative stress, which together contribute to early development of cardiometabolic complications.

Objective: To investigate clinical and pathophysiological characteristics of overweight and obesity in Montenegrin schoolchildren, with emphasis on inflammation, oxidative stress, metabolic syndrome, micronutrients (copper, zinc), and vitamin D.

Methods: This doctoral research formed part of the national project “Research of Obesity and Poverty in Children of Montenegro – Clinical, Pathophysiological and Preventive Aspects,” conducted by the University of Montenegro Faculty of Medicine (2012–2015). A randomly selected subsample of 202 children (7–15 years) from Podgorica was categorized using IOTF criteria as normal-weight (n=85), overweight (n=82), or obese (n=35). Assessments included fasting glucose, lipid profile, uric acid, C-reactive protein, transaminases, insulin, total antioxidant status, vitamin D, copper, zinc, and blood pressure.

Results:

Inflammation and total antioxidant status were strongly associated with both overweight and obesity. Overweight/obese children had higher uric acid, and alanine-transaminase compared to normal-weight peers. Vitamin D levels were inversely associated with adiposity. Metabolic syndrome was present exclusively in overweight and obese groups. Serum triglycerides, glucose levels, and hypertension were the strongest predictors of cardiometabolic risk.

Conclusion:

Significant clinical and laboratory deviations are evident even in overweight children. Early, multidisciplinary preventive strategies targeting childhood overweight and obesity are urgently needed in Montenegro to reduce long-term cardiometabolic and socioeconomic consequences.

Keywords: childhood obesity, metabolic syndrome, inflammation, oxidative stress

EFFECTIVENESS OF SHOCK WAVE THERAPY IN THE TREATMENT OF CALCIFICING TENDINITIS OF THE ROTATOR CUFF OF THE SHOULDER

Almir Jagodić, Irma Jagodić, Elvedin Osmanović, Hidajet Rahimić

Abstract

Shock wave therapy is a treatment that has been applied in medicine since the 1990s. It has a wide range of applications in medicine and is most commonly used in physical medicine, orthopedics, and urology. Shock wave therapy is considered one of the most successful methods for treating calcific tendonitis of the rotator cuff. Calcific tendonitis of the rotator cuff is a common condition of unknown origin. It is characterized by a disorder in the accumulation of calcium hydroxyapatite on the tendons of the human body, most commonly affecting the tendons of the rotator cuff muscles. A 38-year-old female patient presents for an examination due to pain in the right shoulder joint and limited range of motion in the right shoulder. The pain has been present for the past 3-4 months and causes difficulty in performing work tasks. The pain is rated 8/10 on the VAS scale. Following a physical examination, shoulder tests, ultrasound diagnostics, and X-ray diagnostics of the shoulder, the diagnosis of calcific tendonitis of the subscapularis and supraspinatus muscles (Tendinitis m. subscapularis et m. supraspinatus calcificans l. dex) is established. The patient is included in a physical therapy program and shock wave treatment. After therapy, a follow-up X-ray is performed, showing that the calcifications have been broken down and resorbed following shock wave therapy, which led to pain relief and an increase in the range of motion in the right shoulder. After the treatment, the patient returned to her daily activities.

Calcific tendonitis is a painful condition that makes daily activities difficult for the patient. Shock wave therapy has proven to be the most effective treatment for calcific tendonitis, primarily due to its ability to alleviate pain, increase joint range of motion, and subsequently enable the patient to quickly return to daily activities. What makes this therapy exceptional is that all the mentioned benefits are achieved without side effects or risks to the patient, as confirmed in the case of the patient used for this case presentation.

Keywords: Shock wave, calcifying tendinitis, shoulder joint, rotator cuf

Young Doctors Session

EVALUATİON OF AI-GENERATED RESPONSES TO PMOS QUESTİONS USİNG DİFFERENT QUERY STYLES: A PRİMARY CARE PERSPECTİVE

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Abstract

Background

Artificial intelligence (AI)-based chatbots are increasingly used by patients seeking health-related information. In reproductive health, particularly polyendocrine metabolic ovarian syndrome (PMOS), individuals frequently search for information using different communication styles influenced by personal concerns, medical terminology, or social media content. Variability in question style may affect the quality, safety, and accuracy of AI-generated medical responses.

Methods

AI-generated responses were independently evaluated by two researchers experienced in primary care and women's health using ChatGPT (OpenAI) as the artificial intelligence model for response generation. Evaluations were performed according to the 2023 International Evidence-Based PCOS Guideline. In the diagnosis domain, responses were additionally assessed with reference to the Rotterdam diagnostic criteria, including ovulatory dysfunction, hyperandrogenism, polycystic ovarian morphology, and exclusion of alternative etiologies. All research queries were formulated using the standard term "PCOS".
Responses were assessed using a structured 0–2 scoring system across five domains:

Evaluation Parameter	**0**	**1**	**2**
Medical accuracy	Incorrect	Partially correct	Correct
Guideline consistency	Not consistent	Partially consistent	Consistent
Patient safety	Risky	Neutral/incomplete	Safe guidance present
Readability	Complex	Moderate	Clear
Completeness	Incomplete	Partially sufficient	Sufficient

In addition, qualitative differences between query styles were descriptively examined.

Query Style	**Main Characteristics Evaluated**
Patient-style	Empathy, readability, limited technical detail
Professional-style	Structured content, guideline-oriented approach, technical language
Social media/misinformation-style	Misinformation correction capacity, safety warnings, risk of misleading recommendations

Results

Responses differed according to query style across all PCOS domains. Patient-style prompts generated more understandable, empathetic, and readable responses with stronger accessibility and patient-oriented communication. Professional-style prompts provided comparatively greater medical accuracy, completeness, and guideline consistency, particularly in diagnosis, infertility, treatment, lifestyle, and metabolic risk domains. Social media-oriented prompts were more effective in correcting misinformation and emphasizing patient safety, although their clinical detail and comprehensiveness were generally lower than professional-style responses.

Conclusion

The language used while seeking medical information from AI systems may significantly influence the quality and reliability of generated responses. Understanding these differences is important for patient safety, digital health literacy, and the future integration of AI-supported counseling into primary care and women's health services.

Keywords: artificial intelligence, PCOS, primary care, digital health, patient safety, health literacy, reproductive health.

PALLİATİVE CARE İN A GERİATRİC PATİENT WİTH COMPLEX COMORBİDİTİES FOLLOWİNG ISCHEMİC STROKE: NUTRİTİONAL AND SYMPTOM MANAGEMENT THROUGH A MULTİDİSCİPLİNARY APPROACH

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Background
Post-stroke geriatric patients frequently present with neurological sequelae, multiple chronic comorbidities, and functional decline, creating complex clinical challenges for palliative care teams. Evidence on integrated multidisciplinary management within dedicated palliative care units remains limited for this population.
Objective
To describe the multidisciplinary palliative care management of an 85-year-old female patient with post-stroke dysphagia and multiple systemic comorbidities, with emphasis on nutritional optimization and symptom control.
Methods
A retrospective case review was conducted based on clinical records of a patient admitted to the Palliative Care Unit of Izmir Tepecik Training and Research Hospital between April 2 and April 22, 2026. Neurological findings, nutritional assessments, multidisciplinary consultation notes, cognitive evaluation scores, and discharge outcomes were reviewed.
Results
An 85-year-old woman with ischemic stroke (right middle cerebral artery M3 occlusion), congestive heart failure, atrial fibrillation, chronic obstructive pulmonary disease, prior cerebrovascular accident, pulmonary thromboembolism, mild cognitive impairment, and depressive disorder was admitted for nutritional support and palliation.
Oropharyngeal dysphagia with absent gag reflex and high aspiration risk were identified on admission. Nasogastric tube feeding was initiated and progressively optimized under dietitian supervision. Mini-Mental State Examination score was 20/30.
Repetitive nerve stimulation electromyography excluded myasthenia gravis. Contrast-enhanced cranial magnetic resonance imaging revealed cerebral atrophy, chronic ischemic white matter changes, and cortical laminar necrosis in the right peri-Rolandic region.
Psychiatric consultation identified depressive symptoms and pharmacological treatment was initiated. Physical therapy enabled walker-assisted mobilization. A target oral intake of approximately 2,500 kcal/day was achieved by discharge after a 20-day stay.
Conclusion
Structured multidisciplinary palliative care—integrating nutritional rehabilitation, neurological and cognitive evaluation, psychiatric support, and physical therapy—enabled safe discharge with restoration of oral feeding. Palliative care should be recognized as an active, comprehensive model extending beyond end-of-life management in post-stroke patients with multiple comorbidities.
Keywords
Palliative care; ischemic stroke; geriatrics; dysphagia; enteral nutrition; multidisciplinary team; cognitive impairment

DESCRİPTİVE ANALYSİS OF PALLİATİVE CARE VİDEOS ON YOUTUBE: DİGİTAL MEDİA AS A SOURCE OF INFORMATİON

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INTRODUCTION: Today, patients and their relatives frequently use social media to obtain information, often prioritizing it as their primary source. YouTube, a major social media platform, is widely used for accessing health-related information. The aim of our study is to observe the accessibility and characteristics of YouTube videos related to palliative care and to examine how palliative care is defined within these videos, specifically focusing on Turkish-language content aimed at the Turkish population.
METHODS: This cross-sectional study was conducted on the YouTube video-sharing platform in August 2019 During the data collection process, a search was performed using the Turkish keywords "Palyatif Bakım" (Palliative Care). The first 150 videos in the search results were screened. Videos included in the sample were systematically analyzed based on the uploader source, content style, target audience, publication date, terminological definitions (such as the distinction between hospice and palliative care), and engagement rates (views, likes, duration). The data were analyzed using descriptive statistical methods via the SPSS software. As the study is descriptive in nature, informed consent was not obtained, and it was exempted from ethics committee approval.
RESULTS: In the initial scan on YouTube, 150 videos were identified; however, 14 videos that met the exclusion criteria (duplicate records, poor audio/visual quality, or non-medical content such as advertisements/promotions) were excluded. The research was detailed through the analysis of 136 videos that met the inclusion criteria, reflecting the digital media landscape available to the Turkish population. It was found that 94.9% (n=129) of the videos were published within the last 5 years. Media organizations ranked first among uploader sources at 44.9% (n=61), while the most frequent primary speakers were doctors (33.1%, n=45), followed by non-physician healthcare professionals (23.5%, n=32). Regarding video styles, 50.7% (n=69) of the content was in a "news" format. Content analysis revealed that 64.4% (n=87) of the videos were directly focused on cancer. At a conceptual level, 92.6% (n=126) of the videos did not mention the term "hospice," and the distinction between hospice and palliative care was absent in 93.3% of the videos. The proportion of videos stating that palliative care can be applied at any stage of a disease remained at 43.7% (n=59). The median view count was 230.5, and the median engagement (likes) value was 1.00. The average video duration was 11.08 ± 23.19 minutes.
CONCLUSION: Online videos may not always contain accurate or appropriate information regarding palliative care and hospice issues. The fact that the majority of current content is media-sourced and "news-oriented" suggests that the clinical and academic depth of this vital topic should be approached with caution, potentially leading to a significant lack of public information within the Turkish society. Furthermore, the heavy focus on cancer-related content and the insufficient coverage of the "hospice" philosophy limits awareness. At this point, it is essential for primary care physicians and academic circles to produce more high-quality content on digital platforms to ensure the public can access accurate and standardized information. Further studies are needed to examine the impact of professional

social media videos and their potential to enhance the knowledge levels of patients and their relatives.

Keywords: Palliative Care, Hospice, Social Media, Digital Health, Content Analysis.

PROFESSİONAL AND ORGANİZATİONAL ENGAGEMENT AMONG YOUNG PHYSİCİANS: CURRENT CHALLENGES, BARRİERS, AND FUTURE DİRECTİONS

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Abstract

Introduction

Professional engagement among young physicians is undergoing significant changes in modern healthcare systems. Increasing workload, burnout, hierarchical organizational structures, and shifting generational expectations may contribute to reduced participation in professional associations, congresses, scientific activities, and organizational leadership. At the same time, digitalization and evolving work-life priorities are reshaping how younger generations interact with professional communities. Recent literature highlights the growing importance of mentorship, institutional support, flexible educational formats, and meaningful organizational involvement in maintaining physician engagement and professional identity.

Aim

To review current evidence regarding professional and organizational engagement among young physicians and trainees, with emphasis on barriers, motivational factors, burnout, mentorship, leadership opportunities, and modern digital trends influencing participation in professional activities.

Methods

A narrative literature review was performed using recent publications from 2021–2026 indexed in major medical databases. Relevant articles from journals including *The BMJ*, *JAMA Network Open*, *BMC Medical Education*, *Frontiers in Medicine*, and others were analyzed. The review focused on studies investigating physician burnout, mentorship, professional participation, organizational culture, leadership, and engagement among medical students, residents, trainees, and early-career physicians.

Results

Recent evidence suggests that burnout, fatigue, excessive working hours, and lack of time are among the most commonly reported barriers to professional participation among young physicians. Several studies demonstrated significant associations between burnout and decreased career engagement, reduced organizational involvement, and lower professional satisfaction. Hierarchical organizational culture and limited leadership opportunities for younger physicians were also identified as important discouraging factors. Conversely, mentorship, peer-support systems, recognition, and inclusion in organizational processes were consistently associated with higher engagement and career motivation. Emerging trends indicate increasing preference for hybrid educational models, short-format learning, and digital professional networking platforms among younger generations of physicians.

Conclusion

Professional engagement among young physicians represents a complex and evolving issue influenced by psychological, organizational, generational, and digital factors. Modern professional associations and academic organizations may need to adapt their structures and engagement strategies to better address the expectations and realities of younger healthcare professionals. This review represents an initial step toward a broader international multicenter research project aimed at systematically investigating determinants of professional and organizational engagement among young physicians across different healthcare systems and cultural environments.

DİAPER RASH MANAGEMENT İN FAMİLY MEDİCİNE

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Introduction: Diaper rash is a significant skin disorder in infants, occurring in areas covered by the diaper, such as the groin and buttocks and is caused by heat, moisture, and irritation, causing considerable discomfort to the child.

Studies conducted abroad show that the frequency of diaper rash varies between 15.2% and 60.3%. In Türkiye, the prevalence ranges from 23.9% to 61.5%. Therefore, proper attention should be given to its diagnosis and treatment.

The etiologies of diaper dermatitis include the skin remaining constantly wet (urine, stool, etc.), poor hygiene, tight diaper fastening, the use of chemical/alcohol-based products, inappropriate use of topical corticosteroids, the baby's feeding method (formula), antibiotic use, and skin diseases. In addition, the most important mistake made in diaper-related rashes is not keeping the diaper dry, not cleaning the wet skin properly, and fastening the diaper too tightly. Skin that is constantly in contact with urine and feces, and therefore vulnerable to trauma, creates a predisposition to diaper dermatitis. As a result, the skin's barrier is disrupted; it may present with complaints of edema, redness, and sensitivity due to trauma and inflammation. Incorrect cleaning and care of the area can cause inflammation to progress, leading to trauma and increasing the symptoms. In enclosed spaces, especially with the effect of humidity, fungal infections can develop, particularly in the inguinal area, buttocks, thighs, genital and abdominal regions. This represents the most common complication of diaper dermatitis. Candidal infections manifest as well-defined, hyperemic lesions on the skin, sometimes pustular or vesicular. The development of oral candidiasis in infants with candidal diaper dermatitis is also noteworthy. Caution should be exercised in this regard. Diagnosis is made with smear and culture, but C. albicans is likely to be found in cases of diaper dermatitis lasting longer than 72 hours. Therefore, caution is advised.

The infant's feeding method is also important for diaper dermatitis. Breastfed babies have fewer urease-containing organisms in their stools, lower stool pH, and lower fecal enzyme levels, making them less likely to develop diaper irritation. Furthermore, studies have shown that diaper dermatitis is less common in exclusively breastfed babies compared to formula-fed babies.

Individuals prone to diaper dermatitis often include newborns due to their immature skin structure, babies transitioning from breast milk to solid foods, babies with food allergies or those using antibiotics, bedridden individuals, those with urinary or fecal incontinence, and babies whose diapers are not changed frequently enough.

The most important step in treating diaper dermatitis is prevention. Diaper dermatitis can be prevented by paying attention to hygiene, using high-quality diapers, changing soiled diapers as soon as possible, drying the skin with chemical and alcohol-free products, and avoiding tying the diaper too tightly. One of the most important steps in treatment is strengthening the skin barrier. For this purpose, zinc oxide has a barrier-protective and strengthening effect on the skin. It also has anti-inflammatory and antimicrobial effects. Thus, inflammation is reduced and symptoms subside.

Fish oil may be used as a supportive agent in the treatment of diaper rash due to its moisturizing, antioxidant, and anti-inflammatory properties. Although not used as a primary treatment, it is used as a supportive treatment. The fatty acids in fish oil can repair the skin barrier, reduce inflammation and hyperpigmentation. Polyunsaturated fatty acids (PUFAs) can accelerate wound healing. Creams and ointments containing fish oil are generally safer than other products and are suitable for use on sensitive skin. However, caution should be exercised during the first use due to the risk of allergic reactions.

Miconazole can be used in the treatment of diaper dermatitis when C. albicans grows on damaged skin. Miconazole has a dual mechanism of action, both by inhibiting ergosterol synthesis in the cell membrane of fungi, thus disrupting cell integrity and preventing fungal reproduction, and by inhibiting peroxidases, leading to peroxide accumulation within the cell and inducing cell death. Compared to other topical antifungals, its efficacy and tolerability are higher.

In diaper dermatitis, corticosteroid use should only be done in cases of severe inflammation, after ensuring there is no infection, and under medical supervision. Low-potency corticosteroids should be used.

Combining antifungal and corticosteroid drugs is not recommended due to both their high risk of adverse effects and fungal recurrence. High-potency steroids can lead to conditions such as Cushing's syndrome, widespread fungal or bacterial infections in the affected area, and immunosuppression.

The approach to patients with diaper dermatitis can be summarized as follows: Air (A), Barrier (B), Cleaning (C), Diapering (D), Education (E).

Conclusion: Family physicians, who play a significant role in preventive healthcare services, have an important responsibility in the prevention and treatment of diaper dermatitis. Each patient should be evaluated individually, and their treatment should be planned accordingly. Attention should be paid to secondary infections, caregivers should be involved in the treatment process and information should be provided on what to do to prevent the recurrence of diaper dermatitis.

Keywords: Diaper dermatitis, family medicine, skin barrier

FROM THE LADDER TO THE ELEVATOR: DYNAMİC PAİN MANAGEMENT AND PALLİATİON STRATEGİES İN METASTATİC RENAL CELL CARCİNOMA

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Background and Objective: Pain management, a cornerstone of palliative care, often encounters clinical deadlocks in aggressive malignancies such as metastatic Renal Cell Carcinoma (RCC). The traditional World Health Organization (WHO) analgesic ladder may lead to therapeutic delays and undertreatment in end-of-life patients presenting with severe, refractory pain. This presentation discusses the clinical necessity of the "Elevator Model"—which advocates for immediate progression to high-dose opioids and multimodal interventions instead of a stepwise approach—and the management of Opioid-Induced Hyperalgesia (OIH) through a case of RCC with extensive bone metastases.
Case Report: A 46-year-old male was diagnosed with Stage IV Clear Cell RCC (Fuhrman Grade 3) in April 2025. Following the detection of widespread metastatic foci in the cranial, vertebral, and appendicular skeleton, the patient was referred to our palliative care unit by the Algology Department. Despite a combination therapy of oral paracetamol, NSAIDs, morphine, and tramadol, he presented with a VAS score of 10/10 (refractory pain).
In accordance with the "Elevator Model," a proactive strategy was adopted by transitioning directly to advanced-tier treatments. When initial high-dose morphine infusion failed to achieve analgesia and resulted in paradoxical pain increases and allodynia, morphine-induced OIH was suspected, and an opioid rotation was performed. Transdermal fentanyl was initiated, followed by a transition to intravenous fentanyl infusion. In addition to medical treatment, regular psychosocial support was provided to the patient and their caregiver by a multidisciplinary team consisting of a psychologist, a physiotherapist, and a social worker, and indicated therapies were administered. As a result of these multimodal approaches, the patient's pain was partially controlled in the following days.
Discussion: This case demonstrates the inadequacy of static protocols in managing high-intensity cancer pain. The VAS 10/10 score in our case illustrated that first- and second-tier agents were merely a loss of time, making it an ethical and clinical imperative to utilize the "Elevator Model" by starting directly at the 3rd or 4th tier. Furthermore, the differential diagnosis of OIH and the implementation of molecular rotation emphasize the dynamic nature of treatment. In the terminal phase, Furthermore, addressing the psychological and social dimensions of pain through a **biopsychosocial framework** is essential for 'total pain' management in terminal stages.
Conclusion: Accelerated Approach: In end-of-life patients with extensive bone metastases, the traditional ladder model should be replaced by the "Elevator Model" as the standard of care based on pain severity.
Molecular Rotation: In pain management, performing rotations while considering the risk of opioid hyperalgesia is as critical as dose titration.
Keeping a patient "waiting" on analgesic steps is not only a clinical failure but also a psychosocial trauma that diminishes the quality of end-of-life care. In palliative care,

"pressing the elevator button" early is the most effective way to preserve patient dignity **,** and also Pain-relief treatment is a fundamental human right.

Keywords: Renal Cell Carcinoma, Palliative Care, Opioid, Analgesics, Morphine, Cancer, Metastasis

Thyroid Symposium

RADİOGUİDED MİNİMALLY İNVASİVE THYROİD SURGERY

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Radioguided minimally invasive thyroid surgery (RGMITS) represents an innovative approach in endocrine surgery that combines nuclear medicine techniques with minimally invasive procedures to improve surgical precision and patient outcomes. The method utilizes preoperative administration of radiotracers, most commonly technetium-99m sestamibi or iodine-based isotopes, followed by intraoperative detection using a handheld gamma probe. This technique enables accurate localization of thyroid lesions, particularly small nodules, recurrent disease, and ectopic thyroid tissue, while minimizing the extent of surgical dissection. Compared with conventional open thyroidectomy, radioguided minimally invasive procedures are associated with smaller incisions, reduced operative trauma, shorter hospital stays, decreased postoperative pain, and improved cosmetic results. The approach has shown particular value in selected patients with differentiated thyroid carcinoma, recurrent thyroid lesions, and challenging anatomical presentations where precise localization is critical. Intraoperative gamma probe guidance also facilitates preservation of surrounding structures such as the recurrent laryngeal nerve and parathyroid glands, thereby reducing the risk of complications including vocal cord paralysis and hypocalcemia. Despite these advantages, several limitations remain, including dependence on specialized equipment, radiation safety considerations, and the need for multidisciplinary collaboration between surgeons and nuclear medicine specialists. Additionally, variability in radiotracer uptake and interpretation of gamma probe signals may present diagnostic and technical challenges. Nevertheless, ongoing technological advancements and increasing surgical experience continue to expand the role of radioguided techniques in thyroid surgery. Radioguided minimally invasive thyroid surgery represents a promising evolution in endocrine surgical practice, offering enhanced accuracy, safety, and patient-centered outcomes in appropriately selected cases.

HISTOLOGICAL STRUCTURE OF THE THYROID GLAND – A PATHWAY TO RIGHT DIAGNOSIS

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Knowledge of the histological structure of the thyroid gland is directly related to its normal function. The specific arrangement of the secretory cells, their microscopic characteristics and the pathway of synthesis and storage of thyroid hormones are key factors for proper function of the gland, whose main function is to maintain the basal metabolism of all cells in the human body. Specific changes at the cellular level are directly related to the occurrence of certain diseases of this gland. Hypertrophy and hypotrophy of the thyroid gland is always associated with a disturbed histological structure of the gland, which is reflected in the function itself.

Surgical interventions on the thyroid gland often also affect the function of the parathyroid gland due to their close position and therefore detailed understanding of this arrangement, as well as the morphological and histological specificity of the glands, allows for a correct approach to diagnostics and possible surgical treatment.

ECTOPİC THYROİD TİSSUE: EMBRİOLOGY, CLİNİCAL PRESENTATİON AND DİAGNOSTİC CHALLENGES

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Ectopic thyroid tissue (ETT) is a rare developmental anomaly resulting from abnormal migration of the thyroid gland during embryogenesis. The thyroid originates from the primitive pharyngeal floor at the foramen cecum and normally descends along the thyroglossal duct to its pretracheal position. Failure or disruption of this migration can lead to ectopic localization of thyroid tissue anywhere along the migratory pathway, most commonly at the base of the tongue as a lingual thyroid. Less frequent sites include the sublingual, suprahyoid, mediastinal, and even lateral cervical regions. Although ETT may remain asymptomatic, clinical presentation varies depending on the size and location of the tissue and the presence of functional thyroid abnormalities. Patients may present with dysphagia, dysphonia, airway obstruction, neck swelling, or hypothyroid symptoms, while some cases are discovered incidentally during imaging or surgery. Diagnostic evaluation remains challenging because ectopic thyroid tissue can mimic neoplastic, inflammatory, or congenital lesions of the neck and upper aerodigestive tract. Imaging modalities such as ultrasonography, computed tomography, magnetic resonance imaging, and radionuclide thyroid scintigraphy play a crucial role in localization and functional assessment. Fine-needle aspiration biopsy may assist in excluding malignancy, although interpretation can be difficult in atypical locations. Early recognition of ETT is essential to prevent misdiagnosis and inappropriate surgical excision, particularly in patients where ectopic tissue represents the only functioning thyroid gland. Understanding the embryological basis and diagnostic complexity of ectopic thyroid tissue is important for accurate clinical management and improved patient outcomes.

HPV Associated Diseases Symposium

HUMAN PAPİLLOMAVİRUS INFECTİON ACROSS ANATOMİCAL SİTES: VİRAL BİOLOGY AND DİAGNOSTİC CHALLENGES

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Human papillomavirus (HPV) infection is one of the most common sexually transmitted diseases and the main etiological agent responsible for multiple cancers, including cervical carcinoma. HPV is a double-stranded circular DNA virus that shows tropism for epithelial cells. Due to rapid immune clearance, most HPV infections do not cause symptoms and resolve spontaneously within 1 or 2 years. However, persistent high-risk HPV infection is associated with an increased risk of high-grade cervical intraepithelial neoplasia (CIN) and cancer. Moreover, high-risk HPV types are also responsible for anogenital and/or oropharyngeal cancers in both women and men.

HPV detection methods vary across different anatomical sites, and accurate detection depends on both the site sampled and the diagnostic method used. Methods have evolved from cytology-based screening to advanced molecular techniques capable of identifying viral DNA, RNA, as well as protein biomarkers. They can be broadly categorized into: Cytological Methods (Pap smear and Liquid-based cytology), Molecular Techniques (PCR, Hybrid Capture, In Situ Hybridization) and Immunohistochemistry. Additionaly, recent advances include Droplet Digital PCR (ddPCR), Next-Generation Sequencing (NGS) and artificial intelligence-based histology analysis.

Molecular techniques considered the gold standard for HPV detection providing the highest sensitivity and specificity. Cervical screening remains the most standardized, while oral and male genital detection methods still require optimization and standardization. Continued advancements in molecular diagnostics and biomarker identification are expected to improve early detection and reduce HPV-related carcinoma burden worldwide.

Keywords: HPV, persistent infection, HPV detection

THE FUTURE OF HPV-RELATED CANCERS PREVENTİON AND CARE

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HPV-related cancers are increasingly recognised as a preventable global disease burden. The future of prevention and care lies in combining effective vaccination, improved screening, early diagnosis, and equitable access to treatment. Prophylactic HPV vaccination has transformed cancer prevention, offering protection against the high-risk HPV types responsible for most cervical cancers and a significant proportion of vulval, vaginal, anal and oropharyngeal cancers.

Screening is also evolving. Primary HPV testing is replacing cytology in many cervical screening programmes because of its higher sensitivity for detecting women at risk of precancerous disease. Self-sampling, molecular testing, biomarkers, digital colposcopy and artificial intelligence may further improve access, accuracy and risk stratification. For non-cervical HPV-related cancers, such as anal and oropharyngeal cancer, screening remains more targeted or under development, highlighting the need for risk-based approaches and multidisciplinary vigilance.

The WHO global strategy to eliminate cervical cancer as a public health problem provides a landmark framework, aiming for 90% of girls to be fully vaccinated against HPV, 70% of women to be screened with a high-performance test, and 90% of women with precancer or cancer to receive appropriate treatment. Achieving these goals will require strong public health systems, education, collaboration across specialties and action to reduce inequalities.

This lecture will explore how advances in vaccination, screening and integrated care can move HPV-related cancer prevention from aspiration to achievable reality.

MULTIZONAL ANOGENITAL NEOPLASIA

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Human papillomavirus (HPV) has been described as the main etiological factor for the development of precancer and cancer the anogenital system. The focus of HPV prevention strategies has classically been on the uterine cervix. Some women present with disease at only one anogenital site, but further develop disease in several anogenital zones. Such a condition is called Multizonal Anogenital Neoplasia (MZN).

Multizonal Anogenital Neoplasia is defined by the presence of high-grade lesions (precancerous lesions) or cancer concurrently in two or more of the following sites or zones: perianal, anal canal, vulva, vagina or cervix.

Multizonal neoplasia (consisting of both HSIL and/or carcinoma) is increasingly detected in women. In many case these neoplasia are asymptomatic, thus calling for the clinician to examine all anogenital sites. At present, referral for examination or screening all anogenital sites upon detection of neoplasia on one site, is not universal. In women with anogenital neoplasia, identification of risk factors for the involvement of more than one site is important to determine which patients might benefit the most from a full multizonal anogenital assessment.

The clear example are HPV infections involving the anal canal that have been neglected for decades. However increasing incidence anal HPV infection and related lesions was observed in some risk groups, including women who have an HPV infection involving the lower genital area, especially those with high-grade squamous intraepithelial lesions (HSILs).

Women with a history of genital neoplasia or cancer have a higher risk of anal neoplasia with the link between cervical and anal cancer well described. The risk of anal neoplasia increases with the number of anogenital sites involved, and there is evidence of preferential site involvement; the risk of anal canal neoplasia is greatest in patients with perianal disease, but is also elevated in those with vulval, vaginal and cervical neoplasia.

The recent recognition that the treatment of anal precancers in HIV-positive MSM can reduce the incidence of anal cancer adds a new dimension to HPV-related cancer prevention. This high prevalence can be explained not only by sexual behavioral factors (i.e., anal intercourse), but also by the presence of similar epithelium in the anal canal and the uterine cervix which could favor the spread of the virus. Thus, several investigators have suggested that women with HPV-associated premalignant or malignant lesions in the genital or perineal area should undergo routine evaluation of the anal canal using high-resolution anoscopy (HRA) or anal cytology. However, these approaches are not currently included in any clinical guideline.

Multizonal anogenital neoplasia (MZN) assessment might be essential to diagnose occult areas of HSIL or carcinoma, given the risk that such lesions are likely to be present at more than a single anogenital site. Such examinations can identify early cancers that have better patient outcomes and is likely to be cost-effective.

IS THERE EVİDENCE FOR A SİNGLE DOSE HPV VACCİNE SCHEDULE?

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Human papillomavirus (HPV) infection remains one of the most significant causes of cervical cancer and other anogenital malignancies worldwide. Despite the proven effectiveness of HPV vaccination programs, global implementation continues to face important challenges, especially in low- and middle-income countries, where financial, logistic, and organizational barriers limit vaccine coverage. Recent evidence suggesting that a single-dose HPV vaccine schedule may provide long-lasting protection has generated substantial scientific and public health interest. The possibility of reducing the number of required doses could significantly improve vaccine accessibility, simplify immunization programs, decrease overall costs, and increase vaccination uptake globally. Several recent clinical trials and long-term observational studies have evaluated the efficacy, immunogenicity, durability, and safety of single-dose HPV vaccination strategies. The KEN SHE Study conducted in Kenya demonstrated high efficacy of a single-dose HPV vaccine against persistent HPV infection among adolescent girls and young women. Three-year follow-up data further confirmed the durability of protection, supporting the hypothesis that one dose may induce sufficient long-term immune response. Similar findings were reported in the Costa Rica Vaccine Trial (CVT), which showed sustained protection of the bivalent HPV vaccine after a single administration over an extended observation period. Additional evidence from India demonstrated comparable long-term protection against persistent HPV 16/18 infection among girls receiving one, two, or three doses of the quadrivalent vaccine after ten years of follow-up. Furthermore, the Tanzanian DoRIS trial showed non-inferior immunogenicity and acceptable safety profiles between one-dose and multidose schedules. These findings collectively support the growing scientific consensus that a single-dose strategy could represent an effective alternative to conventional multidose vaccination schedules. The World Health Organization (WHO) updated its position paper in 2022, recognizing single-dose HPV vaccination as a viable option for girls and young women aged 9–20 years. This recommendation represents a major milestone in global cervical cancer prevention strategies and may significantly contribute to achieving WHO goals for cervical cancer elimination. The simplified schedule could particularly benefit countries with limited healthcare infrastructure, vaccine shortages, and low vaccination coverage. Economic analyses have also highlighted the potential advantages of a one-dose approach. Studies from Tanzania demonstrated significantly reduced delivery costs associated with single-dose vaccination programs compared with two-dose schedules. Lower operational expenses, simplified logistics, and reduced cold-chain requirements could improve sustainability of national immunization programs and facilitate broader implementation in resource-constrained settings. Stakeholder perspectives from low- and middle-income countries additionally suggest strong support for simplified HPV vaccination schedules due to easier program organization and improved public acceptance. Despite promising results, several important questions remain unresolved. Long-term duration of protection beyond ten years, effectiveness against non-vaccine HPV types, and optimal vaccination strategies in immunocompromised populations require further investigation. Continued post-marketing surveillance and additional randomized clinical trials are essential to confirm sustained effectiveness and guide future vaccination policies. Nevertheless, current evidence strongly indicates that single-dose HPV vaccination has the potential to transform global prevention of HPV-related diseases and substantially reduce the burden of cervical cancer worldwide.



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