



**2<sup>ND</sup> INTERNATIONAL DR. SAFIYE ALI  
CONGRESS ON MULTIDICIPLINARY  
STUDIES IN HEALTH SCIENCES**

**ABSTRACT AND FULL TEXT BOOK**

**SEPTEMBER 30- OCTOBER 2, 2022, ONLINE**

**EDITOR  
Dr. Deniz SENOL**

**ISBN: 978-605-73001-0-2**

**2<sup>ND</sup> INTERNATIONAL DR. SAFIYE ALI CONGRESS ON  
MULTIDICIPLINARY STUDIES IN HEALTH SCIENCES  
SEPTEMBER 30-OCTOBER 2, 2022, ONLINE**

**ABSTRACTS AND FULL TEXTS BOOK**

**EDITOR**

**Dr. Deniz SENOL**

**ISBN: 978-605-73001-0-2**

## **President of the Congress**

**Dr. Deniz SENOL**

## **Organizing Committee**

**Dr. Alexies DAGNINO-SUBIABRE**

**Dr. Zülal ÖNER**

**Dr. Rasmi MUAMMER**

**Dr. Davood POURHOSSEIN**

**Dr. Deniz ŞENOL**

**Dr. Serkan ÖNER**

**Res. Asst. Yusuf SEÇGİN**

**Dr. Afshan SUMERA**

**Dr. Mahmut ÇAY**

**Dr. Saravanan V. SATHASIVAMPILLAI**

**Res. Asst. Rukiye Sümeyye BAKICI**

**Res. Asst. Necati Emre ŞAHİN**

**Dr. Şeyma TOY**

**Dr. Rukiye ÇİFTÇİ**

**M. Sc. PT. Yaşam VERDİ**

**Dr. Vinujan SHANMUGALINGAM**

**Dr. Pholtan RAJAMANO HARAN**

**Dr. Sibel ATESOĞLU KARABAŞ**

**Dr. Erol TOY**

**M. Sc. Demet ŞENCAN**

**Res. Asst. Sıdıka KARAKETİR**

**Res. Asst. Furkan BODUR**

**Dr. Sameer Mohammed MAHMOOD**

**M. Sc. Menşure ŞAHİN**

## **Scientific Committee**

**Dr. Alexies DAGNINO-SUBIABRE; Universidad de Valparaíso**

**Dr. Davut ÖZBAĞ; Adıyaman University**

**Dr. Gökçen AKYÜREK; Hacettepe University**

**Dr. Davood POURHOSSEIN; Tehran University**

**Dr. Hüseyin UZUNER; Kocaeli University**

**Dr. İsmail MALKOÇ; Düzce University**

**Dr. Saravanan V. SATHASIVAMPILLAI; KnowledgeLink Group Inc., USA**

**Dr. Serdar ÇOLAKOĞLU; Düzce University**

**Dr. Sameer Mohammed MAHMOOD; University of Mosul**

**Dr. Vinujan SHANMUGALINGAM; University of Jaffna**

**Dr. Pholtan RAJAMANO HARAN; Siddha Teaching Hospital**

**Dr. Şuayip Burak DUMAN; İnönü University**

**Dr. Afshan SUMERA; Malaysia International Medical University**

**Dr. Rasmi MUAMMER; Yeditepe University**

**Dr. Mahmut ÇAY; Uşak University Faculty**

**Dr. Hossein ROSTAMI**; Tehran University of Medical Sciences  
**Dr. Ahmet Taylan ÇEBİ**; Karabük University  
**Dr. Wisam Abdunnasseer Hasseeb SIRAJ**; University of Kirkuk  
**Dr. Cihat UÇAR**; Adıyaman University  
**Dr. Duygu AKIN SAYGIN**; Necmettin Erbakan University  
**Dr. Mustafa CANBOLAT**; İnönü University  
**Dr. Zülal ÖNER**; İzmir Bakırçay University  
**Dr. Serkan ÖNER**; İzmir Bakırçay University  
**Dr. Deniz ŞENOL**; Düzce University  
**Dr. Fatma KIZILAY**; İnönü University  
**Dr. Şeyma TOY**; Karabük University  
**Dr. Rümeyza Gamze TAŞKIN ŞENOL**; Bolu Abant İzzet Baysal University  
**Dr. Filiz ÖZDEMİR**; İnönü University  
**Dr. Serdar DURAK**; Karadeniz Technical University  
**Dr. Okan ASLANTÜRK**; İnönü University  
**Dr. Sibel ATEŞOĞLU KARABAŞ**; Kahramanmaraş Sütçü İmam University  
**Dr. Yasemin EMUR GÜNAY**; Karadeniz Technical University  
**Dr. Zeliha CENGİZ**; İnönü University  
**Dr. Sarmad Hayder Weli WELI**; Tikrit University  
**Dr. Hacer ÜNVER**; İnönü University  
**Dr. Sarah Jabbar Mahmood Al Luhaibi**; University of Mosul  
**Dr. Runida DOĞAN**; İnönü University  
**Dr. Yesim AKSOY DERYA**; İnönü University  
**Dr. İlknur UCUZ**; İnönü University  
**Dr. Zeliha ÖZŞAHİN**; İnönü University  
**Dr. Funda YAKAR YILMAZ**; İnönü University  
**Dr. Nihal ALTUNIŞIK**; İnönü University  
**Dr. Erol TOY**; Karabük University  
**Dr. Murat ERDEN**; Medikar Hospital  
**Dr. Serdar DERYA**; Malatya Training and Research Hospital  
**Dr. Egemen KIZILAY**; Kanalboyu Physical Therapy Center  
**Dr. Anıl Didem AYDIN KABAKÇI**; Necmettin Erbakan University  
**Dr. Albaraa Riyadh Mohammed ALSAMANEE**; University of Mosul

### **Congress Secretariat**

**M. Sc. Demet ŞENCAN**, Duzce University  
**Res. Asst. Sıdıka KARAKETİR**, Duzce University  
**Res. Asst. Furkan BODUR**, Bulent Ecevit University  
**M. Sc. Menşure ŞAHİN**, Karabuk University

SPONSORLAR



**NOVUS**

Novus Sağlık Ürünleri Ar-Ge Danışmanlık  
[www.novusarge.com](http://www.novusarge.com)



Düzce'nin **KOPYALAMA** Merkezi



**Organization and Secretariat**



**Publisher:** Turan Offset Matbaa

**Address:** Düzce/ Türkiye

**Phone:** + 90 541 514 15 47

**E-mail:** info@turanofset.com

**Web page:** <http://www.turanofset.com/>

**The ethical responsibility of the studies in this book belongs to the authors.**

**ISBN: 978-605-73001-0-2**

## INVITED SPEAKERS

### **IS001-Vegetables with antidiabetic activities currently sold in Vavuniya District in Sri Lanka**

**0000-0002-5938-0509 Saravanan Vivekanandarajah Sathasivampillai**

KnowledgeLink Group, Inc., Waltham, MA 02451, USA.

Department of Biological and Pharmaceutical Chemistry, University College London, London WC1N 1AX, UK

A sum of 90% of diabetics have type 2 diabetes. Antidiabetic drugs can induce mood swings, acute dizziness, and breathing difficulties, among other adverse effects. In investigations, vegetable intake was associated with diabetes treatment and prevention. The scope of this study is to identify and document the vegetables now marketed in Vavuniya District. Fieldwork trips to the main markets and nearby kiosks, shops, supermarkets, and street stalls in Vavuniya District were conducted from January 2019 to January 2022. The levels of antidiabetic research evidence available for the recognized vegetables were reviewed by selecting relevant research publications in academic databases Web of Science, PubMed, Scopus, and ScienceDirect up to March 2022. A total of 72 vegetable species from 25 families were reported. Most of the vegetable species possessed *in vivo* (37%) scientific evidence, next by clinical (15%) and *in vitro* (14%). Six active phytochemicals had already been identified from the reported vegetable species. This research lays the basis for the antidiabetic vegetable species presently marketed in Vavuniya.

**Keywords:** Diabetes, Vegetable, Sri Lanka, Vavuniya



## **IS002- In vitro antibacterial potential of green synthesized zinc oxide nanoparticles against selected bacterial foodborne pathogens**

**0000-0002-9208-4090 Vinujan Shanmugalingam**

Lecturer, Department of Biosystems Technology, Faculty of Technology, University of Jaffna

*Borassus flabellifer* L. can be found in tropical region, and all parts from this tree could be utilized for different purposes, including food, medicine, and other aspects. Only very few studies were conducted to evidence the medicinal importance of leaf of *B. flabellifer*. Metal oxide nanoparticles have recently been recognized as having significant commercial application. Chemical processing aids in the artificial manufacture of zinc oxide (ZnO) nanoparticle while having various harmful impacts on the environment. In this experiment, *B. flabellifer* leaf extract is used to synthesize ZnO nanoparticles in an ecologically sustainable manner. The produced nanoparticles were characterized using X-ray diffraction spectrometer analysis, and the antibacterial activity was assessed using the agar well diffusion method. *Escherichia coli*, *Staphylococcus aureus*, and *Klebsiella pneumoniae* were tested for antibacterial efficacy against three different concentrations (25, 50, and 100 mg/ml). The crystalline size of synthesized nanoparticles was revealed as  $20 \pm 6$  nm at a wavelength of 517 nm. Investigations on ZnO NPs' antibacterial activity revealed that they are efficient against a variety of different food pathogens.. This work shows that ZnO NPs are efficient against harmful bacteria and supports a simple, reliable strategy for their synthesis. Future palmyrah value-added product development will benefit from using this nanoparticle after further analysis for linked phytochemical components and any hazardous factor.

**Keywords:** *Borassus flabellifer*, Antibacterial activity, ZnO NPs, Green synthesis

## **IS003- Sri Lankan Siddha medical management for snake bites**

**000-0001-9341-5843 S. R. Pholtan Rajeev**

Registrar, Siddha Teaching Hospital, Jaffna, Sri Lanka

Death by snake bite has been reported in Sri Lanka as usual for the previous five years in the same percentage as epidemical statistics. But before modern medicine, Sri Lanka practiced Tamil traditional medicine and Sinhala traditional medicine too. Tamil traditional medicine deals with very effective medical practices and recorded in Palm Ola leaves manuscripts with the support of Kings, and they were destroyed and remains are continuing practice still now too. In this manner selected Tamil traditional medical textbooks from the northern part of Sri Lanka and did a simple descriptive data analysis. Results were found as snake bite management with 21 plants, 19 minerals, and metals, and 04 Animal products with the following types of Siddha preparations; tablets (*Maathirai*) – 7, oils (*Thylam*) – 4, nasal applications (*Mookku Thuli*) – 4, eye drops (*Kalikkam*) -6, paste (*Pasai / Mai*)– 11 and semi-solid preparation (*Kuzhambu*) – 3. Poisonous management by Tamil Siddha medical practices was reported in Sri Lanka, and it was better established than in India in ancient times. *Pararasaseharam*, *Kulasekara Visha Vaidyam* are mentioned as management for a venomous bite and poisonous plant management with signs and symptoms and method of Siddha preparations. Therefore, finally concluded as, in this present world economic crisis, natural resources should be utilized for the health care system is the most important sustainability management for the preservation of the citizens of the countries. This traditional natural management was clinically proved by the ancient people from generation to generation. Therefore, this research recommended following the genuine traditional poisonous management to poisonous cases without any restrictions.

**Keywords:** Snake bite, Sri Lankan Siddha Medicine, Poisonous managements, Traditional practices

## **IS004- Neurobiology of Social Fear Memory**

**0000-0002-9909-9826 Alexies Dagnino**

University of Valparaiso, Chile

Physical stressors are commonly used to study the neurobiology of fear memory. However, mammals are social animals, and they are frequently exposed to social stressors, for example bullying. The aim of this study was to investigate the effects of aversive social experiences on memory consolidation and social behavior. We evaluated whether the experience of social stress is consolidated as a classic fear memory and whether it has any impact on social interaction. Adult male *Sprague Dawley* rats were subjected to the chronic social defeat stress paradigm while the other group was left undisturbed (control group). Three parameters were assessed: 1) locomotor activity using the open field test, 2) freezing behavior as a measure of conditioned fear in the context of social defeat, and 3) social interaction. Animals that were subjected to chronic social defeat stress had an increase of freezing time and low freezing latency compared to the control group. Time spent in social interaction decreased in the stressed rats compared to controls, while time spent in freezing behavior increased in the social interaction task. Our results suggest that the experience of social defeat is consolidated as a fear memory that generalizes to social behavior. Social defeat stress attenuated social interaction and activated fear responses when the rats interacting with an unfamiliar animal. The social defeat paradigm offers the opportunity to study the neurobiology of social aversive experiences on memory and social behavior.

**Keywords:** Social stress, fear memory, mental illness

## **IS005-Dysregulated proteins and transfusion-dependent thalassaemia (TDT)**

**0000-0002-4108-2271 Afshan Sumera**

International Medical University, Malaysia

Understanding the inter-relationships of proteins affected by the disease process, such as oxidative stress in TDT patients, can help to elucidate the mechanisms involved in the disease pathophysiology. However, plasma proteome profile studies in TDT are limited. The label-free quantification using the liquid chromatography-mass spectrometry/mass spectrometry (LCMS/MS) approach can identify the differentially expressed proteins in TDT cases and non-thalassaemia controls. The pathway analysis shows that these proteins are involved mainly in haemostasis, fat digestion and absorption and vitamin digestion & absorption. These dysregulated proteins can serve as a potential biomarker to monitor TDT patients' condition, determine the effect, need for blood transfusion, and help develop novel prognostic and diagnostic methods.

**Keywords:** Transfusion-dependent thalassaemia, dysregulated proteins, novel proteins

## **IS006- Pediatric Supracondylar Humerus Fracture**

**0000-0001-6167-3952 Okan Aslantürk**

Inonu University, Faculty of Medicine, Orthopedics and Traumatology Department

Pediatric supracondylar humerus fractures (SCHF) are most common elbow fracture of the children. There are two type of SCHF. Extension type is more common (95-97%) than flexion type. Upper limb should be examined carefully and for distal pulse, hand perfusion and should be monitored for compartment syndrome. Gardland's classification system is generally used for classification. Treatment depends on the fracture type. Type I fractures are treated conservatively with cast immobilization. Treatment of type II fractures is controversial, conservative or surgical treatment can be used. Type III and type IV fractures are usually treated with closed reduction and percutaneous fixation with K-wires. If closed reduction is not achieved, open reduction via lateral, medial or anterior approach could be done. Anterior approach is more commonly chosen in absence of distal pulses. Thorough neurological examination should be done pre- and postoperatively. Anterior interosseous nerve is the most commonlyinjured nerve during fracture. Ulnar nerve could be injured during medial pin replacement. In postoperative period, above elbow cast or splint is used for 6 weeks. At 3 weeks, pins are removed and range of motion exercises are initiated.

**Keywords:** Distal humerus, pediatric fracture, trauma, nerve injury.

## **IS007- Cognitive Rehabilitation in Physiotherapy**

**0000-0001-5538-8952 Rasmi Muammer**

Yeditepe University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation

Cognition is a complex collection of mental skills that includes attention, perception, understanding, learning, memory, recall, thinking, problem solving, and reasoning. These mental qualities enable us to understand and work in our world and environment. After a brain injury or illness, a person typically loses one or more of these skills. Cognitive rehabilitation is the art and science of restoring these mental processes in the brain after injury or illness. Strengthening, creating, improving and/or compensating for the loss of previously learned behavior-activity, skills, motor functions and patterns are some aims of the main objectives of the rehabilitation program. In these cases, restoration and compensation are important in the treatment process. The fact that exercise and rehabilitation therapy can potentially train the brain highlights the need to look not only at local structural and functional abnormalities of the musculoskeletal system, but also at changes within the central nervous system. Innovative researches in recent years provide evidence based results that individuals with chronic diseases show abnormal activation of regions related to cognitive function. Therefore, the rehabilitation process should target the underlying mechanisms of neuroplastic cortical changes that cause pain and dysfunction.

**Keywords:** Cognitive, Rehabilitation Physiotherapy

## **IS008- Physical Activity and Health**

**0000-0001-7216-7959 Fatma Kızılay**

İnönü University Faculty of Health Sciences, Department of Physical Therapy and Rehabilitation Malatya, Türkiye

In recent years, physical activity has been recommended as a therapeutic method in the management of chronic diseases that can have fatal consequences such as diabetes and cardiovascular diseases. It is often recommended to all populations for the maintenance and improvement of general health. In order for physical activity to be beneficial and protective for health, it is extremely important that it must be planned individually. It should be known that physical activity has special conditions in children, pregnant women and the elderly, and individual exercise prescriptions should be created according to these conditions. The created exercise prescriptions should be prepared according to the FITTE (frequency, intensity, type, time, enjoyment) principle. At this point, the type, duration, intensity and frequency of the physical activity to be done should be determined and should be created from activities that the person can enjoy.

# **ORAL PRESENTATIONS**



## **OP001- Fear of COVID-19, Physical Activity and The Barriers That Prevent Physical Activity in University Students During Prolonged COVID-19 Process**

**0000-0002-5243-3997 Gülşah Barğı, 0000-0002-1456-841X R mevsa Binici, 0000-0002-2791-4836 Faezeh Shamel, 0000-0001-7291-7086 Şafak  ks z, 0000-0002-9402-1106 Selin Başeymez**

Department of Physiotherapy and Rehabilitation, Faculty of Health Sciences, Izmir Democracy University, Izmir, T rkiye

**Aim:** Due to COVID-19 pandemic and mandatory restrictions, barriers preventing students from participating in physical activity have increased. However, since COVID-19 fear, physical activity levels and barriers preventing physical activity in university students during the prolonged pandemic period are still unknown, this study was aimed to illuminate this issue.

**Material and Methods:** University students (n=178, 20.92±1.63 years) were included in this prospective cross-sectional study. Students' COVID-19 fear (Fear of COVID-19 Scale (FCS-19)), physical activity levels (International Physical Activity Questionnaire-Short Form (IPAQ-SF)) and barriers preventing physical activity (Physical Activity Barriers Questionnaire (PABQ)) were evaluated with an online form.

**Results:** Of the students, 34 (19.1%) had COVID-19 fear, 31 (17.42%) were inactive, 114 (64.04%) were minimally active, and 33 (18.54%) were very active. Total FCS-19 score was 15.85±5.08, total IPAQ-SF score was 1841.86±1392.45 MET-min/week, and total PABQ score was 52.64±12.02. There was a significantly low positive correlation between the students' FCS-19 scores and personal subscale, physical environment subscale and total PABQ scores (p<0.05). There was a significantly low negative correlation between total IPAQ-SF score and personal subscale score (p<0.05). There was a significantly low negative correlation between total PABQ score and vigorous physical activity score (p<0.05).

**Conclusion:** During the prolonged COVID-19 pandemic, proportion of the students with COVID-19 fear is low, but physical inactivity is common among the students, and barriers preventing physical activity of the students have increased. Furthermore, as COVID-19 fear increases in the students, the barriers that prevent physical activity increase. As these barriers increase, their physical activities decrease. Without disrupting the measures appropriate to the pandemic process, COVID-19 fear of the students and barriers that prevent physical activity should be reduced and physical activities should be increased.

**Keywords:** COVID-19; fear; physical activity; students

## **OP002- The Effect of Gestational Weight Gain on Physical Activity and Kinesiophobia in Pregnant Women**

**0000-0001-7216-7959 Fatma Kızılay<sup>1</sup>, 0000-0002-5406-4566 Hacer Ünver<sup>2</sup>**

<sup>1</sup>İnönü University Faculty of Health Sciences, Department of Physical Therapy and Rehabilitation Malatya, Türkiye

<sup>2</sup>İnönü University Faculty of Health Sciences, Department of Widwifery Malatya, Türkiye

**Aim:** Weight gain during pregnancy is an expected situation. However, this may have an effect on the physical activity levels and kinesiophobia of pregnant women. This study aimed to examine the effect of weight gain on physical activity and kinesiophobia in last trimester pregnant women.

**Material and Methods:** 316 pregnant women who were in the last 3 months of their pregnancy participated in the study. The weight gain information was recorded in kilograms by subtracting the weight of the person at pregnancy from the patient follow-up reports of the family health centers and subtracting from the current weight. Kinesiophobia in pregnant women was evaluated using the Tampa Kinesiophobia Scale, and physical activity was evaluated using the Pregnancy Physical Activity Questionnaire.

**Results:** The mean gestational weight gain of 316 pregnant women with a mean age of 27.56 was determined as 11.49 kg. There was no statistically significant relationship between weight gain and physical activity scores and Tampa Kinesiophobia scale scores in pregnant women ( $p>0.05$ ).

**Conclusion:** The average weight gain of 316 pregnant women who participated in the study was not much higher than the expected 9.1 kg weight gain for a healthy pregnancy. According to the results of our study, an average gestational weight gain of 11.49 kg, which is expected for a healthy pregnancy, does not have a positive or negative effect on physical activity levels and kinesiophobia of pregnant women. Therefore, a healthy weight gain should be ensured during pregnancy and physical activity levels should be maintained. Excessive weight gain during pregnancy can limit physical activity and cause kinesiophobia. Further research is needed to better understand this issue.

**Keywords:** Pregnancy; Weight Gain; Physical Activity; Kinesiophobia.

## **OP003- Determination of Somatotype and Body Composition of Patients with Pilonidal Sinus**

**0000-0001-6226-9222 Demet Sencan, 0000-0002-2290-3679 Deniz Senol**

Düzce University Faculty of Medicine Department of Anatomy

**Aim:** The aim of this study was to determine the somatotype and body composition of patients with pilonidal sinus (PS) and to determine which body structure is more common in individuals.

**Material and Methods:** 86 male patients diagnosed with PS were included in the study. Six of these patients were excluded from the study because they could not be included in the somatotype groups that could be statistically analyzed. Ten anthropometric measurements were taken from patients with PS to calculate somatotypes using the Heath-Carter method. The number of orifices, daily sitting time, fat ratio, muscle ratio, bone mass, length of hospital stay (HCS), and disease duration were recorded in patients with PS.

**Results:** In our study, 9 patients with central somatotype (median: 28 years), 47 patients with endomorphic mesomorph (median: 35 years), 13 patients with mesomorph endomorph (median: 27 years), 11 patients with mesomorphic endomorph (median: 32 years) were identified. According to the result of Kruskal Wallis H test, weight, body mass index (BMI), anthropometric measurements made to calculate somatotype, somatotype components and muscle ratio had a statistically significant difference between somatotypes ( $p < 0.05$ ), in terms of age and height. It was determined that there was no statistically significant difference between the somatotypes ( $p > 0.05$ ). According to the Spearman's Rho correlation analysis, it was concluded that the number of orifices was not affected by body mass index (BMI), sitting time, fat ratio, muscle ratio, bone mass and disease duration.

**Conclusion:** As a result, when the somatotype and body composition of people with PS disease were examined, it was found that 47 people with endomorphic mesomorph somatotype constituted 58.75% of the number of people participating in the study.

**Keywords:** Anthropometry, Pilonidal sinus, Somatotype, Body composition.

## **OP004- Role Of Acquired Immunity In The Pathogenesis Of Temporal Lobe Epilepsy Associated With Hippocampal Sclerosis**

**0000-0001-9858-9252 Devrim Kahraman**

Ankara Medipol University Faculty of Medicine, Department of Pathology, Ankara, Turkiye.

**Aim:** Hippocampal Sclerosis (HS) is a common pathology in epilepsy. There is neuronal loss and gliosis in HS. In addition, neuropeptide fibril network and fibril sprouting can be seen. However, since the pathogenesis is unknown; Medical treatment is based on symptoms. Antiepileptic drugs can control seizures, but they cannot prevent disease progression. Therefore, it is important to develop therapeutic interventions in epilepsy. In recent publications, the mechanism of inflammation has been found to be associated with the pathogenesis of epilepsy. In some experimental studies, anti-inflammatories have been shown to control seizures in drug-resistant epilepsy. However, no studies have been published so far on the role of ependymal cells in HS-related adaptive immunity. Our aim in this study is to obtain more information about the pathogenesis of temporal lobe epilepsy associated with Hippocampal Sclerosis (HS).

**Material and Methods:** In our study, we evaluated 20 epilepsy surgical samples. In the examples; We immunohistochemically evaluated the expression of CD3, CD20 and CD68 in ependymal cells and subependymal areas, as well as apoptosis and vascularity in subependymal areas with hematoxylin-eosin staining.

**Results:** We found increased expression of CD3, CD20 and CD 68 in areas affected by apoptosis and vascularity, but we could not reach a significant conclusion about the cellular distribution of inflammation.

**Conclusions:** Although these results constitute a step towards elucidating the pathogenesis of temporal lobe epilepsy associated with Hippocampal Sclerosis (HS), a study in which the expression of HAL-DR, CD3, CD20, CD25, NK, CD56, CD 68 can be evaluated together may be more revealing in terms of pathogenesis.

**Keywords:** Hippocampal Sclerosis (HS), temporal lobe epilepsy, acquired immunity, ependyma.

## **OP005- Effect of Drug Use on Adaptation to Disease and Quality of Life in Elderly Individuals**

**0000-0002-1337-3178 Taner Akarsu, 0000-0003-4978-1955 Çağdaş Akgüllü**

Aydın Adnan Menderes University Institute of Health Sciences, Aydın, Türkiye

**Aim:** This study was conducted to evaluate the effect of drug use on compliance with the disease and quality of life in elderly individuals.

**Material and Methods:** The study was carried out with 322 patients over 65 years of age who applied to the cardiology outpatient clinic of Aydın State Hospital between September 2020 and September 2021 as a descriptive and cross-sectional study. The data were collected with a questionnaire prepared by the researchers, the Rational Drug Use Scale (AİKÖ), the Scale of Adjustment to Chronic Diseases (KHUÖ), and the Quality of Life Scale for the Elderly (YYKÖ). In the analysis of data; While t-test, Mann-Whitney U and ANOVA (post hoc Bonferroni test) tests were used for comparisons, Pearson correlation analysis was used to examine the relationship between scale scores. The situation where  $p < 0.05$  was considered significant.

**Results:** According to the rational drug use scale (AİKÖ), the patients' rational drug use levels were  $44.09 \pm 2.22$ , according to the chronic disease adjustment scale (KHUÖ),  $74.66 \pm 9.97$ , and the elderly people's quality of life scale (YYKÖ), it was determined that the level of quality of life was  $35.60 \pm 5.83$ . There was a statistically significant relationship between the patients' level of rational drug use and compliance with the disease; ( $r=0.226$ ;  $p < 0.001$ ), there was no significant relationship between rational drug use and quality of life ( $r=-0.039$ ;  $p=0.486$ ). However, subgroups analysis of AİKÖ and YYKÖ scales revealed a weak but significant relationship ( $r=-0.191$ ;  $p < 0.001$ ).

**Conclusion:** In the study, it was concluded that rational drug use in individuals over the age of 65 has a significant relationship on the adaptation process to the disease, while there is a significant relationship on the quality of life in the subgroups. Further studies are needed to determine the effect of rational drug use on patients adaptation to the disease and quality of life.

**Keywords:** Rational Drug, Compliance, Quality of Life, Elderly

## **OP006- Evaluation of Breast Density Patterns in terms of BIRADS 4 Calcifications in Mammography**

**0000000258945256 Rukiye Çiftçi**

Bandırma Onyedi Eylül University, Department of Anatomy, Balıkesir, Türkiye

**Aim:** Mammography is the first choice for breast cancer screening in women over the age of 40 and is the only modality that has been shown to reduce breast cancer-related mortality. Although the mammographic breast pattern is formed by the combination of dense breast parenchyma and radiolucent adipose tissue, it is known to be affected by body mass index, age and hormonal status. Parenchymal density is divided into 4 groups as type A, B, C and D by the American College of Radiology (ACR). Types C and D are considered to be dense breast patterns with a higher risk of developing malignancy. BIRADS (Breast Imaging and Reporting Data System) category 4 calcifications are defined as amorphous solid masses with blunt edges, newly emerging thin pleomorphic calcifications. Biopsy should be considered after diagnosis of these calcifications, which have a malignancy risk of 2-95%. In this study, it was aimed to determine the breast parenchymal pattern rates of patients with BIRADS 4 calcifications on mammography.

**Materials and Methods:** The information of 6676 cases who underwent screening and diagnostic mammography between January 2016 and July 2022 in our hospital were accessed from the hospital automation system.

**Results:** There were BIRADS 4 microcalcifications in 86 cases. The mammographic pattern distribution of these cases was 25 ACR type A (29%), 14 ACR type B (16%), 40 ACR type C (47%), 7 ACR type D (8%).

**Conclusion:** In our study, BIRADS 4 microcalcifications were observed more frequently in dense breast patterns. In this study, we found the rate of dense breast pattern (type C and D) to be 55% in cases with BIRADS 4 microcalcifications. Dense breast patterns, which are a risk factor for malignancy, may mask an underlying lesion, and these microcalcifications that require follow-up or biopsy may be more difficult to see. Therefore, careful evaluation of cases with dense pattern in terms of benign microcalcifications requiring follow-up as well as malignant lesions requiring biopsy may be beneficial.

**Keywords:** Mammography; BIRADS 4; ACR; calcification

## **OP007- Relationship Between the Perception of Self-Efficacy and Early Post-Operative Symptoms in Patients Undergoing Coronary Artery Bypass Graft Surgery with Median Sternotomy**

**0000-0003-0415-4229 Fadime Gök<sup>1</sup>, 0000-0001-9955-8677 Tuğçe Yesilvaprak<sup>2</sup>**

<sup>1</sup>Pamukkale Üniversitesi Sağlık Bilimleri Fakültesi Cerrahi Hastalıkları Anabilim Dalı, Denizli, Türkiye

<sup>2</sup>Pamukkale Üniversitesi Denizli Sağlık Hizmetleri MYO Anestezi Programı, Denizli, Türkiye

**Aim:** This study aimed to determine the relationship between the perception of self-efficacy and early post-operative symptoms in patients who had undergone coronary artery bypass graft surgery (CABG) with median sternotomy.

**Material and Methods:** The research is of prospective type. The research sample consisted of all patients (n=159) aged over 18 who had undergone CABG surgery for the first time with median sternotomy and who agreed to participate in the research. An “Individual Introduction Form”, the “Barnason Efficacy Expectation Scale (BEES): Cardiac Surgical Version”, and the “Heart Surgery Symptom Inventory (HSSI)” were used for data collection. Student t-test, One-Way ANOVA, Kruskal Wallis test, Man-Whitney U test, correlation analysis, and multiple linear regression analysis were used for data analysis.

**Results:** The means age of the patients who had undergone CABG surgery was 56.58±11.83. The severity of symptoms perceived by the patients was evaluated with HSSI and the mean scale score of the patients was 45.71±26.51. In the study, the self-efficacy score of the patients was 42.33±7.74. It was determined that there was a low level of negative correlation between the patients' self-efficacy and symptom management.

**Conclusion:** Although the patients' levels of self-efficacy were high after coronary artery bypass graft surgery, the severity of their symptoms was moderate. Marital status, cohabitants, and family history of cardiac disease were found to affect the severity of patients' symptoms.

**Keywords:** Coronary artery baypass grafts, Self-efficacy, Severity of symptoms

## **OP008- Determination of Liquid Consumption in Adolescent Education in a Public School**

**0000-0001-6287-5601 Tuba Kayan Tapan, 0000-0003-4256-2610 Sehnaz Hergün**

Demiroglu Science University, Faculty of Health Sciences, Department of Nutrition and Dietetics, Istanbul, Türkiye

**Aim:** The aim of this study is to examine the relationship between fluid consumption and anthropometric measurement and physical activity levels of adolescents.

**Material and Methods:** “Liquid Consumption Questionnaire” and “Physical Activity Questionnaire for Children” were administered to 270 volunteer adolescents aged 13-14. The body mass indexes (BMI) of the students participating in the study were obtained from their schools and their body weights and heights were calculated. IBM SPSS Statistics 22 program was used in the statistical evaluation of the data.

**Results:** The mean age and physical activity score of the participants were  $13.41\pm 0.5$  and  $22.98\pm 5.72$ , respectively. It is seen that there is a positive and low level significant relationship between BMI and daily water consumption ( $r=0.178;p<0.05$ ), while there is no significant relationship between daily consumption of other beverages ( $p>0.05$ ). A significant positive and low correlation was determined between the physical activity level and the liquid preferences such as daily water ( $r=0.169$ ), plain milk ( $r=0.196$ ), kefir-ayran ( $r=0.193$ ), carbonated sugar ( $r=0.186$ ) and sugar-free drinks ( $r=0.127$ ), fruit juices ( $r=0.305$ ), tea ( $r=0.151$ ) and cold coffees ( $r=0.204;p<0.05$ ).

**Conclusion:** An important part of fluid consumption is water consumption. A positive and low-level significant relationship was found between daily water consumption and BMI and physical activity level. Changes in fluid preferences have different effects on physical activity level and BMI.

**Keywords:** Adolescent, Nutrition, Fluid consumption.



## **OP009- The Effect of Dual-Task Balance Training on Motor Skills in Mentally Handicapped Individuals**

**0000-0001-9426-7010 Ebrar Atak<sup>1</sup>, 0000-0002-2476-6567 Z. Candan Algun<sup>2</sup>**

<sup>1</sup>Istanbul Medipol University, Enstitute of Health Sciences, Istanbul, Türkiye, Private Real World Special Education and Rehabilitation Center, Yalova, Türkiye

<sup>2</sup>Istanbul Medipol University, Faculty of Health Sciences, Istanbul, Türkiye

**Aims:** This study aimed to improve motor skills by adding dual-task balance training within the scope of cognitive rehabilitation to the education programs of individuals with intellectual disabilities.

**Material and Methods:** Thirty mentally retarded individuals aged between 6-13 years and with an IQ score of 50-79 were included in the study. Participants were randomly divided into two groups and dual-task balance training was applied to the first group within the scope of cognitive rehabilitation and standard balance training was applied to the second group. Motor skills were evaluated with the Bruininks-Oseretsky motor proficiency test (BOT2) and reaction time was evaluated by measuring the response time to light stimuli. Each group was trained with a physiotherapist in 30-minute sessions twice a week for 12 weeks. The cognitive rehabilitation group received 20 minutes of dual-task training after 10 minutes of warm-up, and the standard balance training group received 20 minutes of standard balance training after 10 minutes of warm-up.

**Results:** Dual task group motor proficiency test score was  $39.40 \pm 5.22$  before the study,  $54.07 \pm 5.00$  after the study,  $p < 0.001$ , and the reaction time score was  $7.38 \pm 1.41$  before the study and  $5.11 \pm$  after the study.  $1.19$ ,  $p < 0.001$  was determined. Standard balance training group motor proficiency test score was  $47.27 \pm 6.98$  before the study,  $52.87 \pm 6.70$ , after the study,  $p < 0.001$ , and the reaction time was  $5.97 \pm 1.51$  before the study,  $5.70 \pm$  after the study  $1.61$ ,  $p < 0.001$ . There was a significant difference between the groups in motor proficiency scores at the beginning, against the dual task balance training group ( $Z = -3.26$  and  $p < 0.001$ ), but there was no difference after the study ( $Z = -0.41$  and  $p = 0.67$ ). This shows that dual task balance training is more effective. Although both training programs affected the motor performance of the participants positively, the dual-task balance training was more effective.

**Conclusion:** This study reveals that physiotherapy programs for cognitive rehabilitation can be effective in improving the motor performance of people with intellectual disabilities. In

addition, dual-task balance training can be a method that can be used in pathologies such as cerebral palsy that cause loss of motor and mental performance.

**Keywords:** Cognition, Posture Balance, Multitasking Behavior, Mental Retardation, Physiotherapy.

## **OP010- Effect of Exercise on Cognitive Functions**

**0000-0001-9426-7010 Ebrar Atak<sup>1</sup>, 0000-0002-2476-6567 Z. Candan Alun<sup>2</sup>**

<sup>1</sup>Istanbul Medipol University, Enstitute of Health Sciences, Istanbul, Türkiye, Private Real World Special Education and Rehabilitation Center, Yalova, Türkiye

<sup>2</sup>Istanbul Medipol University, Faculty of Health Sciences, Istanbul, Türkiye

**Aim:** The aim of the study is to contribute to the improvement of cognitive functions by applying customized physiotherapeutic exercise programs to individuals with intellectual disabilities.

**Material and Methods:** 15 people, aged 6-13, whose mental states were determined and diagnosed by the health boards of public hospitals, and whose IQ scores were between 50-79, participated in the study. Participants' attention, impulsivity, hyperactivity, and timing scores were evaluated with a computer software-assisted specialized attention test that included audio and visual distractors. Participants were given a 30-minute dual-task balance exercise twice a week for 8 weeks. Dual-task exercises were applied as 10 minutes of warm-up, followed by flashing lights on the balance ball for 10 minutes, and stroop work on the balance ball for 10 minutes. The test scores of the participants before, after and 3 months after the study were analyzed.

**Results:** The results of the attention test attention subsection; It was found to be  $10.72 \pm 10.17$  before the study,  $-5.18 \pm 5.83$  after the study, and  $-4.17 \pm 4.83$  after 3 months,  $p < 0.001$ . Timing subdivision results;  $-5.23 \pm 2.79$  before the study,  $-2.41 \pm 2.27$  after the study,  $-2.57 \pm 2.50$  after 3 months,  $p < 0.001$ . The impulsivity subsection results were determined as  $-1.81 \pm 1.56$  before the study,  $-0.38 \pm 0.81$  after the study,  $-0.38 \pm 0.80$ ,  $p < 0.001$  after 3 months. Hyperactivity subsection scores were measured as  $-4.71 \pm 8.51$  before the study,  $-1.79 \pm 3.60$ , after 3 months,  $-1.78 \pm 3.71$ ,  $p < 0.001$ . According to the results of the study, dual task balance exercises contributed to the significant improvement in all sub-areas of the participants' attention test.

**Conclusion:** This study shows that dual-task balance exercises have positive contributions to the areas of attention, timing, impulsivity and hyperactivity, which are known to directly affect intelligence performance in improving the cognitive functions of individuals with intellectual disabilities. In addition, it reveals the importance of physiotherapy in the rehabilitation of mentally disabled individuals.

**Keywords:** Cognition, postural balance, multitasking behavior, mental retardation, physiotherapy.

## **OP011- Massive Hemoptysis Originating From the Left Internal Thoracic Artery in a Patient with Small Cell Lung Cancer: a Case Report**

**0000-0001-5811-0104 Serdar Yesiltas, 0000-0003-0231-363 Muhittin Çalm**

Department of Anesthesiology and Reanimation, Bezmialem Vakif University, 34093 Istanbul, Türkiye

Massive hemoptysis (MH) is a life-threatening condition that requires immediate intervention. In general, bleeding between 200 ml and 600 ml in 24 hours is defined as major hemoptysis, and 600 ml or more is defined as MH. Approximately 20% of MH is due to primary or metastatic tumors of the lung. Patients with MH die from asphyxiation, not hemorrhagic shock. In the management of patients with MH, the priority is to ensure airway safety, then detect and stop the source of bleeding. Ninety percent of bleeding originates from the bronchial arteries, the remainder from the pulmonary arteries, aorta, or non-bronchial systemic circulation. A 43-year-old man with primer hypertension and a history of on-pump coronary artery bypass grafting surgery and small cell lung cancer suddenly developed MH was brought to an emergency room in our institution. In bronchoscopy on admission, the bleeding focus could not be identified due to active bleeding. Bronchial artery embolization was applied to the patient, both bronchial arteries were embolized first with particles and then with coils. Hemoptysis continued after the procedure. In the control angiographic imaging revealed bleeding from the branch separated from the proximal left anterior thoracic artery was observed. Embolization could not be performed due to the excessive tortuous nature of the branch separated from the artery, but spasm was created by manipulating with a microguide. Contrast filling was not observed in this branch in the control imaging. MH is a life-threatening emergency situation and a multidisciplinary approach is recommended for treatment. To avoid possible delay in treatment, a detailed medical history, clinical examination, and review of imaging are prioritized to determine the etiology of MH. It should be kept in mind that MH not originating from the bronchial artery may originate from the anterior thoracic artery.

**Keywords:** Anterior thoracic artery, Bronchoscopy, Massive hemoptysis, Small cell lung cancer.

## **OP012- Comparison of the Effectiveness of Intracameral Air in Patients who Underwent Cataract Surgery with the Half-moon Supracapsular Nucleofractis Phacoemulsification Technique**

**0000-0002-6554-8021 Mehmet Canleblebici**

Akdağmadeni State Hospital, Ophthalmology Department, Yozgat, Türkiye

**Aim:** Investigation of intracameral air efficiency in patients who underwent cataract surgery with the half-moon supracapsular nucleofractis phacoemulsification (HMSNF) technique.

**Materials and Methods:** The data of patients who underwent cataract surgery with the HMSNF technique between January and July 2022 in our clinic were reviewed retrospectively. The patients were divided into two groups as group 1, which was injected with air into the anterior chamber at the end of the operation, and group 2, which was not. Data were analyzed with the descriptive tests and Mann Whitney-U test.

**Results:** 36 patients in group 1, mean age  $68.4 \pm 12.3$  years (21 women, 58.3%), 47 patients in group 2, mean age  $62.6 \pm 14.3$  (28 women, 59.5%) were present. BCVA with Snellen chart and decimal system, preoperative, postoperative 1st day and 1st month were  $0.26 \pm 0.18$ ,  $0.34 \pm 0.43$  and  $0.85 \pm 0.13$  for group 1, and  $0.32 \pm 0.21$ ,  $0.47 \pm 0.34$  and  $0.86 \pm 0.16$  for group 2, respectively. In the first group, grade 2 and 1 corneal edema in 6(16.6%) and 8(22.2%) patients on the 1st day, while grade 1 corneal edema was observed in 3(8.3%) patients in the 1st month controls. In the second group, grade 2 and 1 corneal edema in 9(19.1%) and 13(27.6%) patients on the 1st day, while 4(8.5%) patients had grade 1 corneal edema in the 1st month controls. Signs of inflammation were not observed in both groups at the first month controls. Descemet detachment at the entrance sites was observed in 2(5.5%) patients in the first group and in 5(10.6%) patients in the second group. When the two groups were analyzed statistically, no significant difference was observed in terms of age, gender, pre-operative, and post-operative 1st month BCVA and corneal edema ( $p > 0.05$ ), while there was a significant difference in terms of post-operative 1st day BCVA and Descemet detachment presence ( $p < 0.05$ ).

**Conclusion:** With the HMSNF technique, more corneal edema and Descemet detachment can be observed due to the fragmentation of the nucleus in the anterior chamber. But with its advantages such as reducing inflammation, lower incidence of Descemet detachment, and facilitating the removal of the iris from the wound site, especially in patients with floppy iris, air injection into the anterior chamber can be used with the HMSNF technique when necessary.

Patients should be informed about the reduction in BCVA on the first day due to the refractive effect of the air bubble, and this air bubble will be resorbed in a few days.

**Keywords:** Cataract surgery, Phacoemulsification, Intracameral air.

## **OP013- *Spartium junceum* L.: Antibacterial And Anti-Quorum Sensing Activities Against Pathogenic Bacteria**

**0000-0002-7554-733X Fatma Tuğçe Güravaş Dereli<sup>1</sup>, 0000-0002-7770-7958 Ebru Önem<sup>2</sup>**

<sup>1</sup>Süleyman Demirel Üniversitesi Eczacılık Fakültesi Farmakognozi Anabilim Dalı, Merkez, Isparta

<sup>2</sup>Süleyman Demirel Üniversitesi Eczacılık Fakültesi Farmasötik Mikrobiyoloji Anabilim Dalı, Merkez, Isparta

**Aim:** The aim of this study was to determine the antibacterial effect of the ethanolic extract prepared from the flowers of *Spartium junceum* L. on various Gram (+) and Gram (-) bacteria and to investigate the inhibitory effect of the extract on the Quorum Sensing system in *Pseudomonas aeruginosa*.

**Material and Methods:** In this study, the antibacterial activity of ethanolic flower extract on various Gram (+) ve Gram (-) bacteria (*Bacillus cereus* ATCC 11778, *Staphylococcus aureus* ATCC 25923, Methicillin-Resistant *Staphylococcus aureus* (MRSA) ATCC 43300, *Chromobacterium violaceum* ATCC 12472, *Escherichia coli* ATCC 25922, *Pseudomonas aeruginosa* PAO1) was investigated. In addition, the inhibition effects of the extract on pyocyanin pigment production and swarming movement, which play important roles in the the virulence of *Pseudomonas aeruginosa*, were also investigated.

**Results:** The lowest minimum inhibitory concentration (MIC) of the extract was determined as 12.5 mg/mL for *C. violaceum* ATCC 12472, while this value was observed for *B. cereus* ATCC 11778, *S. aureus* ATCC 25923 and MRSA ATCC 43300 strains as 50 mg/mL. No antibacterial effect was observed on *E. coli* and *P. aeruginosa* at the initial concentration (200 mg/mL). It was determined that the extract inhibited pyocyanin production by 29% and swarming movement by 68% at a concentration of 40 mg/mL.

**Conclusion:** In conclusion, this study showed that the ethanolic extract prepared from the flowers of *Spartium junceum* plant has antibacterial and anti-quorum sensing activities, probably due to its rich phenolic phytochemical profile. When the findings are evaluated, it is concluded that the plant may be a promising candidate for the treatment of bacterial infections.

**Keywords:** *Spartium junceum*; Antibacterial, Antiquorum sensing.

## **OP014- Recurrent Familial Joubert Syndrome: A Case Report**

**0000-0003-4577-3368 Filiz Yarşılıkal Güleroğlu**

Haseki Training and Research Hospital, Department of Perinatology

Joubert syndrome (JS) is a rare autosomal recessive syndrome characterized by hypoplasia of the cerebellar vermis, hypotonia, abnormal respiratory pattern, eye movement disorders, ataxia, mental retardation, and growth retardation. The incidence is between 1/80.000 and 1/100.000, and over 30 gene mutations are responsible. A case of JS is presented due to a prenatal diagnosis of recurrent JS in a family with an affected child. The first child of the 35-year-old patient with Gravida: 3 Parity: 2 was diagnosed with JS. The pregnant woman had no additional systemic diseases. 4th-degree consanguinity existed between the mother and father, and the first child of the family was diagnosed with JS due to a mutation in the “RPGRIP1L” gene. At 24 weeks of gestation, the patient was referred to us for a specialized ultrasonography evaluation. In the ultrasonographic evaluation of the patient, vermis agenesis, an abnormally elongated configuration in the 4th ventricle, mega cisterna magna, the connection between the 4th ventricle and the cisterna magna, and thickening and elongation in the superior cerebellar peduncles leading to the sign of "molar tooth" were observed. In addition to the ultrasonographic findings, no additional intracranial anomaly was detected in the fetal MRI performed in the case. A prenatal diagnostic test was recommended for the case with the preliminary diagnosis of JS and a termination option was offered. The patient refused prenatal diagnostic procedures because she desired to continue her pregnancy. The patient gave birth at 39 weeks after the onset of spontaneous labor. The neonatal examination of the patient revealed no pathological findings. The newborn was discharged to be followed up in the genetics and pediatric neurology outpatient clinic. JS is an autosomal recessive neurologic disorder characterized by cerebellar vermis hypoplasia resulting in ataxia, hypotonia, developmental delay, neonatal respiratory dysregulation, and abnormal eye movements. No definitive treatment exists; only supportive care is provided. The cases should be followed in terms of eye, renal, and hepatic problems. The recurrence risk in families with affected children is 25%. If the gene mutation causing the disease in subsequent pregnancies is known, prenatal diagnosis of JS is possible with genetic counseling, and a specialized ultrasonography examination should be recommended between 20 and 22 weeks of pregnancy follow-up.

**Keywords:** Joubert Syndrome, Prenatal diagnosis, Molar tooth sign.



## **OP015- Determination of Dry Tibia Bone Morphometry by Photo Analysis**

**0000-0002-6067-0087 Şeyma Toy, 0000-0002-0118-6711 Yusuf Secgin**

Karabuk University, Faculty of Medicine, Department of Anatomy, Karabuk, Türkiye

**Aim:** This study was carried out in order to clearly reveal the morphometry of the tibia by means of the parameters obtained from the dry tibia bone by photo analysis method.

**Material and Methods:** 33 dry tibia bones were used in the study. Photographs of each dry tibia bone were taken by positioning the tibia bones 40 cm from the ground by means of a stabilizer and a professional camera 60 cm from the ground. The captured photos were transferred to the image processing program called Image J (Version 1.53e) in jpeg format. Medial condyle width, medial condyle height, lateral condyle width, lateral condyle height, distance between lateral– medial intercondylar tubercle, body of tibia width, total length of the tibia, medial malleolus height, medial condyle – tuberosity of tibiae – lateral condyle angle, fibular notch – tuberosity of tibiae – medial malleolus angle, inferior articular surface height, inferior articular surface width, nutrient foramen – interosseus border distance parameters were measured.

**Results:** Medial condyle width  $6.558 \pm 0.896$  cm, medial condyle height  $9.502 \pm 1.364$  cm, lateral condyle width  $6.035 \pm 0.988$  cm, lateral condyle height  $8.655 \pm 1.673$  cm, distance between lateral– medial intercondylar tubercle  $3.169 \pm 0.632$  cm, body of tibia width  $2.382 \pm 0.312$  cm, , total length of the tibia  $36,784 \pm 2.734$  cm, medial malleolus height  $1.296 \pm 0.209$  cm, condyle – tuberosity of tibiae – lateral condyle angle  $97.14 \pm 11.63^\circ$ , fibular notch – tuberosity of tibiae – medial malleolus angle  $7.313 \pm 0.514^\circ$ , inferior articular surface width was  $6.219 \pm 0.776$  cm, and inferior articular surface width, nutrient foramen – interosseus border distance was  $0.958 \pm 0.326$  cm. In addition, according to the Pearson Correlation test, between the parameters of medial condyle width and medial condyle height, lateral condyle width, lateral condyle height, between medial condyle height and lateral condyle height, total length of the tibia, between body of tibia width and total length of the tibia parameter. A highly significant relationship was found between them ( $p \leq 0.05$ ).

**Conclusion:** As a result of our study, the morphometric properties of the tibia were determined with 13 parameters obtained from the dry tibia bone and the relationship between these parameters was revealed. We believe that these morphometric features and the relationships between parameters will guide interventional operations and forensic identification.

**Keywords:** Dry tibia bone; Morphometry; Photo Analysis.

## **OP016- Associating Craniofacial Morphometry Determined by Photo Analysis with Somatotype in Healthy Young Individuals**

**0000-0002-0118-6711 Yusuf Secgin<sup>1</sup>, 0000-0002-6067-0087 Şeyma Toy<sup>1</sup>, 0000-0001-6226-9222 Deniz Şenol<sup>2</sup>, 0000-0003-0459-1015 Zülal Öner<sup>3</sup>**

<sup>1</sup>Karabük University, Faculty of Medicine, Department of Anatomy, Karabük, Türkiye

<sup>2</sup>Düzce University, Faculty of Medicine, Department of Anatomy, Düzce, Türkiye

<sup>3</sup>İzmir Bakırçay University, Faculty of Medicine, Department of Anatomy, İzmir, Türkiye

**Aim:** This study was conducted to evaluate the relationship between craniofacial morphometry and somatotype in healthy young individuals and to contribute to the medical sciences of this evaluated relationship.

**Material and Methods:** 191 healthy individuals between the ages of 18-30 were included in the study. Somatotype analysis of individuals was performed using the Heath-Carter method by using the Somatotype for Windows (version 1.2.6; Sweat Technologies, San Diego, CA, USA) program. For morphometric analysis, photographs of individuals were taken from a distance of 1 meter using a professional camera. Then, these photographs were transferred to Image J (Version 1.53e) program in jpeg format and craniofacial measurements (total nose length, nasal width, interpupillary distance, lower face height, total face height, mandible height and face width) were performed. In addition, Bruges, Vitruvian, indices of the ratio of lower height to total face height were included in our study.

**Results:** It was observed that a total of 191 individuals were distributed into 4 different classes according to the Heath-Carter method. It was found that the first class had 111 mesomorphic endomorphs, the second class had 33 individuals had endomorphic ectomorph, the third class had 32 individuals had endomorphic mesomorph, and the fourth class had 15 individuals had the central somatotype. A significant correlation was found between somatotype types, body mass index and total nose length using the Kruskal Wallis H test ( $p<0.05$ ). A highly significant correlation was found between total face height and mandible height using Spearman rho test ( $p<0.05$ ).

**Conclusion:** As a result of our study, statistically significant relationships were obtained between the somatotype types of healthy young individuals and craniofacial parameters. We believe that these relations will contribute to the experts interested in craniofacial morphometry.

**Keywords:** Somatotype; Craniofacial morphometry; Photo analysis.

\*This study was supported by Karabük University Scientific Research Projects Coordinatorship. Project Number: KBÜBAP-22-DS-008.

## **OP017- Retrospective Evaluation of Treatments Under General Anesthesia at Karabuk Mouth and Dental Health, Training and Research Hospital**

**0000-0003-3960-8518 Mihriban Gökcek Taraç**

Karabuk University, Faculty of Dentistry, Department of Pedodonti, Karabük, Türkiye

**Aim:** For young children or patients with special conditions, dental treatment may be a difficult process. It may be necessary to apply general anesthesia or sedation to reduce the level of anxiety and provide successful treatment. This study is a retrospective evaluation of the demographic data and treatments of our patients, whom we couldn't perform dental treatments with non-pharmacological behavioral guidance and treated under general anesthesia.

**Material and Methods:** In this study, the data of 99 patients treated under general anesthesia between March/2021-May/2022 were analyzed retrospectively. The variables examined were determined as age, gender, reason for general anesthesia, types of treatments and duration of anesthesia. The treatments performed were categorized as extraction, restorative treatments, root-canal treatment, amputation, fissure sealant, flour and space maintainers.

**Results:** Among patients who received dental treatment under general anesthesia, 47(47.5%) are female and 52(52.5%) are male. 38.4% of the patients has physical or mental disabilities. The mean age of disabled patients is 15.4, the mean age of all patients is 9.6. Most of the patients are in the 4-6 age group. The most common reason for general anesthesia is dental phobia. The mean anesthesia time is 87.3 minutes. It was observed that the duration of anesthesia is longer in patients who underwent endodontic treatment. The most common treatments are restorative treatments and extraction. The number of extracted permanent teeth in disabled patients is significantly higher ( $p<0.05$ ). Restorative and endodontic treatment of primary teeth were found to be significantly higher in healthy patients compared to permanent teeth ( $p<0.05$ ).

**Conclusion:** Under general anesthesia many restorative treatments were performed and the teeth of the patients were preserved. However, tooth extraction was preferred more in disabled patients because of providing oral hygiene is more difficult. Root-canal treatment under general anesthesia has become less common treatment option due to the length of the procedure. Preventive treatments such as fissure sealant or fluoride application were rarely preferred under general anesthesia. Thanks to general anesthesia, it become possible to provide qualified dental treatments to patients who couldn't treated non-pharmacological behavior guidance.

**Keywords:** General anesthesia, cooperation, restorative treatment.

## **OP018- Evaluation of Static and Dynamic Balance According to Body Composition After COVID-19 Infection**

**0000-0002-2495-8315 Furkan Bodur<sup>1</sup>, 0000-0001-6226-9222 Deniz Şenol<sup>2</sup>, 0000-0002-2290-3679 Demet Şencan<sup>2</sup>, 0000-0002-7813-723X Cenk Murat Özer<sup>1</sup>**

<sup>1</sup>Zonguldak Bülent Ecevit University Faculty of Medicine, Department of Anatomy, Zonguldak, Türkiye.

<sup>2</sup>Düzce University Faculty of Medicine, Department of Anatomy, Düzce, Türkiye.

**Aim:** This study was conducted to examine the body composition, static and dynamic balance parameters of individuals with COVID-19 infection and to compare these individuals with the control group.

**Materials and Methods:** Aged between 18-26 years, 56 individuals (28 Males, 28 Females) who had previously been diagnosed with COVID-19 by PCR test and 56 healthy individuals (28 Males, 28 Females), A total of 112 individuals participated in the study. Sociodemographic characteristics and COVID-19-related information of individuals in both groups were recorded. With Tanita 418 MA, whose body composition works with the bioelectrical impedance method; static balance With the Flamingo balance test (FDT); dynamic balance was evaluated with the Y balance test (YDT).

**Results:** There was no statistically significant difference between the control group and the control group in terms of body composition values of individuals who had COVID-19 ( $p>0.05$ ). In terms of static and dynamic balance values, all values were found to be statistically significantly lower in the COVID-19 group than in the control group ( $p<0.05$ ). When examined according to body mass index (BMI), it was concluded that healthy individuals with a BMI below 25 were statistically better in terms of dynamic and static balance values, excluding YDT anterior extensions, compared to individuals with a BMI below 25 who had COVID-19 ( $p<0.05$ ). According to the result of Pearson correlation analysis; It was observed that there was a significant and positive relationship in terms of other static and dynamic balance values except fat-free mass (FFM), total body fluid mass (TBW), body metabolic rate (BMR) and YDT anterior values ( $p<0.05$ ).

**Conclusion:** As a result of the study, it was observed that individuals between the ages of 18-26 who had COVID-19 infection were negatively affected in terms of static and dynamic balance parameters compared to healthy individuals of the same age, and it was determined that there was a significant relationship between body composition and balance.

**Keywords:** Body composition, COVID-19, Dynamic balance, Static balance.

**OP019- The Effect of Body Composition on Upper and Lower Extremity Neuromotor Performance in Healthy Young Individuals**

**0000-0002-2495-8315 Furkan Bodur<sup>1</sup>, 0000-0001-6226-9222 Deniz Şenol<sup>2</sup>, 0000-0002-2290-3679 Demet Şencan<sup>2</sup>, 0000-0002-7813-723X Cenk Murat Özer<sup>1</sup>**

<sup>1</sup>Zonguldak Bülent Ecevit University Faculty of Medicine, Department of Anatomy, Zonguldak, Türkiye.

<sup>2</sup>Düzce University Faculty of Medicine, Department of Anatomy, Düzce, Türkiye.

**Aim:** The aim of this study is to determine whether there is a relationship between body composition and upper and lower extremity visual reaction time (GRZ) and to compare upper and lower extremity visual reaction times.

**Materials and Methods:** A total of 112 individuals (56 Male, 56 Female) between the ages of 18-26 without any health problems participated in the study. Sociodemographic characteristics of the participants were recorded and body composition analysis and upper and lower extremity reaction time tests were performed. While body composition is evaluated with the Tanita BC 418 MA device working with the bioelectrical impedance method; upper and lower extremity reaction times were evaluated with the Light Trainer Exercises System (Model LTV2, Türkiye, 2017). The obtained data were analyzed in SPSS 22.0 for Windows package program.

**Results:** As a result of Pearson Correlation Analysis, body metabolic rate of upper and lower extremity visual reaction time ( $r=-0.32$ ,  $r=-0.22$ ), total body fluid mass ( $r=-0.33$ ,  $r=-0.24$ ) and body muscle ratio ( $r=-0.39$ ,  $r=-0.33$ ), there was a significant and negative correlation with body fat ratio ( $r=0.38$ ,  $r=0.32$ ). directional relationship was found ( $p<0.05$ ). According to the Paired Sample T test, the mean upper extremity visual reaction time of the participants was  $0.70\pm 0.81$  seconds and the lower extremity visual reaction time was  $0.78\pm 0.10$  seconds. According to the results of the analysis, it was observed that the upper extremity visual reaction time was statistically significantly shorter than the lower extremity visual reaction time ( $p<0.05$ ). It was also found that there was a significant and positive correlation between the upper and lower extremity visual reaction times ( $p<0.05$ ,  $r=0.59$ ).

**Conclusion:** As a result of the study, it was concluded that there was a statistically significant effect on body composition and upper and lower extremity neuromotor performance, and upper extremity visual reaction time was statistically significantly better than lower extremity visual reaction time.

**Keywords:** Body composition, Neuromotor performance, Reaction time.

## **OP020- Investigation of Reaction Time, Psychomotor Speed, Attention and Concentration Levels of Individuals With COVID-19 Infection**

**0000-0002-2495-8315 Furkan Bodur<sup>1</sup>, 0000-0001-6226-9222 Deniz Şenol<sup>2</sup>, 0000-0002-2290-3679 Demet Şencan<sup>2</sup>, 0000-0002-7813-723X Cenk Murat Özer<sup>1</sup>**

<sup>1</sup>Zonguldak Bülent Ecevit University Faculty of Medicine, Department of Anatomy, Zonguldak, Türkiye.

<sup>2</sup>Düzce University Faculty of Medicine, Department of Anatomy, Düzce, Türkiye.

**Aim:** The aim of this study is to examine the reaction time, psychomotor speed, attention and concentration parameters of individuals with COVID-19 infection and to compare these individuals with the control group.

**Materials and Methods:** Aged between 18-26 years, 56 individuals (28 Males, 28 Females) who had previously been diagnosed with COVID-19 by PCR test and 56 healthy individuals (28 Males, 28 Females), A total of 112 individuals participated in the study. Sociodemographic characteristics and COVID-19-related information of individuals in both groups were recorded. Reaction time with Light Trainer Exercises System (Model LTV2, Türkiye, 2017); psychomotor speed, attention and concentration performance were evaluated with the d2 attention test.

**Results:** Among the attention and concentration parameters, psychomotor speed ( $p=0.016$ ), psychomotor speed percentage ( $p=0.029$ ), and success score percentage ( $p=0.032$ ) were found to be statistically significantly lower than the control group in individuals who had COVID-19. In reaction time performance, upper extremity mean reaction time ( $p=0.00$ ), upper extremity fastest reaction time ( $p=0.00$ ), upper extremity final reaction time ( $p=0.04$ ), number of upper extremity deflated modules ( $p=0.00$ ), lower extremity mean reaction time ( $p=0.00$ ), lower extremity fastest reaction time ( $p=0.00$ ), lower extremity final reaction time ( $p=0.00$ ), lower extremity deflated module number ( $p=0.00$ ) values were found to be statistically significantly lower in the COVID-19 group than in the control group.

**Conclusion:** As a result of the study, it was determined that individuals between the ages of 18-26 who had COVID-19 infection were negatively affected in terms of reaction time and psychomotor speed parameters compared to healthy individuals in the same age group.

**Keywords:** Attention, Concentration, COVID-19, Psychomotor speed, Reaction time.

## **OP021- Billing Management Processes in Public Hospitals**

**0000-0002-6546-9200 Erdem Pirim<sup>1</sup>, 0000-0001-5893-1762 Sinan Bulut<sup>2</sup>**

<sup>1</sup>Bolvadin Dr. Halil Ibrahim Özsoy State Hospital, Afyonkarahisar, Türkiye

<sup>2</sup>Çankırı Karatekin University, Faculty of Health Sciences, Department of Health Management, Çankırı, Türkiye

In many countries and in Turkey, the demand for health services, which is one of the fastest growing sectors, is increasing exponentially every day. This increase in demand leads to an increase in health expenditures. Countries are making more and more efforts to use the share allocated to health services in their budget items more effectively and efficiently, to ensure the sustainability of health services, to control expenditures, to reduce costs, and for a fair and applicable health finance model. Many factors, especially repayment methods in health services, affect the quality of health services and the financial management of health service providers. Income of health institutions is an important determinant in ensuring service quality and sustainability. In order to provide this income, the scope, accessibility and costs of the services, as well as the correct invoicing and collection, are the processes that need to be well managed for health institutions. In this framework, the processes of billing the services offered in public hospitals were discussed in the study and the importance of the management of these processes was emphasized.

**Keywords:** Billing, hospital, process.



## **OP022- Approach To Trachea Bronchial Foreign Body Aspirations**

**0000-0001-5400-7652 Suleyman Anil Akboga**

University of Health Sciences, Ankara City Hospital, Department of Thoracic Surgery, Bilkent, Ankara/Türkiye

Tracheobronchial foreign body aspirations can occur in any age group, especially in childhood (60-70%). If not diagnosed early, it may cause complications such as pneumonia, abscess, bronchiectasis, recurrent hemoptysis or irreversible parenchymal damage and surgical resection may be required. In addition, foreign body aspirations that cause complete obstruction of the airway can cause sudden respiratory arrest and mortality. When the etiological reasons are examined, while aspiration of legumes such as toys, nuts, peanuts, chickpeas and beans is common in children, aspiration of coins, dental prosthesis, turban needles, metallic objects and food aspiration are common in adults. Although foreign bodies are most commonly localized in the right main bronchus (40-70%), they can also be seen in the supraglottic, glottic, tracheal and left main bronchus. It can also be seen in lobar, segmental and subsegmental bronchi. As the diameter of the airway obstructed by the foreign body increases (from subsegmental bronchi to the trachea), the importance of emergency intervention increases. The tirade of symptoms in foreign body aspiration was described by Wiseman in 1984. These symptoms are wheezing, coughing and air trapping on the affected side. Biphasec stridor is usually detected in patients with partial tracheal obstruction. If the foreign body is in the lower part of the trachea, expiratory wheezing becomes more pronounced than inspiratory stridor. If the foreign body is in the main bronchi, coughing and unilateral wheezing may be heard. The first examination to be made in the diagnosis is the posteroanterior chest X-ray. However, since 90% of foreign bodies are radiolucent, they can be detected by computerized tomography. However, the gold standard method in the diagnosis of foreign body in the airway, localization detection and treatment is bronchoscopy. As a result; Early diagnosis and treatment are very important in foreign body aspirations. Especially small children should be kept away from foods such as small toys, nuts, peanuts that they can aspirate, and women who use turban pins should not take the needle into their mouths. In addition, if there is a suspicion of aspiration, bronchoscopy should be performed for early diagnosis and treatment following radiological imaging.

**Keywords:** Foreign Body, Trachea, Bronchoscopy, Aspiration

## **OP023- Evaluation of the Foot Deformities in Children with Cerebral Palsy by Using Podoscope**

**0000-0002-7738-5565 Yaşam Verdi<sup>1</sup>, 0000-0002-1895-6436 Yasin Arifoğlu<sup>2</sup>**

<sup>1</sup>Düzce University Faculty of Medicine, Department of Anatomy, Düzce, Türkiye

<sup>2</sup>Bezmiâlem Vakıf University Faculty of Medicine, Department of Anatomy, İstanbul, Türkiye

**Aim:** Cerebral Palsy (CP) is a neuro-developmental disorder resulting from non-progressive injury of immature brain tissue. The total prevalence of CP is nearly 2-3 per thousand. Some various foot deformities can be observed in CP children and the early diagnosis of these deformities is important on account of treatment of the diseases. In this study, it was aimed to evaluate the foot deformities of children with CP.

**Material and Methods:** This study was carried out with in volunteer 47 CP children, 33 male and 14 female (3-17 years). The study was applied with 94 events (feet) and one of the foot of the two patients weren't appraised by the pes planus and pes cavus. The children's feet were pictured on podoscope and the degree of the calcaneovalgus, calcaneovarus, pes planus and pes cavus were investigated. The results were analysed statistically.

**Results:** According to the results of 92 events with in volunteer 47 CP children, pes planus was observed in 55 events (59.8 %) and pes cavus was in 6 events (6.5%). The number of determined heel events were 94, calcaneovalgus was observed in 57 events (60.63%) and calcaneovarus was in 6 events (6.38%). Calcaneovalgus and pes planus were observed together in 48 events (87.3%) ( $p < 0.05$ ). When the relationship of pes planus with age, direction, sex, and the types of the CP was examined, any significant relation was found between them ( $p > 0.05$ ).

**Conclusion:** Due to scant study of the pes planus and pes cavus included in deformities of CP children, this study is thought to be useful to demystifying the foot deformities of CP children.

**Keywords:** Anatomy, Cerebral palsy, Podoscope, Pes planus, Pes cavus

## **OP024- Review of the Cadaver Infectious Diseases From Past to Present**

**0000-0001-8548-242 Melike Tatli<sup>1</sup>, 0000-0002-0118-6711 Yusuf Secgin<sup>2</sup>, 0000-0002-6067-0087 Seyma Toy<sup>2</sup>**

<sup>1</sup>Karabuk University, The Institute of Graduate Studies, Department of Anatomy, Karabuk, Türkiye

<sup>2</sup>Karabuk University, Faculty of Medicine, Department of Anatomy, Karabuk, Türkiye

The aim of this study is to determine the infectious agents and diseases that may be encountered during the use of cadavers and to investigate various prevention methods in the literature for anatomists and students working in the dissection laboratory. This study was conducted by research the keywords "infectious diseases, cadaver diseases, anatomist hazards" in Pubmed and Google Scholar databases between 2002-2022. Out of the 20,100 publications obtained, 9 of them were used, which fit the idea of the study. In the literature review, it is stated that various diseases transmitted from cadavers, especially in the 17th and 18th centuries, caused the mortality of anatomists. It was concluded that cadaver is an infectious material until proven otherwise in 8 articles. In this literature review, it was concluded that the fixation of the cadaver did not prevent the infectivity of infectious agents. The only method to reduce the morbidity and mortality of infectious diseases caused by the use of cadavers is to take appropriate preventive measures. Proper fixation of the cadaver; Knowing the drugs used by the cadaver in the past and the history of the disease is still vital in minimizing the risks.

**Keywords:** Cadaver diseases, Anatomists hazards, Infectious diseases

## **OP025- The Thought of HPV Vaccination in Patients Who Visited the KETEM Polyclinic. How Ready are We for the HPV Vaccine?**

**0000-0002 0261-6293 Ferit Kaya**

Department of Public Health, Adıyaman University Faculty of Medicine, Adıyaman, Türkiye

**Aim:** The aim of the study is to obtain information about the frequency of HPV positivity among women who visited the KETEM (Cancer Early Diagnosis Screening and Training Center) polyclinic and the approach of participants to HPV vaccine.

**Material and Methods:** The study was conducted among 271 women who visited the Adıyaman Provincial Health Directorate KETEM polyclinic. The applied questionnaire consists of 25 questions. Questionnaires were administered through face-to-face interviews. Categorical variables were expressed as numbers and percentages. Means are given with standard deviations. X<sup>2</sup> and t tests were used as statistical analysis method. p<0.05 was accepted as significant.

**Results:** The mean age of the participants was 47.12±8.60, and 79.3% of them had secondary and pre-school education. HPV positivity rate was 2.2%. The rate of those who had pap smears before was 89.7%. The rate of those who heard about the HPV vaccine was 20.7%. 57.9% of the participants had no idea that the HPV vaccine was protective against cancer. As the education level increased, the level of hearing about the HPV vaccine increased significantly (p<0.05). The rate of those who had the idea of having their children vaccinated against HPV was significantly higher in those with secondary school or higher education (p<0.05). The mean age of those who heard about HPV vaccine was significantly lower than those who did not (p<0.05). Among the civil servants, the rate of those who heard about HPV vaccine (84.2%) and those who thought that HPV vaccine was protective against cervical cancer were significantly higher than housewives and workers (p<0.05).

**Conclusion:** It was observed that the rate of hearing about the HPV vaccine of the participants was low. Those with high education levels have a high rate of hearing about the HPV vaccine. It has been observed that people are thinking of getting vaccinated if the HPV vaccine is put into routine practice. Awareness can be increased with trainings organized for the prevention of cervical cancer. Thus, it will contribute to the maintenance of public health.

**Keywords:** HPV, vaccine, communicable disease, reproductive health

## **OP026- Evaluation of the Impact of the COVID-19 Pandemic on Cystic Echinococcosis Indirect Hemagglutination Test Dynamics**

**0000-0002-9695-5703 Ozlem Ulusan Bagci**

İzmir Kâtip Çelebi University Atatürk Training and Research Hospital, Medical Microbiology Laboratory

**Aim:** It was aimed to determine the effects of the pandemic on the diagnosis of the cystic echinococcosis (CE) disease by evaluating the number and results of indirect hemagglutination (IHA) test in our hospital before and during the COVID-19 pandemic.

**Material and Methods:** In our study, the 30-month periods before and after March 11, 2020, when the first COVID-19 case in our country was seen, were evaluated comparatively in terms of IHA numbers and positivity rates. In our hospital, a commercial kit (Hydatidose, Fumouze laboratoires, France) is used to detect antibodies in serum for the diagnosis of CE. If more than one sample of the same patient was received, the first sample was taken into consideration. If the patient had both negative and positive results, the first positive sample was included in the study.

**Results:** In the period between 10 September 2017 and 10 March 2020, samples of 1444 patients were evaluated in our laboratory. Of the patients, 840 (58.16%) were female and 604 (41.84%) were male; While the average age of men is 53, the average age of women is 52. In total, 18.49% of the patients were found to have positive IHA (female: 18.93%, male: 17.88%). Of the patients, 1429 (98.96%) were Turkish and 15 (1.04%) were foreign nationals. The positivity rate in Turkish and foreign patients was 18.26% and 40%, respectively, and the difference was statistically significant ( $p=0.043$ ). Between 11 March 2020 and 11 September 2022, samples of 870 patients, 530 of whom (60.92%) were female and 340 (39.08%) were male, were evaluated. The mean age of the patients is 52 years. IHA positivity rate is 14.6% (female: 13.40%, male: 16.47). While 853 (98.05%) of the patients were Turkish, 17 (1.95%) were foreign nationals. While the positivity rate for Turkish people is 14.54%, it is 17.65% for foreign nationals; the difference was not statistically significant ( $p=0.726$ ).

**Conclusion:** A significant decrease was observed in the rate of IHA positivity during the pandemic period ( $p=0.016$ ). The status of no increase in positivity rates despite a significant decrease in IHA tests makes us think that the diagnosis may be missed in some patients or that there could be disruptions in their follow-up. For this reason, in order to continue the fight

successfully against CE, which is an important public health problem for our country, early diagnosis and regular follow-ups should be emphasized with educations, and the laboratory-clinician communication should be strengthened in order to use tests more effectively.

**Keywords:** Covid-19, indirect hemagglutination test (IHA), cystic echinococcosis (CE), pandemic.

## **OP027- Use of the Roy Adaptation Model in the Care of Adolescents Treated for Substance Addiction in the Covid-19 Pandemic-Case Report**

**0000-0001-6814-464X N. Ecem Oksal Güneş**

Toros Public Hospital, Child Alcohol and Substance Addiction Research and Treatment Center,  
Mersin

**Aim:**Due to the restrictions made in addiction centers in the Covid-19 pandemic, addicted adolescents experience difficulties in adapting to treatment and care. Nurses' care for patients using a model brings holistic care. In this case report, the care management of the adolescent hospitalized in an alcohol and substance abuse center in the Mediterranean region for treatment during the Covid 19 pandemic was examined based on the Roy Adaptation Model (RAM). By providing nursing care to the addicted adolescent in line with the RAM, it is aimed that the adolescent adopts the process of accepting the disease and adapting to the treatment with the hospital restrictions of the pandemic period.

**Materials and Methods:** The data were collected on the physiological adaptation, self-concept adaptation style, role and functional adaptation style and interdependence adaptation style in Roy Adaptation Model (RAM) by using observation, physical examination and communication techniques, and nursing practices were carried out.

**Results:** As a result of the nursing interventions based on the Roy Adaptation Model, the adolescent's compliance with the treatment, relief of pain, elimination of sleep problems, and reduction of anxiety were evaluated as a positive response. It was observed that there were no signs of infection in the adolescent, but the risk of infection continued. The adolescent's adaptation to the social environment and treatment was ensured by his participation in in-service activities planned in accordance with the isolation rules. It was observed that the nursing interventions contributed to the role performance and positive social interaction that the adolescent is accustomed to.

**Conclusion:** In this case report, it was seen that the use of the Roy Adaptation Model was appropriate, considering that the most common problem among adolescents hospitalized for addiction treatment during the pandemic is compliance with treatment and social environment. With the hospital restrictions of the pandemic period, it was observed that the adolescents contributed to their adaptation to treatment and social environment. The most important

problem in addiction treatment is compliance with the social environment and treatment. It is thought that this case report, will contribute to the care protocol that the nurses who care for the adolescent undergoing addiction treatment will create for the adolescent's adaptation to the social environment and treatment.

**Keywords:** Adolescent, Addiction, Care, Covid-19 pandemic, Roy adaptation model.



## **OP028- Tracheal Rupture After Intubation**

**0000-0001-7112-8878 Kenan Kart<sup>1</sup>, 0000-0001-6888-9924 Erol Toy<sup>2</sup>, 0000-0001-7082-0555**

**Duygu Taşkın<sup>1</sup>**

<sup>1</sup>Karabuk University, Faculty of Medicine, Department of Anesthesiology and Reanimation

<sup>2</sup>Karabuk University Training and Research Hospital, Anesthesia and Reanimation Clinic

Tracheal rupture is most commonly seen after blunt trauma and can rarely be seen during endotracheal intubation or after extubation. Although tracheal rupture is rare, it may cause mortality by causing mediastinal emphysema, tension pneumothorax or prolapse of the esophageal wall into the tracheal lumen. In this case report, that we presented is a patient with tracheal rupture in the postoperative period. A 53-year-old female patient with ASA physical score of II was operated for cervical disc herniation repair. During the anesthesia, intubation and extubation procedures of the patient were performed without any problems. Approximately 2 hours after the operation, crepitation was observed in the neck and face in the examination due to swelling and pain in these parts after a deep cough. On the thorax computed tomography (CT) imaging, diffuse soft tissue edema extending from the chest region to the neck and a rupture of approximately 1.5 cm in the trachea were detected. Subcutaneous edema and diffuse mediastinal emphysema were detected in the patient without pneumothorax. The patient was referred to an advanced center for treatment without delay. Although tracheal rupture after intubation is a rare complication, the time elapsed until the diagnosis is made may result in the mortality of the patient. Early diagnosis and treatment are important to prevent complications such as pneumothorax, pneumomediastinum, mediastinitis, and sepsis caused by tracheal rupture. Tracheal rupture should be considered in the differential diagnosis of neck and facial swellings in the postoperative period and should be diagnosed with CT in the early period. We believe that rapid diagnosis and treatment will be life-saving.

**Keywords:** Tracheal rupture, endotracheal intubation, complication

**OP029- Analysis of the Distances of Morphometric Measurements Taken from the Auricles of Male Individuals with Different Somatotypes to the Midline of the Face**

**0000000162269222 Deniz Şenol, 0000000222903679 Demet Sencan, 0000000324539695 Sıdıka Karaketir**

Düzce University Faculty of Medicine Department of Anatomy, Düzce, Türkiye

**Aim:** The size and angle of the ear shape and its distance to the midline of the face is affected by many factors and it is a commonly researched topic in modern times. The aim of the present study is to evaluate the distances of morphometric measurements taken from the ears of male individuals with different somatotypes to the midline of the face.

**Material and Methods:** 101 male individuals between the ages of 18 and 29 participated in the study. The individuals who participated in the study were photographed on 'Frankfurt Horizontal Plane', 1,5 meters away. The length between the supaurale(supa), tracion(t), subaurale(suba) points of the auricle to the trichion(tr), nasion(n), pronasale(prn), subnasale(sn), stomion(sto), gnathion(gn) points in the midline of the face were measured. Each measurement was carried out by taking 18 linear measurements from the right and left sides of individuals. Indirect anthropometric measurements were conducted with Image J program. 10 direct anthropometric measurements as height, weight, 4 different areas (triceps, subscapular, supraspinale and calf), 2 bone diameter measurements (knee and elbow) and 2 circumference measurements (arm and calf) were taken to determine the somatotype and body composition of individuals. Somatotypes were calculated by using Heath-Carter method with the data obtained.

**Results:** As a result of Kruskal Wallis H test, statistically significant difference was found in parameters of somatotype data except for height ( $p < 0,05$ ). No statistically significant difference was found between indirect anthropometric measurements taken from the auricle and somatotypes ( $p > 0,05$ ).

**Conclusion:** The present study is the first study evaluating somatotype of ear morphometry, which is aesthetically important for humans. Our study will be a pioneer for many future studies. Supporting the present study with a study including a higher participation and female individuals will make a great contribution to making the data base that can be created stronger.

**Keywords:** Auricle, Somatotype, Morphometry

## **OP030- Treatment of Maxillary Constriction with Rapid Maxillary Expansion Appliance**

**0000-0002-6367-8025 Melike Duran**

Private Practice, Tokat, Türkiye

The aim of the study is to present the treatment of a patient with maxillary constriction with a rapid maxillary expansion device. A female patient, whose chronological age is 15 years and 7 months, was admitted to our clinic with the complaint of crowding in her lower and upper anterior teeth. In the intraoral examination of the patient, class 1 molar and canine relationship on the right and left sides; V-shaped maxillary arch; It was determined that the mandibular arch collapsed in the right and left posterior regions. It was seen that the patient was at the Radius union stage in the wrist radiograph. In the model analysis, a space requirement of 1.2 mm in the maxilla and 4.8 mm in the mandible was determined. In the treatment plan, rapid maxillary expansion with an acrylic cap-splint style appliance and then fixed treatment planning without extraction was performed. At the end of the treatment, the maxillary constriction was eliminated, the teeth were leveled, and a serious improvement was observed in the patient's smile aesthetics.

**Keywords:** Maxillary constriction, Rapid maxillary expansion, Crowding.

## **OP031- Forced Eruption of Palatally Impacted Maxillary Canines with Shoulder Spring**

**0000-0002-6367-8025 Melike Duran**

Private Practice, Tokat, Türkiye

Impacted maxillary canines are one of the most common orthodontic clinical problems. The aim of the study is to present the treatment of palatal impacted maxillary canine tooth with shoulder spring. A female patient, whose chronological age is 17 years and 3 months, was admitted to our clinic with the complaint of gaps in her upper anterior teeth. In the intraoral examination of the patient, a class 1 molar and canine relationship was detected on the right and left sides, and a diastema between the upper centrals. While the patient's right upper primary canine was observed in the mouth, radiographic examination revealed that the right upper permanent canine was palatal impacted. In the model analysis, 1.1 mm excess of space in the maxilla and 0.5 mm space requirement in the mandible were determined. In the treatment plan, it was decided to maintain the impacted canine using a shoulder spring. Since the lateral tooth is not used for anchoring with the shoulder spring, risks such as root resorption are eliminated. At the end of the treatment, the impacted canine was maintained and a serious improvement was observed in the patient's smile aesthetics.

**Keywords:** Impacted maxillary canine, Space requirement, Root resorption

## **OP032- Evaluation of Smartphone Addiction, Body Image and Perceived Stress Level in Individuals with Different Levels of Physical Activity**

**0000-0001-7236-2797 Bihter İkiz<sup>1</sup>, 0000-0002-2495-8315 Furkan Bodur<sup>2</sup>, 0000-0002-2290-3679 Demet Şencan<sup>3</sup>, 0000-0002-4016-6692 Berfu Çerçi Öngün<sup>4</sup>**

<sup>1</sup>Eastern Mediterranean University Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation, Famagusta, TRNC

<sup>2</sup>Zonguldak Bülent Ecevit University Faculty of Medicine, Department of Anatomy, Zonguldak, Türkiye

<sup>3</sup>Düzce University Faculty of Medicine, Department of Anatomy, Düzce, Türkiye.

<sup>4</sup>Eastern Mediterranean University Faculty of Medicine, Department of Anatomy, Famagusta, TRNC

**Aim:** The aim of this study was to investigate smartphone addiction, body image and perceived stress levels of individuals who have different physical activity levels and determine the relationship between these parameters.

**Materials and Methods:** A total of 196 individuals, 143 female, and 53 male were included in the study using the convenience sampling method. The inclusion criteria were; healthy adults between the ages 18 and 56, who used Telegram or WhatsApp applications; were literate, and did not have any orthopedic, neurological, psychiatric, or systemic disorders. 'International Physical Activity Questionnaire (UFAA)' for determining physical activity levels; 'Smartphone Addiction Scale-Short Form (ATBÖ-SF)' for smartphone addiction; 'Satisfaction with Body Regions and Characteristics Scale (BBÖMÖ)' for body image assessment; Perceived Stress Scale (PSS) for determining stress levels were used. All participants completed the surveys online via Google forms.

**Results:** Healthy individuals were classified as inactive (n=62), minimally active (n=81), and very active (n=53) according to their UFAA scores. There were no significant difference between the parameters in terms of smartphone addiction and perceived stress according to physical activity levels ( $p>0,05$ ). Other statistical analyses indicated a statistically significant association between time spent on smartphones, smartphone addiction, and body image; monthly income and perceived stress; gender and body image, and energy consumption rate. (MET) ( $p<0.05$ ).

**Conclusion:** According to the findings of this study, physical activity levels have no bearing on smartphone addiction, body image, or perceived stress; rather, it is the increased time spent using smartphones, which is thought to be a result of modern technology advancements, that has an impact on both perceived stress and body image, as well as monthly income.

**Keywords;** Body image, Perceived stress, Physical activity, Smartphone addiction.

**OP033- Evaluation of the Differences of Parameters Obtained From Computed Tomography Images of Structures in the Eyeball and Orbit According to Age and Gender**

**0000-0002-1778-2745 Nurhan Akyer<sup>1</sup>, 0000-0002-6067-0087 Şeyma Toy<sup>2</sup>, 0000-0002-0118-6711 Yusuf Seçgin<sup>2</sup>, 0000-0001-6226-9222 Deniz Şenol<sup>3</sup>, 0000-0002-7802-880x Serkan Öner<sup>4</sup>, 0000-0003-0459-1015 Zülal Öner<sup>5</sup>, 0000-0002-1086-9514 Muhammed Kâmil Turan<sup>6</sup>**

<sup>1</sup>Karabük University Graduate School of Education, Department of Anatomy, Karabük, Türkiye

<sup>2</sup> Karabük University, Faculty of Medicine, Department of Anatomy, Karabük, Türkiye

<sup>3</sup> Düzce University, Faculty of Medicine, Department of Anatomy, Düzce, Türkiye

<sup>4</sup> İzmir Bakırçay University, Faculty of Medicine, Department of Radiology, İzmir, Türkiye

<sup>5</sup> İzmir Bakırçay University, Faculty of Medicine, Department of Anatomy, İzmir, Türkiye

<sup>6</sup> Karabük University, Faculty of Medicine, Department of Medical Biology and Genetics, Karabük, Türkiye

**Aim:** The eye is the organ of vision that ensures the transmission of incoming rays to the center of vision. Determining the standard measurements of the eye and the structures in it guides the diagnosis, treatment of different diseases and planning of surgical intervention. The aim of this study is to reveal the differences of the parameters obtained from the structures in the bulbus oculi and orbit according to different age groups and gender by Computed Tomography (CT) imaging method.

**Material and Methods:** 20K-20E (Group 1) aged 30-40 years, 20K-20E aged 41-50 years (Group 2), 20K-20E aged 51-60 years (Group 3), 20K-20E aged 61 years and older (Group 4) were used in the study and CT images of individuals were examined. Images are brought to the orthogonal plane, and the right and on the left side of the width of the bulbus oculi (BOW), the length of the axis of eyeball (AL), the angle between the optic nerve with axis of eyeball dec (A-Cr2A), the length of the lateral rectus (RLL), and the length of the medial rectus muscle (RML) up to the Zinn ring, the length of the anterior chambers of eyeball (ACL), the thickness of the lens (LT), the length of the lens (LL), the length of the vitreous body (VL), the length of the optic nerve from the Zinn ring (Cr2L), the differences of the parameters of the optic nerve

thickness (Cr2T), distance between two orbital (OD), distance between two bulbus oculi (BOD) parameters according to age and gender were evaluated.

**Results:** As a result of our work in the comparisons between the sexes in Group 1, BOD, OD, bulbus in the right oculi Cr2T, VL, in the left bulbus oculi Cr2T, Cr2L, RML, in Group 2, BOD, OD, bulbus in the right oculi AL, Cr2L, Cr2T, A-Cr2A, RLL, RML, ACL oculi in the left bulbus, Cr2L, Cr2T, RLL, RML and BOW, BOD in Group 3, the left bulbus oculi in Cr2L, Cr2T, the right of individuals in Group 4 in male than female individuals oculi AL bulbus in the parameter measurements was found to be high and significant. In Group 4 in the right bulbus oculi LT, RML measurements in male subjects as compared to the left bulbus oculi found to be more in women ( $p < 0.05$ ) for the comparison of the four groups of male subjects in the right bulbus oculi LT, Cr2L, A-Cr2A, RML, no significant difference was found in the left bulbus oculi Cr2L and RLL between the two groups ( $p < 0.05$ ) in the study of female individuals of the four groups, BOD, right and left bulbus in oculi LT, Cr2L, RLL, RML and the parameter in the left bulbus oculi Cr2T no significant difference was found between groups ( $p < 0.05$ ).

**Conclusion:** As a result of our study conducted on computed tomography images, it was determined that age and gender differ in the parameters we determined. We believe that this study will help in the planning of diagnosis, treatment and surgical interventions in the clinic.

**Keywords:** Anterior chamber, Lens, Bulbus oculi, Extrinsic eye muscles, Optic nerve, Axis length.



## **OP034- Evaluation of Patients Presenting with First Febrile Seizure**

**0000-0002-5355-8994 Mahmut Aslan**

VM Medical Park Mersin Hospital, Mersin, Türkiye

**Aim:** Febrile seizure (FS) is considered the most common convulsive event of childhood, occurring in 2% to 5% in infants and children. The American Academy of Pediatrics (AAP) defines febrile seizures as seizures accompanied by fever ( $>38^{\circ}$  by any method) that occur in neurologically healthy infants and children (6 through 60 months of age) who do not have intracranial infection, metabolic disturbance, or a history of afebrile seizures.

**Material and Methods:** In this study, 82 patients aged between 6-60 months who applied to Mersin City Training and Research Hospital with the first febrile seizure between January 2020 and May 2021 were included in the study. The definition of American Academy of Pediatrics of febrile seizures was followed and used as inclusion/exclusion criteria. We evaluated the demographic and laboratory findings, family history, EEG findings and prognosis of the patients. Statistical analysis was performed using SPSS version 19 program for windows.

**Results:** Of the 82 children, there were 42 boys (51.2%) and 40 girls (48,8%). Their average age at presentation of first febrile seizure was  $21,05 \pm 16,22$  months. First febrile seizure was simple in 46,3% of the children (n=38) and complex in 53,7% (n=44). Eight patients (9,7%) had a family history of epilepsy, and 16 patients (19,5%) had a family history of febrile seizures. Fever focus was found in 32 patients (39,1%) with upper respiratory tract infection (URTI), 14 patients (17,1%) with lower respiratory tract infection, 18 patients (21,9%) with gastroenteritis, 6 patients (7,3%) with urinary tract infection and 12 patients (14,6%) was unknown.

**Conclusion:** According to our data, the family history of FS, epilepsy and URTI are the main risk factors for seizure in febrile children. Complicated FS is a serious risk factor for the development of epilepsy.

**Keywords:** Febrile seizure, fever, risc factors, child

## **OP035- Pulmonary Embolism During Cesarean Section With Spinal Anesthesia**

**0000-0001-7082-0555 Duygu Taşkın<sup>1</sup>, 0000-0001-6888-9924 Erol Toy<sup>2</sup>, 0000-0001-7112-8878 Kenan Kart<sup>1</sup>, 0000-0002-4202-1681 Halis Doğukan Özkan<sup>3</sup>**

<sup>1</sup>Karabuk University, Faculty of Medicine, Department of Anesthesiology and Reanimation

<sup>2</sup>Karabuk University Training and Research Hospital, Anesthesia and Reanimation Clinic

<sup>3</sup>Karabuk University Training and Research Hospital, Obstetric and Gynecology Clinic

Pulmonary embolism (PE) is a clinical picture that occurs with occlusion of pulmonary artery branches. The most common cause of occlusions is thrombus reaching the lungs with venous blood flow. The source of thrombus is mostly the lower extremity veins. More rarely, air, oil droplets, amniotic fluid and neoplastic cells can also cause embolism. PE is one of the leading causes of pregnancy-related maternal deaths. The risk of PE is higher in the postpartum period, especially in cesarean deliveries. A 21-year-old, 38 weeks pregnant woman without any additional disease was taken to cesarean section with the indication of previous cesarean section and contraction. Spinal anesthesia was applied to the patient with 12.5 mg bupivacaine heavy. During delivery of the baby, the patient had respiratory distress, peripheral oxygen saturation decreased to 30% and then arterial blood pressure was measured as 58/35 mmHg. The patient was intubated and her airway was kept open, oxygenation and hemodynamics were corrected and the operation was completed. At the end of the operation, she was transferred to the intensive care unit without being extubated. Different diagnoses such as increased spinal anesthesia level, acute respiratory distress syndrome and pulmonary edema that could cause acute respiratory distress were excluded. Thorax computed tomography (CT) imaging was relevant with PE. Low molecular weight heparin and lung protective mechanical ventilator therapy was applied to the patient. The patient whose control thorax CT appearance was not consistent with PE on the 6th day after the treatment, was extubated and discharged with recommendations. The etiology of PE in pregnancy is multifactorial. Activation of the hemostatic system, regional blood flow stasis, pelvic venous compression of the enlarged uterus are important mechanisms. The effects of these mechanisms reach their peak towards the end of pregnancy. Surgery, tissue damage, catecholamine release and systemic inflammatory responses resulting from surgery in women who delivered by cesarean section synergistically activate coagulation factors and platelets, it may further increase coagulation. Surgery may also reduce blood flow in the lower extremity deep veins and aggravate regional stasis. These

mechanisms may explain the higher incidence of PE in cesarean deliveries. In conclusion, it should be kept in mind that PE, which is one of the most common causes of postpartum deaths, may develop during cesarean section and patients should be followed closely.

**Keywords:** Pulmonary embolism, cesarean section, pregnancy

## **OP036- Treatment of Skeletal Class 2 Malocclusion with Functional Appliances**

**0000-0002-6367-8025 Melike Duran**

Private Practice, Tokat, Türkiye

Various functional appliances are used to change the growth direction and amount of the mandible in Class II anomalies characterized by mandibular growth retardation. The aim of the study is to present the treatment of skeletal class 2 malocclusion with twinblock, which is one of the removable functional appliances. A female patient, whose chronological age is 13 years and 4 months, was admitted to our clinic with the complaint of retruding lower jaw. In the intraoral examination of the patient, class 2 molar and canine relationship, maxillary constriction, 11 mm overjet, 5.3 mm overbite were detected on the right and left sides. It was observed that the patient was in the MP3cap stage on the wrist radiograph taken. According to the lateral cephalometric analysis, it was measured as SNA:83.8°, SNB:79°, ANB:4.8°, U1 SN:124.9.9°, IMPA:98°, Wits:5.5 mm. In the treatment plan, functional treatment with expansion screw twinblock and then fixed treatment without extraction were planned. According to the cephalometric analysis at the end of the treatment, it was measured as SNA:83.6°, SNB:81°, ANB:2.6°, U1-SN:107.9°, IMPA:107.1°, Wits:2.1 mm. At the end of the treatment, ideal overjet and overbite were achieved and an ideal occlusion was obtained.

**Keywords:** Skeletal class 2, functional appliance, twinblock

## **OP037- Syndesmosis Injury In Sports and Rehabilitation Approaches**

**0000-0002-3636-8240 Tarık Burkay<sup>1</sup>, 0000-0001-7216-7959 Fatma Kızılay<sup>2</sup>**

<sup>1</sup>İnönü University, Institute of Health Sciences, Department of Physiotherapy and Rehabilitation, Malatya, Türkiye,

<sup>2</sup>İnönü University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation, Malatya, Türkiye

Ankle sprains are one of the most common types of injuries in sports injuries, and syndesmosis injuries are increasingly being diagnosed. Despite the high incidence of ankle sprains in athletes, it is thought that syndesmosis injuries have been underdiagnosed and treated poorly in the historical process. Recently, increased awareness in sports medicine has led to more frequent diagnosis of syndesmosis injuries. This has led to the need for more information in the treatment of syndesmosis injuries. However, when the literature is searched, low level of evidence and insufficient number of studies are found. This systematic review will examine the controversies and shortcomings in management while discussing the anatomy, mechanism of injury, and rehabilitation process of ankle syndesmosis sprains. In the relevant literature review, 'PubMed, Scopus, Web of Science and Google Scholar' databases were searched and accessible results of six study were compiled using the keywords 'syndesmosis injuries' and 'sports'. It is clear from the low-level evidence available in the literature on this topic that much work is needed before definitive statements about the treatment of these injuries can be made with confidence. The general opinion is that the rehabilitation process of syndesmosis injuries can be managed in 3-4 stages, and there are similar approaches before and after surgery. In order to reveal the optimal rehabilitation criteria, studies with a high level of evidence are needed that examine both the rehabilitation process of stable syndesmosis injuries and the pre- and post-surgical rehabilitation process of unstable syndesmosis injuries, revealing risk factors, injury mechanism, and recurrence rate.

**Keywords:** Ankle, syndesmosis, sport

## **OP038- Clinical and Overall Survival Characteristics of Non-metastatic Skin and Uveal Malignant Melanoma Patients**

**0000-0002-4722-5472 Müge Büyükkaksoy<sup>1</sup>, 0000-0002-3426-9505 Selin Aktürk Esen<sup>2</sup>,  
0000-0002-0929-3271 Doğan Uncu<sup>2</sup>**

<sup>1</sup>Ankara City Hospital, Internal Medicine Clinic, Ankara, Türkiye

<sup>2</sup>Ankara City Hospital, Medical Oncology Clinic, Ankara, Türkiye

**Aim:** The incidence of malignant melanoma is increasing all over the world. Although its incidence is variable, it is the 5th most common type of cancer in men and women in the USA. In this study, it was aimed to evaluate and compare the clinical-pathological features and survival results of non-metastatic cutaneous and uveal MM patients followed in our center.

**Material and Methods:** The files of patients diagnosed with non-metastatic cutaneous and uveal MM, who were followed up in Ankara Numune Training and Research Hospital and Ankara City Hospital Medical Oncology clinics between December 2005 and June 2022, were reviewed retrospectively. The clinical and pathological features of the patients were noted in their survival files. The obtained data were analyzed and compared.

**Results:** A total of 69 patients, 53 patients with non-metastatic cutaneous MM and 16 patients with uveal MM, were included in the study. The median age at diagnosis of patients with uveal MM was 59 years, and 11 (68.8%) of the patients were male and 5 (31.3%) were female. The median age at diagnosis of cutaneous MM patients was 56 years, with 23 (43.4%) male and 30 (56.6%) female patients. While 11 (68.7%) of the uveal MM patients had localized disease, 5 (18.8%) had extraocular involvement. While 34 (64.2%) of the skin MM patients had localized disease, 19 (35.8%) had regional disease. The most common tumor localizations in cutaneous MM patients were lower extremity (41.5%), trunk (20.8%), and face (11.3%). Morphologically, the most common nodular MM was detected (28.3%). The disease was located in the right eye in 10 (62.5%) of uveal MM patients and in the left eye in 6 (37.5%) patients. There were choroidal involvement in 7 patients (43.8%), iris in 2 patients (12.5%), ciliary body+choroidal involvement in 1 patient (6.3%), and panuveal involvement in 1 patient (6.3%). Enucleation was performed in 13 (81.3%) of the uveal MM patients at diagnosis and then the patients were followed up without medication. 3 patients (18.7%) were considered inoperable and treated with radiotherapy. Thirty-three (62.3%) patients with cutaneous MM were operated at diagnosis

and followed up without medication, temozolomide treatment was started in 3 (5.7%) inoperable patients. 17 patients (32.1%) were operated and received adjuvant IFN-alpha treatment. While overall survival was 4.9 (3.2-6.6) years in the uveal MM group, it was 5 (1.9-8.1) years in the cutaneous MM group (p=0.64).

**Conclusion:** 5-year survival in localized disease in cutaneous MM varies between 68-93%. 5-year survival in uveal MM is over 85%. In this study, 5-year survival was found to be 46% in uveal MM and 43% in cutaneous MM. Including those with non-metastatic, regional or extraocular disease may have reduced 5-year survival rates. In conclusion, survival is significantly higher in patients with local/regional disease in contrast to metastatic MM. With early diagnosis and treatment, the life expectancy of patients can be significantly improved.

**Keywords:** Overall survival, cutaneous malignant melanoma, uveal malignant melanoma

## **OP039- Colchicine Induced Rhabdomyolysis and Acute Kidney Injury**

**0000-0002-7235-7979 Bilal Katipoğlu**

University of Health Sciences, Department of Internal Medicine, Division of Geriatrics,  
Ankara, Türkiye

Limited case reports of colchicine-induced rhabdomyolysis have been published. This report discusses a case of colchicine-induced rhabdomyolysis in a patient with acute renal failure. An 88-year-old man was admitted to our hospital due to persistent diarrhea, vomiting, and diffuse weakness. Past medical history included hypertension, cerebrovascular occlusion, and gout. Approximately a few days before admission, he had been started on colchicine and allopurinol. Laboratory workup showed elevated serum creatinine of 2.74 mg/dL and blood urea nitrogen of 141 mg/dL, elevated serum creatine kinase (CK) of 5050 IU/L and CK-MB of 99 IU/L but with normal Troponin-I. Electrolytes including sodium 138 mmol/L, and potassium 3.6 mmol/L were within normal limits. His urine was bloody in appearance and urine analysis showed blood reaction with a dipstick test, but there were no erythrocytes on microscopic examination. Colchicine was withdrawn because of renal impairment. Ultrasound scan of the kidneys was normal. Rhabdomyolysis was diagnosed on clinical and biochemical grounds. Intravenous infusion with normal saline 2500 mL per day was administered. Thereafter, progressive normalization of CK and renal function results were observed. Because of his clinical presentations of elevated CK, impaired renal function, and proximal weakness, colchicine was thought to be the causative factor for rhabdomyolysis in conjunction with acute renal failure because of the onset of symptoms temporal relationship with medication, improvement following colchicine discontinuation. Fourteen days after colchicine withdrawal, his muscle power had returned to normal and he was mobilizing independently. He was discharged home with instructions to continue his clinical follow-up with his primary care physician within two weeks.

**Keywords:** Acute Kidney Injury, Colchicine, Gut, Rhabdomyolysis,



## **OP040- Investigation of the Relationship between Somatotype and Anthropometric Measurements Obtained from the Auricle of Healthy Young Individuals**

**0000-0002-5185-735X Cihan Kaya<sup>1</sup>, 0000-0002-6067-0087 Şeyma Toy<sup>2</sup>, 0000-0002-0118-6711 Yusuf Seçgin<sup>2</sup>**

<sup>1</sup>Karabük University Graduate School of Education, Department of Anatomy, Karabük, Türkiye

<sup>2</sup>Karabük University, Faculty of Medicine, Department of Anatomy, Karabük, Türkiye

**Aim:** Somatotype is the classification of body types with different physical characteristics by researching. This study was carried out to correlate the somatotypes of anthropometric measurements obtained from the auricula of healthy young individuals.

**Material and Methods:** In the study, 141 female and 115 male (total 256) healthy individuals between the ages of 18-30 were examined. The auricula of each individual was photographed and transferred to Image J (version 1.53e) program in jpeg format and anthropometric measurements were performed. In addition, the body types of each individual were determined by the Heath-Carter somatotype method.

**Results:** As a result of our study, it was found that individuals were divided into 8 different body types as mesomorph endomorph, endomorphic mesomorph, balanced ectomorph, mesomorphic endomorph, endomorph ectomorph, central, ectomorphic endomorph and balanced endomorph. A significant correlation was found between the somatotype groups and BMI using the Kruskal Wallis H test ( $p<0.05$ ). In addition, auricula morphometry was evaluated with Spearman's rho correlation test and a very high correlation was found between T-Sba parameter and Inint-Sba and Sa-Sba parameters, and between Obs-Pa parameter and T-Ah parameter in men. In women, a very high correlation was found between T-Sba parameter and Inint-Sba parameter ( $p<0.05$ ).

**Conclusion:** As a result of our study, significant relationships were found between somatotype and BMI, as well as between auricula morphometry, according to gender. We believe that these relations will contribute to the studies in this direction and increase the studies.

**Keywords:** Somatotype, Auricula, Morphometry, Photo analysis

## **OP041- Investigation of The Relationship Between The Sociotropic Autonomic Personality Features and The Attitudes of The Nurses Regarding Their Care-Giving Roles**

**0000-0002-2952-5615 Aysenur Dayan<sup>1</sup>, 0000-0002-2160-8440 Serpil İnce<sup>2</sup>**

<sup>1</sup>Antalya Bilim University, Faculty of Health Sciences, Department of Nursing, Antalya, Türkiye

<sup>2</sup>Akdeniz University Faculty of Department of Nursing Fundamentals, Antalya, Türkiye

**Aim:** It is important for nurses to have sociotropy-autonomy personality traits, to carry professionalism criteria, and to be able to provide comprehensive and effective care in terms of fulfilling their caregiver roles. The research was conducted to determine the relationship between nurses' sociotropic-autonomy personality traits and their caregiver roles.

**Material and Methods:** This descriptive and relationship-seeking study was carried out with the participation of 274 nurses working at Akdeniz University Hospital between September 20, 2021 and January 14, 2022. The data were collected with the "Nurse Introduction Form", "Nurses' Attitude Scale Regarding Caregiver Roles" and Sociotropy Autonomy Scale". The data obtained from the research were evaluated in SPSS environment by applying number, percentage, t test in independent groups, one-way analysis of variance, Bonferroni and Pearson correlation to test the relationship between the scales.

**Results:** Of the nurses participating in the study, 84.3% were women and 78.5% had a bachelor's degree. 41.2% of the nurses work in internal medicine, 15.7% in surgery, 16.8% in outpatient clinics and 26.3% in intensive care/operating room units. According to the sociodemographic characteristics of the nurses, the difference between the sub-dimensions of the sociotropy personality trait, the satisfaction of others only, and the marital status and the clinic they work in, was significant. In the comparison of the scores of the attitude scale and sub-dimensions regarding the caregiver roles, a significant difference was found only with the educational status. It was found that there is a significant and negative relationship between the sub-dimensions of sociotropy, pleasing others, and the attitude sub-dimensions of the nurse's role of protecting the individual and respecting his rights. As nurses' autonomy sub-dimension scores increase, caregiver role attitudes and sub-dimensions increase significantly and positively.

**Conclusion:** It was determined that the sociotropy and autonomy levels of the nurses and their attitudes towards their caregiver roles were moderate. As the autonomy levels of nurses increase, their level of attitude towards their caregiver roles also increases.

**Keywords:** Nursing, care, caregiver role, sociotropic-autonomic personality, autonomy.

## **OP042- The Effect of Multiple Sclerosis on Pregnancy: A University Hospital Experience**

**0000-0002-5712-0121 Merve Boz<sup>1</sup>, 0000-0001-7773-641X Mehmet Fatih Göl<sup>2</sup>, 0000-0003-0956-3304 Cavit Boz<sup>1</sup>**

<sup>1</sup>Department of Neurology, Faculty of Medicine, Karadeniz Technical University, Trabzon, Türkiye

<sup>2</sup>Clinic of Neurology, Kayseri City Hospital, Kayseri, Türkiye

**Aim:** Multiple sclerosis (MS) is a chronic disease of the central nervous system characterized by inflammation, demyelination, and axonal damage, often involving the white matter, but can also be seen in the cortex and deep gray matter. It is more common in young women. Pregnancy status is essential in follow-up and treatment planning. In this study, it was aimed to determine the fetal side effects/pregnancy complications during pregnancy and after pregnancy and the effect of MS disease on fertility in female patients with MS.

**Material and Methods:** This study included 505 MS patients who applied to Karadeniz Technical University Faculty of Medicine Neurology Clinic between January 2010 and January 2021 and had a previous pregnancy. After obtaining approval from the university ethics committee, the data of the patients were obtained from the hospital registry system. In addition, a two-part questionnaire consisting of questions about their diseases and pregnancy processes was administered to the patients.

**Results:** Of the patients, 475 (94.1%) had relapsing-remitting MS, 23 (4.5%) had secondary progressive MS, and 7 (1.4%) had primary progressive MS. A total of 505 female patients had 1196 pregnancies. 217 (18.1%) pregnancies were post-MS and 979 (81.9%) pre-MS pregnancies. When pre-MS and post-MS pregnancies were compared, no significant difference was found in terms of assisted reproductive technique use, multiple pregnancy rate, pregnancy, and delivery complications, term/preterm delivery rate, and postpartum incubator need (p-value 0.248, 0.713, 0.317, 0.083, 0.135, 0.644, respectively).

**Conclusion:** Multiple sclerosis has no effect on assisted reproductive technology use, multiple pregnancy rate, pregnancy, and delivery complications, term/preterm delivery rate, and postpartum incubator requirement. MS is not an obstacle for pregnancy, there is no increase in complications.

**Keywords:** Multiple sclerosis; Pregnancy; Pregnancy complications

## **OP043- Analysis of the Relationship Between Nose and Face Morphometry and Somatotype in Healthy Young Women**

**0000-0002-2290-3679 Demet Şencan, 0000-0003-2453-9695 Sıdıka Karaketir 0000-0002-9221-510X İsmail Malkoç**

Düzce University Faculty of Medicine Department of Anatomy, Düzce, Türkiye

**Aim:** The aim of this study is to evaluate the morphometric measurements of the nose and face in healthy women with no trauma or surgical intervention on face and nose in terms of somatotype.

**Material and Methods:** The study was conducted with 104 women between the ages of 18 and 32 who lived in the province of Düzce. 10 anthropometric measurements were made to determine the somatotype and body compositions of individuals as height, weight, skin fold measurements of 4 different areas (triceps, subscapular, supraspinale, medial calf), two bone diameters (bicipondylar humerus and femur) and two extremity diameters (flexed arm and calf). Somatotype was determined by using Heath-Carter method. 8 indirect anthropometric measurements of face and nose were taken from the participants as nose length (n-sn), nose width (al-al), interpupillary distance (p-p), face width (zy-zy), face height (n-gn), total face height (supor-gn), lower face height (sbn-gn) and mandibular height (sto-gn) by using Image J program.

**Results:** As a result of the Kruskal Wallis H test conducted, statistically significant difference was found between the anthropometric measurements used to determine somatotypes ( $p < 0.05$ ). No statistically significant difference was found between somatotypes and indirect anthropometric measurements taken from the nose and face ( $p > 0,05$ ).

**Conclusion:** According to the results of the present study, there is no relationship between nose and face morphometry and somatotype in women. There are a few studies on similar topics in literature. However, our study will be a first and a pioneer in its field. It will be inspiring and guiding for future studies that will be conducted or considered to be conducted.

**Keywords:** Somatotype, Anthropometry, Nose, Face type, Skin fold.

## **OP044- Anatomical Evaluation of Tumor Localization, Size and Axillary Lymph Node Involvement in Breast Cancer Patients**

**0000-0002-2620-3901 Aybüke Koyunoğlu<sup>1</sup>, 0000-0001-6986-8578 Mustafa Canbolat<sup>1</sup>, 0000-0001-9150-3823 Leyla Karaca<sup>2</sup>**

<sup>1</sup> Department of Anatomy, Faculty of Medicine, Inonu University, Malatya, Türkiye

<sup>2</sup> Department of Radiology, Faculty of Medicine, Inonu University, Malatya, Türkiye

**Aim:** In this study, we aimed to examine the relationship between the location and size of the tumor in the breast, which was determined by radioanatomically evaluating the size and location of the tumor in the breast, and the anatomical location and size of the lymph nodes involved in the axilla in breast cancer patients with axillary metastases.

**Material and Methods:** In our study, the files of 72 patients with axillary metastases diagnosed with malignant breast cancer who applied to the Radiology Department of İnönü University Turgut Özal Medical Center between 2011 and 2022 were evaluated retrospectively. Data such as age, gender, breast parenchymal density, BIRADS values, size and location of the tumor in the breast, size and location of the involved axillary lymph node were compared.

**Results:** The number of patients with tumors in the right and left breasts was equal (n=36). When the lesions in the breast tissue were evaluated according to the results of mammography, breast magnetic resonance imaging and ultrasonography, tumor localization was mostly in the upper outer quadrant with 43%. Axillary metastases were most common at Levels 1 and 2, with a rate of 39%. 47 out of 72 cases had BIRADS V. When the relation of breast parenchymal densities with age was examined, patients with Type A density were significantly higher than Type C and D, and Type B was significantly higher than Type D (p=0.01368). The short axis of the largest metastatic lymph node in the axilla was also measured and recorded by a specialist radiologist. Accordingly, while the short axis of the metastatic lymph node was less than 10 mm in 15 of 63 patients with Level detection, it was greater than 10 mm in 48 patients. In addition, it was concluded that there was a statistically significant difference between the number of lymph nodes dissected from the axilla and the number of lymph nodes found to be pathological (p< 0.0001).

**Conclusion:** It was concluded that the radiological and anatomical relationship between the tumor diameter and localization in the breast, the number of lymph nodes involved as a result of axillary metastases and the largest diameter of these nodes in breast cancer has clinical importance in terms of the course of the disease and treatment options.

**Keywords:** Anatomical localization, Axilla, Breast cancer, Lymph nodes, Tumor diameter.

## **OP045- Investigation of the Relationship Between Head Diameter and Superior Sagittal Sinus in Alzheimer's Patients**

**0000-0001-5107-3726 Özlem Öztürk Köse<sup>1</sup>, 0000-0002-6412-1325 Coşkun Parım<sup>2</sup>, 0000-0001-5216-6289 Yunus Emre Akpınar<sup>3</sup>, 0000-0002-6757-4960 Burak Karip<sup>4</sup>, 0000-0003-2291-0884 Hüseyin Avni Balcıoğlu<sup>4</sup>, 0000-0002-0222-5081 Papatya Keleş<sup>4</sup>**

<sup>1</sup>Biruni University Faculty of Medicine, Anatomy Department, İstanbul, Türkiye

<sup>2</sup>Yıldız Technical University, Faculty of Science and Art, Department of Statistics, İstanbul, Türkiye

<sup>3</sup>Biruni University Faculty of Medicine, Radiology Department, İstanbul, Türkiye

<sup>4</sup>Sağlık Bilimleri University Hamidiye Medical Faculty, Anatomy Department, İstanbul, Türkiye

**Aim:** The aim of this study is to reveal the relationship between head diameter (HD) and superior sagittal sinus (SSS) in Alzheimer's patients (AD) and to determine the gender-based changes, if any, and bring them to the literature.

**Material and Methods:** 100 AD and 100 control individuals were included in the study. All patients' HDs were measured on the Radiant Dicom Viewer as the distance between the two most prominent points in the anterior and posterior head. For the SSS; diameter and full length measurements were taken from three points as anterior, middle and posterior. The P value was determined as 0.001. The results obtained were processed in the R program.

**Results:** While the CT measurements were  $19.01 \pm 1.07$  cm in individuals with AD, it was  $19.13 \pm 1.09$  cm in the control group. In addition, SSS anterior and posterior diameters were also found to be insignificant in AD and control groups (frontal=  $p=0.0115$  and posterior=  $0.0351$ ) according to gender. However, the median value was found to be significant ( $p=0.0000$ ) and was wider in the control group.

**Conclusion:** In this study, which was established by considering the studies on bone density for the head in individuals with AD and produced from a doctoral thesis, the relationship between bone structures and the SSS, which is the largest protected dural venous sinus, was examined. It was found that there is no connection between them.

**Keywords:** Alzheimer Disease, Head diameter, Superior sagittal sinus.

## **OP046- Ossification of Cartilago thyroidea – Case Report**

**0000-0002-7757-055X Mahmut ay**

Uşak University, Faculty of Medicine, Department of Anatomy, Uşak, Türkiye

Cartilago thyroidea with complete ossification was detected in the dry human bones brought to our anatomy laboratory and a case report on the subject was aimed. Soft tissue calcifications/ossifications occur as a result of the accumulation of minerals deposited in the bone in the soft tissue. This event is mostly detected incidentally during radiological examination and is usually asymptomatic. Structures with the most frequent calcification tendency in the head and neck region; larynx cartilages, vertebrae, arteries and thyroid gland. Except for the epiglottis and the cartilago arytenoidea, the larynx cartilages are in the hyaline cartilage structure. Hyaline cartilages calcify and ossify with age. According to the studies; Ossification of the larynx cartilages is more common in men than in women. Cartilago thyroidea is the largest of the larynx cartilages. Its calcification increases with age, often starting from the third decade. Calcification of the cartilago thyroidea usually starts from the posterior part and ends in the lower horn of the cartilage. This process is completed around the age of 65-70. It does not have any clinical findings and does not require any treatment. The lamina dextra, lamina sinistra, cornu superius and cornu inferius parts of the cartilago thyroidea, which we detected in the dry bones brought to our laboratory, were completely ossified. According to the literature, we can say that the cartilage belongs to a person aged 65 and over. As a result of this case report, we think that ossified cartilago thyroidea, which is detected especially in forensic medicine and anthropology studies, may be supportive data in determining age and gender.

**Keywords:** Cartilago thyroidea, calcification, ossification



## **OP047- Comparison of Vestibular Sensory Processing of Children With Autism According to Living Locations**

**0000-0002-1622-6931 Cansel Özbek**

Düzce University, Faculty of Medicine, Department of Anatomy, Düzce, Türkiye

**Aim:** The aim of this study is to examine whether the vestibular sensory processing of 5-year-old children with autism is affected by their living place.

**Material and Methods:** A total of 50 autistic individuals aged 5 years living in 28 apartments and 22 houses with gardens participated in the study. Vestibular processing of individuals was evaluated with the Dunn Sensory Profile Caregiver Questionnaire. Scoring of the questionnaire was made according to the 5-point Likert system. According to the questionnaire scoring, the maximum score is 55; Normal range: 55-48 points, Possible difference: 47-45 points, and Definite difference: 44-11 points compared to individuals with normal development. Data analysis of the questionnaire was done with SPSS program.

**Results:** As a result of data analysis, individuals with autism living in an apartment; 10 (35.7%) of them were in the Normal range, 6 (21.4%) of them were in the Probable difference range and 12 (42.9%) of them were in the Definitive difference range. Individuals with autism living in a garden house; 9 (40.9%) of them were in the Normal range, 7 (31.8%) of them were in the Probable difference range and 6 (27.3%) of them were in the Definitive difference range.

Assuming that the living spaces of individuals play a role in the development of the vestibular sensory processing, which is called the sense of movement; We think that individuals living in a house with a garden will experience body movements more, and vestibular sensory processing will be more developed than individuals living in an apartment. The Dunn Sensory Profile Caregiver Questionnaire is a valid scale used in vestibular sensory processing scoring. This study is the first pilot study in this field. We think that supporting the study with other scales and increasing the number of participants will lead to important developments.

**Keywords:** Autism; sensory profile; vestibular processing; living location

## **OP048- The Relationship Between Autistic Traits and Pathological Internet Use in 16-18 Year Old Adolescents**

**0000-0003-2703-0421 Nuran Gozpınar<sup>1</sup>, 0000-0001-9598-8944 Özalp Ekinci<sup>2</sup>**

<sup>1</sup>Department of Child and Adolescent Psychiatry, Istanbul Medeniyet University Goztepe Prof. Dr. Suleyman Yalcin City Hospital, Istanbul, Türkiye

<sup>2</sup>Department of Child and Adolescent Psychiatry, University of Health Sciences, Faculty of Medicine, Istanbul, Türkiye

**Aim:** Social interaction difficulties are among the causes of pathological internet use. The main purpose of this study is to investigate the relationship between autistic traits and pathological internet use in a population sample consisting of adolescents aged 16-18, and the secondary aim is to investigate the relationship between social anxiety and pathological internet use.

**Material and Methods:** In this study, 239 adolescents aged 16-18 years studying at Anatolian high schools in Mersin province Yenişehir district in the 2016-2017 academic year were included. Autism-Spectrum Quotient (AQ), Young Internet Addiction Scale (YIAS) and Liebowitz Social Anxiety Scale (LSAS) were applied to the adolescents participating in the study. For statistical analysis, adolescents were divided into two groups according to their YIAS scores, as "average internet user" (YIAS score <50) and "risk/pathological internet user" (YIAS score ≥50). Those with an AQ total score of ≥26 were defined as those with above-threshold autistic traits.

**Results:** The mean total score of the study sample was 49.61±16.25. 132 (55.2%) of the adolescents participating in the study are average internet users, and 107 (44.8%) are risky/pathological internet users. The mean AQ total score was 19.49±4.67 and 21.16±5.11 for the mean and risky/pathological internet users group, respectively. It was determined that risky/pathological internet users had higher AQ total and social skills, distractibility, and communication subscale scores than average internet users. LSAS total score and all subscale scores are also higher in risky/pathological internet users. According to multiple logistic regression analysis, having an AQ total score (≥26) increases the risk of risky/pathological internet use 2.5 times.

**Conclusion:** The results of our study showed that autistic traits and social anxiety were associated with pathological internet use in adolescents. Adolescents with pathological internet use should be evaluated in terms of both autistic traits and social anxiety symptoms.

**Keywords:** adolescent, autistic traits, pathological internet use, social anxiety

## **OP049- Evaluation of the Effect of Regular Walking Exercise on Visual and Auditory Reaction Times and Depression**

**000-0001-9778-4216 Mustafa Nuray Namlı**

S.B.Ü. Hamidiye Faculty of Medicine, Department of Psychiatry, Başakşehir Çam and Sakura City Hospital, Istanbul, Türkiye

**Aim:** Changes in lifestyle today bring some disadvantages as well as the advantages of technology taking a big place in our lives. Societies have adopted a more sedentary lifestyle and this lifestyle poses a great risk for societal chronic health problems. The reaction time is closely related to the individual's decision-making and action time. In individuals who develop depression, both cognitive and motor skills are negatively affected, resulting in psychomotor slowdown. It is known that physical activity has positive effects on circulation and respiration, and increases balance and flexibility. It is also effective on mental health, especially on stress and mood disorders. Regular walking exercise is one of the most easily practiced and widely recommended physical activities. The aim of this study is to investigate the effect of the increase in the daily physical activity level of the individual on depression, visual and auditory reaction times.

**Material and Method:** The study group consisted of 9 men and 9 women aged between 24 and 38 (median 28) with no statistical difference in terms of age ( $p=0.340$ ) and all of whom had graduate or higher education and similar occupations for 45 days (3- 6 km) walking exercise was applied. Initially, the Beck Depression Inventory was administered to all participants, and their visual and auditory reaction times were measured. The groups (inactive, minimally active and HEPA active) were determined by the MET method with the international physical activity evaluation questionnaire. After 45 days of exercise, the initial tests were repeated. Descriptive statistics were made and Wilcoxon Signed Ranks Test was applied for repeated measurements.

**Results:** A significant increase is observed after exercise in the IPAQ category, and this increase is accompanied by a decrease in depression scores. Significant shortenings were also detected in visual and auditory reaction times.

**Conclusion:** In addition to preventing depression, exercise helps to increase awareness of the environment and to react easily.

**Keywords:** Exercise, Depression, Reaction Time

## **OP050- Oral Findings in a Patient with Apert Syndrome – A Case Report**

**0000-0002-1298-8509 Burcu Duman**

Private Clinic, Department of Pediatric Dentistry, Çorum, Türkiye

The aim of the study is to present the oral findings of a patient with Apert Syndrome who applied to our clinic due to toothache. Apert syndrome is a sporadic disease characterized by craniosynostosis and craniofacial deformities, syndactyly in the hands and feet, and dental anomalies. In the oral examination of an 11-year-old female patient with a complaint of toothache, deep caries in teeth number 75 and 85, root particles of tooth number 84 and dentin caries in teeth 36-46 were detected. In addition, it was observed that teeth number 12-22 were hypodontic, had Class III bites with dental crowding and severe maxillary stenosis. In the treatment planning of the patient with high cooperation, it was decided to extract the teeth number 75,84,85 and to restore the teeth number 36 and 46. Rehabilitation of the skeletal jaw problem was recommended by consulting the patient's orthodontic department.

**Keywords:** Apert, craniofacial anomalies, dental treatment

## **OP051- Examination of Temporal Processing Skills in Individuals with Stuttering by Therapy Duration: A Preliminary Study**

**0000-0001-5150-6587 Serife Göktaş<sup>1</sup>, 0000-0002-5632-1650 Bünyamin Çıldır<sup>2</sup>**

<sup>1</sup>Department of Language and Speech Therapy, Elbistan Public Hospital, Kahramanmaraş, Türkiye

<sup>2</sup>Department of Language and Speech Therapy, Faculty of Health Sciences, Ankara Yıldırım Beyazıt University, Ankara, Türkiye

**Aim:** It is aimed to examine the temporal processing skills of individuals with stuttering according to their age, gender and the average duration of therapy they receive.

**Materials and Methods:** Twenty individuals with stuttering, 7 females and 13 males, aged 8-15 years, participated in the study. The participants' temporal processing skills were evaluated with the Frequency Pattern Test and the Duration Pattern Test. Auditory stimuli, which are the measurement items of the tests, were given in a quiet environment using a laptop computer and earbuds. Scores were recorded on the computer.

**Results:** The average age of the participants was  $11.15 \pm 2.58$  years. The average therapy duration of the participants was found to be  $8.95 \pm 7.68$ , with the shortest duration of therapy being 1 month and the longest duration of therapy being 20 months. A statistically positive and significant correlation was found between individuals with stuttering and the average therapy time obtained by the Frequency Pattern Test ( $r= 0.509, p= 0.02$ ). A statistically significant positive correlation was found between the Duration Pattern Test and the average therapy duration ( $r= 0.684, p= 0.001$ ). No statistically significant correlation was found between the Frequency Pattern Test and age ( $p>0.05$ ). A significant positive correlation was found between the Duration Pattern Test and age ( $r= 0.643, p= 0.002$ ). No significant correlation was found between the Frequency and Duration Pattern Tests, which evaluate temporal processing skills, and gender ( $p>0.05$ ).

**Conclusion:** The increase in temporal processing skills of individuals with stuttering with the duration of therapy; These skills is believed to be important to study from an early period in therapies for stuttering.

**Keywords:** Stuttering, Temporal processing, Age, Therapy.

## **OP052- Frequent Ventricular Extrasystoles are Associated with Depression and Anxiety Disorders**

**0000 0002 8800 0835 Bayram Ali Uysal**

Süleyman Demirel University Faculty of Medicine Department of Cardiology, Isparta, Türkiye

**Aim:** The aim of our study is to investigate the relationship between depression and anxiety disorders in patients with frequent ventricular extrasystoles (VES). It is known that somatic diseases increased depression and anxiety disorders and also some psychiatric disorders contribute to the development of arrhythmia. There is not enough data about the effect of frequent VES (>10000 beats/day) on depression and anxiety scales.

**Material and Methods:** Thirty-five patients with VES more than 10000 beats/day and 35 control groups without VES (24-hour rhythm holter) were included the study. Baseline demographic, clinical and laboratory tests of both groups were recorded. Depression and anxiety levels of both groups were evaluated with Beck Depression Scala (BDS) and Hamilton Anxiety Scala (HAS).

**Results:** There was no significant difference between the demographic, clinical and laboratory parameters of both groups. Mean BDS and HAS were significantly higher ( $p<0.001$ ) in patients with frequent VES than control group.

**Conclusions:** Our study revealed that the risk of depression and anxiety is high in patients with frequent VES. Larger and more comprehensive studies are needed to determine this subject.

**Keywords:** Ventricular Extrasystoles; Depression; Anxiety disorder, Arrhythmia

## **OP053- Evaluation of the Effects of Different Doses of Naringin on the HepG2 (Human Hepatocellular Liver Carcinoma) Cell Line at Different Time Intervals**

**0000-0002-9026-4485 Seyda Karabork**

Department of Medical Microbiology, Faculty of Medicine, Bolu Abant İzzet Baysal University, Bolu, Türkiye

**Aim:** Hepatocellular carcinoma (HCC) is one of the most common cancers, with more than 1 million deaths per year worldwide, and hence the need to seek newer therapeutic agents to treat this disease. Antioxidants have long been effective agents in the prevention and treatment of many diseases, including cancer. Therefore, many fruits and vegetables, which are abundant sources of antioxidants, are shown as good candidates for pharmacological research. Naringin is the main bioactive polyphenol found in citrus fruits, which is very beneficial for human health and has been applied since ancient times. It has been reported that these substances have antioxidant and antiandrogenic properties as well as protective effects on inflammation and cancer in in vitro and in vivo experimental models. The aim of this study was to determine the anti-proliferative and anti-cancer activity of naringin at different doses at different time intervals on the HepG2 cell line.

**Material and Methods:** To evaluate the antiproliferative effects of naringin (Sigma-USA) on the HepG2 cell line, cell viability (MTT) tests were performed at seven different concentrations of naringin (between 1.5-100 µg/ml) at 24, 48 and 72 hours intervals.

**Results:** When cell viability is taken into account, naringin is effective even at low doses (1.5, 5, 10 and 20 µg/ml) at 24 and 48 hours (respectively  $p=0.001$ ,  $p=0.000$ ,  $p=0.003$ ,  $<0.001$ ). It was observed that high 100 µg/ml decreased viability as it progressed.

**Conclusion:** Naringin has antiproliferative activity and is a promising candidate for liver cancer treatment. Naringin, one of the main bioactive flavonoids in citrus fruits, provides effective protection against liver cancer cells and suppresses proliferation in vitro. It is thought that naringin, especially at different times and doses, has an interesting therapeutic potential that can be used as an effective alternative drug for oncological patients, and more controlled studies are needed to elucidate the potential of these flavonoids in clinical practice.

**Keywords:** Naringin, Human hepatocellular carcinoma, HepG2, MTT.



## **OP054- Evaluation of Kinesiophobia and Pain Level in Individuals with Physical Disabilities**

**0000-0002-6558-3265 Halil Erkartal<sup>1</sup>, 0000-0002-0118-6711 Yusuf Seçgin<sup>2</sup>**

<sup>1</sup>Karabuk University Graduate School of Education, Department of Anatomy, Karabuk, Türkiye

<sup>2</sup> Karabük University, Faculty of Medicine, Department of Anatomy, Karabük, Türkiye

**Aim:** Avoiding mobility and pain due to the fear of recurrence of the problem experienced as a result of injuries or some diseases are among the situations encountered in individuals with physical disabilities. The aim of this study is to evaluate the pain and kinesiophobia of individuals using the McGill-Melzack Pain Scale and Tampa Kinesiophobia Scale.

**Materials and Methods:** In the study, the McGill-Melzack Pain Scale and Tampa Kinesiophobia Scale were applied to 53 female and 47 male (total 100) individuals aged 10-83 years, and the individuals' gender, age, disease type, total questionnaire scores, pain localizations and pain characteristics were examined.

**Results:** 35 male and 28 female individuals in the study had neurological disease, 12 male and 25 female individuals had orthopedic disease type. The median age of male individuals was found to be 38.00 and female individuals as 36.00. The McGill-Melzack Pain Scale value was found to be 30.00 in males and 43.00 in females. A significant difference was found between McGill-Melzack Pain Scale values in the comparison made according to gender ( $p=0.00$ ). In the pain localization part of the questionnaire, 163 points were obtained from 100 participants. According to the points marked by the participants, it was seen that 12.27% of the pain occurred in the head region, 33.74% in the trunk, 23.31% in the upper extremity, and 30.67% in the lower extremity. In addition, a total of 478 answers in 26 different types were obtained from 100 individuals to determine the characteristics of pain, and it was seen that the most answers were tiring.

**Conclusion:** As a result of the study, kinesiophobia and pain levels of physically disabled individuals were evaluated and the pain score of men was found to be lower than that of women. The vast majority of individuals defined their pain as tiring, aching and cramp-like pain types and reported that the pain was seen more in the trunk. We believe that this study will contribute to other studies.

**Keywords:** Physically Disabled individual, Kinesiophobia, Pain level.

**OP055- Is Myofascial Release an Alternative to Extracorporeal Shock Wave Therapy in Patients with Lateral Epicondylitis?**

**0000-0002-7406-0060 Ecem aylakođlu, 0000-0001-8231-115X Elif Tuđce Cil, 0000-0001-9536-9158 Sahra Őirvan Can, 0000-0001-5538-8952 Rasmi Muammer**

Department of Physiotherapy and Rehabilitation, Faculty of Health Science, Yeditepe University, İstanbul, Türkiye

**Aim:** This study aimed to compare the effects of ESWT and MFR on pain, functional level, quality of life (QoL) and hand grip in the treatment of LE.

**Material and Methods:** Twenty-eight patients diagnosed with LE were randomly divided into two groups: ESWT (n=14) and MFR (n=14). The ESWT group received a total of 5 sessions of ESWT at 10 Hz frequency, 2000 beats/session, 2.0 Bar intensity. The MFR group received a total of 12 sessions of MFR. Visual Analogue Scale (VAS), Patient Rated Tennis Elbow Evaluation (PRTEE), Short Form-36 and dynamometer were used to compare pain, grip strength, functional level, and QoL of both groups, respectively.

**Results:** Both groups showed improvement in pain, functional level, Quality of Life and grip strength results. However, MFR group showed significant improvement in activity pain, daily activity parameter of PRTE and pain parameter of SF36 compared to the ESWT group.

**Conclusion:** This study suggests that MFR may be used as an alternative method in patients with LE.

**Keywords:** ESWT, Lateral epicondylitis, Myofascial release.

## **OP056- Case Report: Evaluation of Patient Diagnosed Perianal Fistula According to Abdellah's 21 Nursing Problems Model**

**0000-0002-2189-6876 İlknur Yücel<sup>1</sup>, 0000-0001-8115-4770 Muhammed Nasrullah Er<sup>2</sup>**

<sup>1</sup>Istanbul Gelisim University Vocational School of Health Services, Istanbul, Türkiye

<sup>2</sup>Istanbul Yeni Yüzyıl University Faculty of Health Sciences, Nursing Department 4th Year Student, Istanbul, Türkiye

In this case report, it was aimed to provide nursing care to the patient diagnosed with Perianal Fistula for the nursing diagnoses in Faye Abdellah's "21 Nursing Problem Theory and North American Nurses Association (NANDA) classification system. Verbal and written consent was obtained from the patient and the attending physician for the research. He was married at the age of 62. The patient, who has four children and had perianal fistula surgery in 2002, was admitted to the Gastroenterohepatology Polyclinic of a training and research hospital due to increased rectal discharge and constipation recently. disease. There is no known disease in the family history. There is no known history of drug use and known allergy. The case was examined on the basis of Faye Abdellah's "21 Nursing Problem Theory" and the North American Nurses Association (NANDA) Nursing care was given by using the nursing diagnoses in the classification system.

**Keywords:** Perianal Fistula, Faye Abdellah, Nursing Problem Theory, Nursing Care

## **OP057- Is It Possible to Achieve Cure in Oligometastatic Hormone Sensitive Prostate Cancer? Case Report**

**0000-0002-8917-9267 Efnan Algin**

University of Health Sciences, Ankara City Hospital, Department of Medical Oncology, Ankara, Türkiye

Although primary tumor-directed radiotherapy (RT) do not improve survival of hormone sensitive prostate cancer (mHSPC), subgroup analyzes showed a limited benefit in low-volume group. However, the radiation doses were generally low in these studies. On the other hand, only the prostate was irradiated, whereas metastatic areas were not irradiated. Here, we present a 66-year-old man treated for de novo mHSPC with docetaxel and curative RT to both prostate and all residual metastatic sites. At the diagnosis, PSA level was 289 ng/ml, and prostate biopsy was compatible with a Gleason score of 4+5 prostate adenocarcinoma. While no metastasis was detected in bone scintigraphy, computed tomography (CT) revealed multiple metastatic paraaortic and pelvic lymph nodes. After surgical castration, 75 mg/m<sup>2</sup> docetaxel chemotherapy was initiated every 3 weeks. After three cycles, lymph nodes disappeared and there was 30% reduction in prostate size on CT, control PSA was 3.2 ng/ml. When 6 cycles of docetaxel treatment was completed, PSA was 0.86, and <sup>68</sup>Ga-PSMA PET/CT revealed a residual mass in prostate and minimal involvement in left internal iliac lymph node and left iliac bone. A total of 78 Gy RT was applied to the prostate using the helical arc method with a tomotherapy device. In addition, prophylactic 50 Gy RT was given to all pelvic lymphatics, and 68 Gy RT was given to minimal residual metastatic sites including left internal iliac lymph node and left iliac bone. At the end of the treatment, PSA was 0.06. Although he was metastatic initially, he has been in complete remission for 3 years with undetectable PSA levels thanks to systemic treatment and curative RT. In this context, our case is a first in literature. In addition, it encourages clinicians to treat oligometastatic patients with a curative approach and reveals the necessity of prospective studies.

**Keywords:** Curative radiotherapy; prostate cancer; oligometastatic disease

## **OP058- Intermittent Abiraterone In Hormone Sensitive Prostate Cancer: Case Report**

**0000-0002-8917-9267 Efnan Algin**

University of Health Sciences, Ankara City Hospital, Department of Medical Oncology, Ankara, Türkiye

While the traditional treatment for metastatic hormone-sensitive prostate cancer (mHSPC) has been androgen deprivation therapy (ADT) since 1941, the addition of docetaxel or androgen pathway inhibitors (abiraterone, enzalutamid) to ADT has significantly improved survival. However, there are concerns about patient compliance and increased treatment costs. We presented here the case of a 59-year-old man treated with abiraterone acetate (AA) for de novo mHSPC. At the diagnosis, PSA level was 320 ng/ml, and prostate biopsy resulted in prostate cancer with Gleason score of 4+5. <sup>68</sup>Ga-PSMA PET/CT indicated primary prostate mass invading the rectum and bladder as well as multiple metastases nearly in all bones and lymph node stations. The patient diagnosed as high-risk high-volume mHSPC was referred to our department for treatment. In addition to surgical castration, 1000 mg/day AA was administered. Two months later, PSA level was dropped to 0.07 ng/ml. In the fifth month of AA treatment, there was no pathological uptake on <sup>68</sup>Ga-PSMA PET/CT and complete response was obtained both metabolically and anatomically. After using AA for 9 months without interruption, he discontinued treatment due to major depression. Despite discontinuation of AA for 7 months, control PSA was still 0.03 ng/ml and complete response was maintained on <sup>68</sup>Ga-PSMA PET/CT. We convinced the patient to start AA again. After 3 months of abiraterone reuse, PSA was 0.007 ng/ml and he interrupted the treatment. Despite being followed up for 10 months without treatment, he is in complete remission with PSA level of 0.006 ng/ml. Given the high cost of receiving long-term treatment and the patient's compliance issues, it may be important to demonstrate the non-inferiority of intermittent therapy. To date, there are no studies evaluating the efficacy of intermittent AA. In the era of individualized treatment, the experience of this case provides a reference for intermittent AA treatment in mHSPC.

**Keywords:** Abiraterone; prostate cancer; intermittent therapy

## **OP059- Antitumoral Effects of Resveratrol on HT-29 Colon Cancer Cell Line**

**0000-0002-3394-2438 Humeyra Celik**

Department of Physiology, Faculty of Medicine, Bolu Abant Izzet Baysal University, Bolu, Türkiye

**Aim:** Resveratrol, with its polyphenol structure found in grape skin and seeds, shows protective effects against glycation, oxidative stress, inflammation, neurodegeneration, various types of cancer and aging. The aim of the study is to show the effects of resveratrol on colon cancer at different times in cell culture.

**Material and Methods:** To evaluate the antiproliferative effects of resveratrol (Sigma-USA) in colon cancer, cell viability (MTT) assay was performed at 24, 48 and 72 nd hour intervals and at eight different concentrations (1, 5, 10, 20, 50, 100, 200, 400 microgram/ml) of resveratrol by MTT assay. The optical density was determined at 450 nm by the microplate reader (Epoch BioTek Instruments, Inc. Highland Park).

**Results:** MTT assay showed that 5 µg/ml resveratrol at 24 hours was the effective dose. At 48 (p=0.000) and 72. (p=0.001) hours, 1 µg/ml resveratrol was found to be an effective dose reducing cancer cell viability.

**Conclusion:** The apoptotic effects of resveratrol, which has high antioxidant activity, on cancer cells have also been demonstrated in colon cancer, and it has been determined that the anticancer effect of resveratrol varies in a dose and time dependent manner.

**Keywords:** HT-29 cell line, colon cancer, resveratrol, antiproliferative effects.

## **OP060- Gene Therapy Approaches - Short Review**

**0000-0002-0420-5017 Abdussamed Yasin Demir**

Erzincan Binali Yıldırım University Faculty of Medicine, Department of Medical Genetics,  
Erzincan

The field of gene therapy has made significant advances in the last few decades towards the treatment of previously incurable genetic diseases. Gene therapy techniques aim to alleviate the symptoms of recessive and dominant disorders, as well as various cancers and other diseases. Gene editing using CRISPR-Cas9 is an extension of gene therapy approaches that has received great attention in recent years and has many possible uses beyond classical gene therapy approaches. Although the use of gene therapy and gene editing strategies in the treatment of genetically based and related diseases has significant therapeutic potential, there are a number of hurdles that must be overcome before they become more widespread in clinical use, particularly regarding safety and efficacy. As research progresses in this promising area, these treatments are likely to become first-line treatments and have positive impacts on the lives of patients with genetic disorders.

**Keywords:** Genetic disease, Gene therapy, Gene editing

## **OP061- Clinical Significance of Mean Platelet Volume In Elderly Patients With Symptomatic Carotid Artery Disease: A Single Center Experience**

**0000-0002-0018-516X Şenol Tayyar**

Özel Meddem Hospital, Cardiology Department, Isparta, Türkiye

**Aim:** The aim of the present study is to determine the clinical significance of increased mean platelet volume (MPV) in patients with symptomatic carotid artery disease in the young and elderly population.

**Material and Methods:** A total of 76 men and 72 women with symptomatic carotid artery disease were included in the study. 52 of these patients in men and 50 in women were 75 years or older. Clinical evaluation and mean platelet volume measurements were performed in all patients. MPV levels were measured in a blood sample collected in citrate (1:4 v/v) in order to avoid the platelet swelling induced by EDTA (27). An ABX Pentra 120 automatic hematology analyzer (Horiba ABX Diagnostics, Montpellier Cedex, France) was used for whole blood counts.

**Results:** Our study findings show that the mean platelet volume (MPV) is significantly higher in patients older than 75 years old with symptomatic carotid artery disease than in patients younger than 75 years old with similar clinics ( $10.2 \pm 1.1$  fL vs.  $8.8 \pm 0.9$  fL,  $p < 0.001$ ).

**Conclusion:** This study shows that the measurement of mean platelet volume (MPV) in the elderly population with clinical symptomatic carotid artery disease and its practical use can be a guiding parameter for the more widespread use of potent new generation anti-platelet therapies, whose use is limited in these patients due to the risk of bleeding.

**Keywords:** Carotid artery disease; Mean platelet volume; Elderly population



## **OP062- Evaluation of The Efficacy of A New Potential Biosimilar Bevacizumab in The Treatment of Corneal Neovascularization in Rabbits**

**0000-0001-9111-8060 Armağan Özgür<sup>1</sup>, 0000-0002-8632-2873 Nilüfer Yeşilirmak<sup>2</sup>, 0000-0002-6179-2828 Mehmet Arda İnan<sup>3</sup>, 0000-0002-8066-5816 Emin Ümit Bağrıaçık<sup>4</sup>, 0000-0002-3164-6336 Mehmet Cüneyt Özmen<sup>1</sup>**

<sup>1</sup>Gazi University Faculty of Medicine, Department of Ophthalmology, Ankara, Türkiye

<sup>2</sup>Yildirim Beyazıt University Faculty of Medicine, Department of Ophthalmology, Ankara, Türkiye

<sup>3</sup>Gazi University Faculty of Medicine, Department of Pathology, Ankara, Türkiye

<sup>4</sup>Gazi University Faculty of Medicine, Department of Immunology, Ankara, Türkiye

**Aim:** To compare the antiangiogenic effects of bevacizumab and a new potential biosimilar bevacizumab (Anti-Human VEGF GU01) on suture induced corneal neovascularization (CNV) in rabbits.

**Material methods:** CNV was induced in the right eyes of fifteen rabbits by placing 7.0 black silk suture in the corneal stroma (3 mm wide and 1-1.5 mm distance from the superior limbus). All sutures were removed on the day 7 under general anesthesia and the rabbits were randomly divided in 3 groups. The first group and was treated with 0.1ml of balanced salt solution (BSS) (control group), the second group was treated with 0.1ml/2.5mg of bevacizumab (bevacizumab group), and the third group was treated with 0.1ml/2.5mg of Anti-Human VEGF GU01 (biosimilar bevacizumab group), subconjunctivally. After the suture application, on the 7<sup>th</sup> day (pre injections) and 14<sup>th</sup> day (7 days after injections), standard corneal images were recorded to analyze the CNV area. The area of CNV was calculated in square millimeters using the Image J program. On day 14, all animals were sacrificed and corneal specimens were analyzed histopathologically with hematoxylin-eosin.

**Results:** On the 7<sup>th</sup> day after suturing, significant amount of CNV was observed in all eyes. In the bevacizumab and biosimilar bevacizumab groups, the percentages of reduction of CNV areas were significantly higher compared to control group (control group: %24,6, bevacizumab group: %82,2, biosimilar group: %83,4), (p<0.05). There was no statistically significant difference between bevacizumab and biosimilar groups with

respect to CNV regression rates ( $p>0.05$ ). Hematoxylin-eosin staining showed numerous vessels in the control group, while no vessels in the bevacizumab and biosimilar group

**Conclusion:** In this experimental study, the subconjunctival application of Anti-Human VEGF GU01, which is potential biosimilar of bevacizumab, was found to be as effective as subconjunctival bevacizumab in CNV treatment.

**Keywords:** Bevacizumab, biosimilar bevacizumab, Anti-Human VEGF GU01, corneal neovascularization.

## **OP063- Evaluation of the Surgical Treatment Results of Supraglottic Laryngeal Carcinoma**

**0000-0002-4887-4677 Yaşar Kemal Duymaz**

Sağlık Bilimleri Üniversitesi Ümraniye Eğitim ve Araştırma Hastanesi Kulak Burun Boğaz Kliniği, İstanbul, Türkiye

**Aim:** The aim of this study was to examine the efficacy of our surgical treatment for patients with supraglottic laryngeal carcinoma.

**Material and Methods:** Between January 2008 and December 2018, a total of 84 patients, 77 male and 7 female, who received surgical therapy for supraglottic laryngeal carcinoma were assessed. The ages of the patients varied from 39 to 86 (mean  $58.04 \pm 8.92$  years). We examined the tumor's stage, histological differentiation grade, lymph node metastases, postoperative radiation and comorbidities.

**Results:** Histopathological diagnosis was pleomorphic adenoma in one of the patients, and squamous cell carcinoma in 83 patients. 71 of the tumors (84.5%) were classified as stage III/IV. Surgically, total laryngectomy was performed in 45 (53.6%) patients, supraglottic laryngectomy in 25 (29.7%) patients, supracricoid laryngectomy in 13 (15.5%) patients, and vertical hemilaryngectomy in 1 (1.2%) patient. Neck dissection was performed in 73 (86.9%) of the patients. Adjuvant radiotherapy was applied to 58 patients. Local recurrence developed in 6 patients. The mean follow-up period was  $38,8 \pm 31,53$  months. Survival in patients at all stages was calculated as %92,9.

**Conclusion:** Surgery is an essential component of the treatment for cancer of the supraglottic laryngeal region. The treatment should be patient-specific, and the patient's preferences must be taken into account.

**Keywords:** Supraglottic cancer, laryngectomy, recurrence, survey.

## **OP064- Nursing Faculty Students' Perspectives on Multidisciplinary Teamwork: A Qualitative Study**

**0000-0002-3299-7146 Berna Kurt<sup>1</sup>, 0000-0002-5948-2492 Nilgün Özbaş<sup>2</sup>**

<sup>1</sup>Department of Nursing, Faculty of Internal Medicine, Hacettepe University, Ankara, Türkiye

<sup>2</sup>Surgical Nursing Department, Faculty of Nursing, Bozok University, Yozgat, Türkiye

**Aim:** The present study aimed to analyze out just what the nursing faculty students thought about multidisciplinary teamwork.

**Material and Methods:** From 01.08.22 to 15.09.22, the research was conducted as a qualitative study based on phenomenological analysis. The authors followed the Consolidated Criteria for Reporting Qualitative Studies (COREQ) throughout the research and evaluated the study's reliability using the four Lincoln and Guba criteria. There were 11 male and 22 female students from Yozgat Bozok University's Faculty of Health Sciences Nursing Department who did not have communication or sensory disorders and willing to participate in the research. The study's sample size was determined based on data repetition and similar responses to questions. Appointments for the interviews were planned at the students' convenience, and on the day of the appointment, the researcher answered questions and recorded a voice recording for the individual interview. The sociodemographic questionnaire was initially used on students who agreed to take part in the study. Following that, a semi-structured interview followed. The study was conducted online (meet program) by obtaining the interviewer's notes, and because the first interviewer and the students were not from the same faculty, the potential of bias in the responses supplied was eliminated. While the researcher was asking the questions, an objective and sympathetic approach was utilized in a conversational style, in which views were encouraged, and the interview process was regulated by providing feedback on the thoughts. The audio recording for the study was defined on the researcher's computer in an encrypted format with the interview number.

**Results:** Throughout the student interviews, four themes were identified: a lack of teamwork, miscommunication, an unsuitable work environment, quality healthcare.

**Conclusion:** Institutions should provide instruction and cooperative training for multidisciplinary teamwork. It should improve the cooperation of health care professionals in the clinic by utilizing institutionally supported training models.

**Keywords:** Nursing students, Multidisciplinary team, Qualitative study.

## **OP065- A Natural Source of Cholinesterase Inhibitors: Oleuropein**

**0000-0003-0377-0388 Ahmet Gokhan Aggul**

Department of Biochemistry, Faculty of Pharmacy, Agri Ibrahim Cecen University, Agri,  
Türkiye

**Aim:** Oleuropein is a natural bioactive compound with beneficial effects on human health. This study was designed to evaluate the inhibition effects of oleuropein against acetylcholinesterase (AChE) and butyrylcholinesterase (BChE) enzymes.

**Material and Methods:** In this study, the inhibition effect of oleuropein on both enzymes was evaluated by determining the IC<sub>50</sub> values —oleuropein concentration causing 50% inhibition of the activity of enzymes. The inhibitory effect of oleuropein was also compared to tacrine — a potent cholinesterase inhibitor. Binding affinities and possible interactions between oleuropein with both enzymes were analyzed through molecular-specific docking using the Maestro 12.9 version of the Schrodinger Software program.

**Results:** According to the results, oleuropein showed a strong inhibitory effect against both enzymes. Moreover, there was a strong agreement between the experimental results and the free binding energy scores. For the AChE enzyme (PDB: 4TVK), the binding affinity of oleuropein (-15.252 kcal/mol) was quite good, while tacrine (-12.212 kcal/mol) showed a low binding affinity. For the BChE enzyme (PDB: 4TPK), oleuropein (-11.547 kcal/mol) strongly interacted with the enzyme compared to tacrine (-7.745 kcal/mol). This confirmed the strong low-energy interactions of oleuropein with both 4TVK and 4TPK.

**Conclusion:** Consequently, oleuropein exhibited a strong inhibitory effect against the AChE and BChE enzymes. The study may contribute to the synthesis of novel cholinesterase inhibitors, and pave the way for new drug design in treating several neurodegenerative disorders, including Alzheimer's and Parkinson's diseases.

**Keywords:** Oleuropein; cholinesterase; enzyme inhibition; molecular docking

## **OP066- Effect of Walnut Septum on HMG-CoA Reductase Activity**

**0000-0002-3470-0043 Neslihan Sirin<sup>1</sup>, 0000-0002-9202-1145 Nuri Cenk Coskun<sup>2</sup>**

<sup>1</sup>Experimental Animals Application and Research Center, Duzce University, Duzce, Turkiye

<sup>2</sup>Department of Medical Pharmacology, Faculty of Medicine, Duzce University, Duzce, Turkiye

**Aim:** In this study, which was designed based on the assumption that walnut septum is effective on the regulation of cholesterol level, content analysis of septum extracts prepared in solvents of different polarities was performed in gas chromatography mass spectrometry (GC-MS) and, the inhibitory effect of extracts on 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase that the cholesterol level-regulating enzyme was investigated in vitro.

**Material and Methods:** With a view to detection of the walnut septum content, 5 g walnut septum samples were separately macerated for twenty-four hours in 50 ml distilled water, methanol, ethanol, acetone, hexane and cyclohexane solvents. Extracts were analyzed in GC-MS, and identification was made with the integrated library database. For the analysis of the inhibitory effect, 1:5, 1:10 and 1:50 diluted concentrations were prepared from 10 mg/mL stock solutions of each extract. Inhibition screening was made using the test kit that detects HMG-CoA reductase enzyme activity by ELISA method.

**Results:** In the GC-MS scanning, from fatty acid components and phenolic substances with a percent distribution of more than twenty percent were detected ethyl linoleate (22%), 2,6-Di-tert-butylphenol (42%), monophenol (45%), 2,4-Di-tert-butylphenol (68%), and butyl linoleate (84%). The inhibitory effect of the septum on HMG-CoA reductase, was measured at a concentration of 2 µg/mL of the acetone extract with the most ratio of 3.2%.

**Conclusion:** With this research, notable data was obtained that septum extracts have a great proportion of phenolic and fatty acid components, as well, septum did not have a significant inhibitory effect on the inhibition of enzyme when compared to HMG-CoA reductase inhibitor, atorvastatin.

**Keywords:** Walnut septum; HMG-CoA reductase; GC-MS

## OP067- Biotransformation Reactions of Pharmacologically Active Heterocyclic Compounds

0000-0002-6335-9876 Şafak Zengin, 0000-0003-0010-1744 Zerrin Çalışkan

Yıldız Technical University, Faculty of Arts and Sciences, Department of Molecular Biology and Genetics, Istanbul, Türkiye

**Aim:** The objective of this study is to obtain  $\alpha$ -hydroxy indole derivative as a result of a series of reactions starting from 4,4-dimethyl-1,3-cyclohexadione. It is aimed to obtain the  $\alpha$ -hydroxy indole derivative, which has potential drug properties, in high enantiomeric excess with enzyme selectivity through the biotransformation process.

**Material and Method:** A compound of 7,7-Dimethyl-6,7-dihydrobenzofuran-4(5H)-on was synthesized starting from 4,4-dimethyl-1,3-cyclohexadione. In the second step of the synthesis process, the benzofuranone was purified and subjected to a seal tube reaction. The compound of 1-benzyl-6,7-dihydro-7,7dimethyl-1H-indol-4(5H)-on was synthesized by replacing the oxygen, which is the heteroatom in the ring, with nitrogen. The indole derivative obtained was purified in the third step of the synthesis and 1-benzyl-4,5,6,7-tetrahydro-4-oxo-7,7-dimethyl indol-5-yl acetoxy compound was obtained by acetoxylation reaction. The indole derivative, which was subjected to biotransformation with lipase enzymes, was obtained as enantiopure.

**Conclusion:** The synthesis of 7,7-dimethyl-6,7-dihydrobenzofuran-4(5H)-on was performed with 54% yield. A 0,50 R<sub>f</sub> (Retention Factor) value was determined for the 1:3 EtOAc:Hexane system on a silica TLC (Thin Layer Chromatography) plate. The R<sub>f</sub> value of the 1-benzyl-6,7-dihydro-7,7dimethyl-1H-indol-4(5H)-on compound was found to be 0,37 for the 1:4 EtOAc:Hexane system on the silica TLC plate.

**Results:** Indole derivatives have been widely studied in drug production and its development due to their wide range of bioactivity. The perspective of producing enantiopure products, which exhibits its importance in drug production, has been applied for indole derivatives and the method of its synthesis has been clarified.

**Keywords:** Pharmaceutical Chemistry; Indole; Biotransformation; Health Sciences; Medicine.

## **OP068- Evaluation of Palmar Creases of Healthy Young Individuals of Different Countries**

**0000-0002-2061-7951 Necati Emre Sahin<sup>1</sup>, 0000-0001-8008-7174 Rukiye Sumeyye Bakici<sup>1</sup>, 0000-0003-0459-1015 Zulal Oner<sup>2</sup>**

<sup>1</sup>Department of Anatomy, Karabuk University Faculty of Medicine, Karabük, Türkiye

<sup>2</sup>Department of Anatomy, İzmir Bakırçay University Faculty of Medicine, İzmir, Türkiye

**Aim:** In this study, it was aimed to make a comparison between countries by evaluating the palmar creases of the citizens of 5 different countries.

**Materials and Methods:** In this study, 108 (56 males and 52 females) between the ages of 17 and 30 from Türkiye, Iran, Senegal, Kazakhstan, and Gabon were included. Both hands of the individuals were photographed through a digital scanner. Later palmar creases were classified according to their type and number of origins. Intergroup comparisons of categorical variables were evaluated by the chi-square test.  $p < 0.05$  level was considered statistically significant.

**Results:** The mean age of the individuals included in the study was found to be 21.81 years. Of the 216 hands, 197 (91.2%) were classified as normal, 12 (5.55%) as Sydney, 6 (2.78%) as Suwon and 1 (0.46%) as Simian type. Of the palmar creases on the hands, 153 (70.83%) were classified as two origins, 61 (28.24%) as three origins and 2 (0.92%) as one origin. No relationship was found between countries and palmar typing ( $p > 0.05$ ). A significant relationship was found between countries and the number of origins of palmar creases ( $p < 0.05$ ). A relationship with gender was not found with palmar typing for both right hand and left ( $p > 0.05$ ). There was no significant relationship between gender and the number of origins of the palmar creases ( $p > 0.05$ ).

**Conclusion:** In this study, it was revealed that the country of individuals over the number of origin palmar creases was an important factor. Individuals of Kazakhstan nationality usually have palmar creases of two origins.

**Keywords:** Palmar creases, Anthropology, Hand anthropology, Kazakhstan.



## **OP069- Evaluation of STAT3 expression in epithelial ovarian carcinomas**

**0000-0002-8133-8665 Sinem Kantarcioğlu Coşkun**

Duzce University, School of Medicine, Pathology&Cytology Department, Konuralp, Duzce

**Aim:** Epithelial ovarian cancer usually presents in advanced stages and is the most common cause of death from gynecological cancer. Initial treatment includes surgery and adjuvant therapy. Signal transducer and transcription activator 3 (STAT3) is a transcription factor that plays a role in cell proliferation and cancer progression. It could be a potential target in cancer therapy. This study, it was aimed to investigate STAT3 expression patterns in epithelial ovarian cancers.

**Material and Methods:** Ovarian tumors in the archive of Düzce University Faculty of Medicine Pathology Laboratory were retrospectively scanned. Thirteen patients diagnosed with epithelial ovarian cancer were included in the study. The percentage of tumor cells stained and the staining score (as 0,1,2,3) were evaluated semiquantitatively from STAT3 stained preparations by the immunohistochemical method.

**Results:** Seven of the cases were serous, 3 were mucinous, 2 were clear cell and 1 was endometrioid carcinoma. The patient's ages ranged from 38 to 75, with a median age of 50. All serous carcinomas were reported as high grade. While 5 of the cases (38.4%) did not show staining with STAT3, expression over 25% was not detected in other tumors. Three of the cases showed 10% staining, two had 15%, 2 had 20% and 1 had 25% staining respectively. Staining intensity was between 1 and 2 points, and strong expression was not observed in any of the cases. STAT3 expression was detected in 5 (71.4%) of serous tumors, and no positivity was found in clear cell carcinomas.

**Conclusion:** STAT3 expression may be a potential specific biomarker in patients with ovarian carcinoma. The increased expression has been associated with poor prognosis in the literature. In our series, STAT3 expression was observed in all cases with bilateral ovarian involvement and, capsule invasion and lymphovascular invasion were also observed more frequently in STAT3 stained tumors. Although the small number of cases makes it difficult to conclude, future studies with large series may contribute to a path for anti-STAT3 therapies in ovarian cancer.

**Keywords:** STAT3, ovary, serous carcinoma, clear cell carcinoma, mucinous carcinoma

## **OP070- A Case of Rare Patient With Freiberg's Disease**

**0000-0002-8033-4208 Nurmhammet Taş**

Erzurum Regional Training and Research Hospital, Faculty of Medicine, Department of Physical Medicine and Rehabilitation, Erzurum, Türkiye

Freiberg's disease (FH) is a painful avascular necrosis involving the metatarsal head. It is seen especially in the second decade and mostly in women. FH is the only osteochondrosis that is more common in women than in men. A 20-year-old male patient who applied to our outpatient clinic had right foot pain. The patient had pain in the metatarsa-phalangeal (MTF) joint of his right foot, especially when weight was given. The patient had tenderness on the second finger, and limitation in joint movements, especially in extension. On direct X-ray of the patient, it was observed that the 2nd MTF joint was enlarged and the metatarsal head was collapsed and sclerosed. In addition to irregularity and flattening of the metatarsal head, dorsal protrusion may also occur. Secondarily, loose bodies and thickening of the metatarsal body may appear in the joint. Magnetic resonance (MR) imaging is helpful in making the diagnosis, especially in the early stage, before arthritic changes occur in the joint. Hypointense in the epiphysis in T1 sequences and mixed hypointense and hyperintense signals in T2 sequences. The same image was present in the MRI of our patient. Differential diagnosis of this disease with rheumatic diseases should be made. Laboratory values of our patient were normal. The patient had stage 3 osteonecrosis according to the Smillie staging system for FH in the 2nd metatarsal bone and stage 2 osteonecrosis according to the Gauthier/Elbaz staging system. The patient was offered 4 weeks of immobilization with or without support in conservative treatment. Nonsteroidal anti-inflammatory drugs and physical therapy were used as support. During this period, physical activity was limited as much as possible. After the symptoms subsided, a gradual return to physical activity was achieved. Orthoses and shoe modifications were made to relieve the MTF joint from the load. Most of the patients who can be caught in the initial period can be treated conservatively with semi-rigid orthoses and metatarsal bar insoles, physical therapy and medical therapy. We should consider this rare disease in our diagnosis. Early diagnosis and treatment prevent surgery. In this article, a rare case diagnosed with FH is presented in the light of current literature.

**Keywords:** Freiberg's disease, avascular necrosis, foot pain

## **OP071- Development And Validation of A Simple UV Spectrophotometric Method for The Determination of Bosentan in Pharmaceutical Preparations**

**0000-0001-5873-0944 Ömer Faruk Kocak**

Department of Chemistry and Chemical Processing Technologies, Technical Sciences Vocational College, Atatürk University, Erzurum, Türkiye

**Aim:** The aim of this study is to develop and validate a new UV spectrophotometric method for the quantitative determination of bosentan, an active ingredient that is widely used in the treatment of pulmonary arterial hypertension (PAH), in pharmaceutical preparations.

**Material and Methods:** A series of standard solutions of bosentan active ingredient in the range of 5-50 µg/mL were prepared. A mixture of methanol:water (25:75, v/v) was used as the solvent. Measurements were made with a UV-Visible Spectrophotometer device at 272 nm, the wavelength at which bosentan gave the highest absorbance as a result of scanning. The developed method has been validated in accordance with the ICH guidelines.

**Results:** The calibration curve is linear and the correlation coefficient was calculated as 0.9995. Quality control solutions at three different concentrations (7.5, 25, 45 µg/mL) were used. Both intraday and interday data of accuracy and precision values were found to be better than 5% (n=6). DIAMOND preparations were obtained from local pharmacies for the application of his method on pharmaceutical formulations. Analytical recovery studies were carried out according to the standard addition method.

**Conclusion:** As a result, it has been observed that the developed and validated method is applicable for the determination of bosentan in pharmaceutical preparations.

**Keywords:** Bosentan; Validation; Pulmonary arterial hypertension; UV spectrophotometry

## **OP072- The Effect of Oral Paracetamol on The Intraocular Pressure and Anterior Segment Parameters**

**0000-0002-3233-7906 Kürsad Ramazan Zor<sup>1</sup>, 0000-0001-8179-9181 Kadir Eren Biçer<sup>2</sup>, 0000-0001-9566-0906 Esin Benli Küçük<sup>3</sup>, 0000-0003-3058-6308 Gamze Yıldırım Biçer<sup>1</sup>, 0000-0002-1474-9237 Erkut Küçük<sup>1</sup>**

<sup>1</sup>MD, Niğde Ömer Halisdemir University School of Medicine Department of Ophthalmology

<sup>2</sup>MD, Niğde Education and Research Hospital Clinic of Orthopedics and Traumatology

<sup>3</sup>MD, Niğde Ömer Halisdemir University School of Medicine Department of Physical Medicine and Rehabilitation, Niğde, Türkiye

**Aim:** In this study we aimed to investigate the effect of oral paracetamol on the IOP and the anterior segment parameters in patient without glaucoma.

**Material and Methods:** The study group consisted of 30 eyes of 30 patients. All of these patients used oral paracetamol 1gr/day in two divided doses for 21 days. Measurements were taken before the beginning of oral paracetamol therapy and 21 days after the beginning of therapy. A detailed eye examination was performed. Eye pressure was measured with a Goldmann applanation tonometer. The central corneal thickness (CCT) measurements were performed using Topcon TRK-2P (Topcon, Tokyo, Japan) optical pachymeter. The anterior chamber depth (ACD) and axial length (AL) measurements were performed using IOL Master 500 (Carl Zeiss Meditec, Jena, Germany). The measurements obtained from the right eyes of the patients were included in the study.

**Results:** The IOP values were significantly lower after 21 day oral paracetamol therapy (15,7±2.1 mmHg vs 14.3±2.1 mmHg, p<0.001). There was no significant difference in CCT values measured before and after oral paracetamol therapy (551,6±26.7 µm vs 545.6±46.6 µm, p:0.361). AL values were significantly lower after the oral paracetamol therapy (23.8±0.9 mm vs 23.7±0.9 mm p. 0.003). ACD values were also significantly lower after the oral paracetamol therapy (3.13±0.25 mm vs 3.11±0.24 mm p: 0.005)

**Conclusion:** The findings of this study suggest that a decrease in IOP can be achieved by using paracetamol 500 mg bid in healthy volunteers. Future studies including glaucoma patients are necessary to determine its potential role in glaucoma treatment.

**Keywords:** anterior chamber depth, axial length, glaucoma, eye pressure, paracetamol

## **OP073- Delirious Mania – Case Report**

**0000-0002-2142-4916 Okan Imre**

Karamanoğlu Mehmetbey University Medicine Faculty, Department of Psychiatry, Karaman, Türkiye

Delirium mania is a picture consisting of both mania and delirium findings. The table appears unexpectedly. If the underlying etiology is not treated, it can result in death. Phenomenon; A 58-year-old male patient had known hepatic failure and heart failure. Aggression, confusion and disorientation started the day before he was hospitalized. The patient, who was brought to the emergency room with the police, had auditory and visual hallucinations and delusions of harm. He was constantly on the move. He was consulted to the internal medicine and cardiology clinics for the underlying cause. The treatment for heart failure and liver failure could not be done completely because the patient refused to eat and drink due to the suspicion of poisoning. There is information in the literature that delirium mania benefits from electroconvulsive therapy (ECT). ECT could not be performed because there was no device in our hospital. Haloperidol injection 20 mg/day intramuscularly was started. At the end of the first week, the patient's aggression, hallucinations and delusions improved. He accepted oral intake. The drugs were started again after consultation with cardiology and internal medicine physicians. In the second week, signs of heart failure began to improve. The patient, whose delirium findings also improved, was discharged with recommendations.

**Keywords:** Delirium, mania, haloperidol

## **OP074- The Relationship of Behavioral Symptoms with Cognitive Impairment in Alzheimer's Dementia**

**0000-0002-2934-6801 Sude İldem<sup>1</sup>, 0000-0002-7226-510X Özden Erkan Oğul<sup>2</sup>, 0000-0003-4292-5717 Lütfü Hanoğlu<sup>3</sup>**

<sup>1</sup>Private Counseling Clinic, Istanbul, Türkiye

<sup>2</sup>Istanbul Medipol University, Faculty of Health Sciences, Department of Occupational Therapy, Istanbul, Türkiye

<sup>3</sup>Istanbul Medipol University Faculty of Medicine, Department of Neurology, Istanbul, Türkiye

**Aim:** It is stated that behavioral and psychiatric symptoms in Alzheimer's disease (AD) can be an informative biomarker in the early stage of the disease. Revealing the relationship between these symptoms and cognitive skills may have prognostic value. The aim of this study was to question the relationship between behavioral symptoms and cognitive functions in early stage AD.

**Materials and Methods:** This study was applied with patients who refer to the Koşuyolu and Bağcılar Medipol Hospital Neurology Outpatient Clinic. For our cross-sectional and longitudinal study, the neuropsychometric test battery of 1350 Alzheimer's patients was reviewed and 42 early-stage Alzheimer's patients who showed behavioral problems according to the Neuropsychiatric Inventory (NPI) were reached. In the study; behavioral symptoms with NPI; global cognitive status by Mini Mental State Test, Clinical Dementia Staging Scale and Clock Scratch Test; Memory with Öktem Verbal Memory Processes Test; executive functions with Stroop Test and phonemic fluency test; with visuospatial processing, Benton Face Recognition Test and Line Direction Determination Test; language functions were evaluated with the Boston Naming Test. Behavioral symptoms and all cognitive skills in the cross-section; In the longitudinal part, the relationship between the change in global cognitive skills over time and initial behavioral symptoms was examined.

**Results:** A statistically significant negative moderate correlation was observed between the behavioral symptoms of Alzheimer's patients at the onset stage and memory ( $r=-0.36$ ;  $p<0.05$ ) and learning skills ( $p= 0.018$ ,  $r=-0.36$ )( $p<0.05$ ). In the longitudinal part; relationship wasn't found between the change in global cognitive skills over time and initial behavioral symptoms ( $p>0.05$ ).

**Conclusion:** Relationship wasn't found between behavioral symptoms in early stage AD and global cognitive skills. The relationship between sub-cognitive functions such as memory and their changes over time and behavioral symptoms should be examined with studies to be conducted with a higher patient population.

**Keywords:** Alzheimer's Disease, Cognitive Disorder, Behavioral Symptoms, Dementia.

## **OP075- A Case of Heterotopic Ossification in the Radius After Ulnar Artery Injury and Literature Review - Case Report**

**0000-0002-7792-5306 Sevda Canbay Durmaz<sup>1</sup>, 0000-0001-6695-4235 Ali Canbay<sup>2</sup>**

<sup>1</sup>Malatya Zirve Special Education and Rehabilitation Center, Malatya, Türkiye

<sup>2</sup> Malatya Gozde Hospital, Malatya, Türkiye

Heterotopic ossification (HO), which is characterized by the formation of new bone in a tissue that should not normally ossify, mostly occurs after direct trauma to muscle tissue, extensive burns, femur and acetabulum fractures, and arthroplasty operations. In this study, we aimed to present a rare case of HO occurring in the radius shaft after an open injury that caused ulnar artery injury in the anterior cubital region of the elbow. An 11-year-old girl applied to the emergency service because of an open injury after her left elbow anterior region was caught in the garden fence. After CT angiography, total injury of the ulnar artery was reported. Under general anesthesia, ulnar artery repair was performed using a saphenous vein, since the ulnar artery was so defective that it did not come from end to end. Evaluation with CT angiography was performed after 3 weeks of splint and arterial circulation was found to be uneventful. However, in the follow-up, 2 separate bone formations were observed in the distal of the injury and in the area close to the injury in the radiographs and this condition was evaluated as HO. Surgical excision was recommended. However, due to the fact that the patient did not have any complaints and the family did not want it, a follow-up decision was made. In the evaluation two years later, the joint movements were complete, the pulse was normal, there was no growth in the newly formed bone on the X-ray and the patient did not describe any active complaints.

This type of HO case, which occurred only with arterial injury after high-energy trauma, is one of the rare cases seen in the literature. Surgical resection should be performed after maturation is completed or if there is a serious complaint.

**Keywords:** Ulnar artery, heterotopic ossification, injury



## **OP076- Examination of Periocular Anthropometric Measurements According To Somatotypes**

**0000-0003-2453-9695 Sıdıka Karaketir, 0000-0002-2290-3679 Demet Şencan, 0000-0001-8182-7904 Serdar Çolakoğlu**

Düzce University Faculty of Medicine Department of Anatomy, Düzce, Türkiye

**Aim:** The aim of this study is to evaluate the morphometric measurements of the periocular measurements in healthy men with no trauma or surgical intervention on face and eyes in terms of somatotype.

**Material and Methods:** The study was conducted with 101 men between the ages of 18 and 32 who lived in the province of Düzce. 10 anthropometric measurements were made to determine the somatotype and body compositions of individuals as height, weight, skin fold measurements of 4 different areas (triceps, subscapular, supraspinale, medial calf), two bone diameters (bicipondylar humerus and femur) and two extremity diameters (flexed arm and calf). Somatotype was determined by using Heath-Carter method. 8 indirect anthropometric measurements of face and nose were taken from the participants as nasal root (mf-mf), outer canthal distance (ex-ex), inner canthal distance (en-width), interpupillary distance (p-p), right and left palpebral fissure width (ex-en), palpebral fissure height (ps) -pi) and orbital height (os-oi) were made with the Image J program.

**Results:** According to the Kruskal Wallis H test results, there was a statistically significant difference between the anthropometric measurements used to determine the somatotypes ( $p < 0.05$ ). It was determined that there was a statistically significant difference between ex-ex, ps-pi (right and left), p-p and mf-mf and somatotypes from indirect anthropometric measurements taken from the periocular region ( $p > 0.05$ ).

**Conclusion:** According to the results of the present study, somatotype affects the appearance of the periocular region in men. There are several studies on similar topics in the literature. However, our work will be the first and pioneer in its field. We think that; our study will contribute to face recognition studies, somatotype determination from face measurements and identification studies.

**Keywords:** somatotype; anthropometry; periocular; inner canthal; skin fold.

## **OP077- Vogt-Koyanagi-Harada Disease: A Case Report**

**0000 0002 6935 3221 Zeynep Katipoğlu**

Polatlı Duatepe Devlet Hastanesi, Göz Hastalıkları Bölümü, Ankara, Türkiye

Vogt-Koyanagi-Harada (VKH) disease is an autoimmune disease with a chronic course, characterized by severe bilateral granulomatous posterior or panuveitis associated with serous retinal detachment, optic disc edema, and vitritis. In this study, it was aimed to present the clinical features and treatment results of a case who applied with the complaint of low vision and was diagnosed with VKH disease. In the examination of a 23-year-old male, who had a complaint of decreased visual acuity in his right eye for a week, his visual acuity was counting fingers from 10 centimeters (cmfs) in the right eye and 20/20 in the left eye. The anterior segment examination was normal. Fundus examination revealed optic disc edema and multifocal choroiditis foci in both eyes, more prominently on the right. Optical coherence tomography (OCT) examination revealed an increase in the thickness of the subretinal fluid containing septa and choroidal thickness in both eyes. Fundus fluorescein angiography showed leaks and multifocal hyperfluorescent areas in both optic discs. In the laboratory examination, the biochemistry panel including complete blood count, sedimentation rate, liver and kidney functions and electrolytes were normal. Brain magnetic resonance (MR) imaging and cerebrospinal fluid analysis after lumbar puncture of the patient whose neurological examination was normal was evaluated as normal. In the visual evoked potential test, P100 latency was 187 ms on the right and 164 ms on the left. Electroencephalography, brain stem evoked potential and somatosensory evoked potential results were within normal limits. Skin involvement was not observed. The patient, whose infectious and rheumatological markers were also negative, was diagnosed with VKH disease, and pulse steroid therapy was given for 7 days followed by 1 mg/kg/day oral steroid therapy. In the follow-up, after 1.5 months, the visual acuity was 20/32 in the right eye and 20/20 in the left eye, and subretinal fluid and optic disc edema regressed.

**Keywords:** Optic disc edema, retinal detachment, Vogt-Koyanagi-Harada.

## **OP078- Evaluation of HCV Genotype Distribution in Patients with Hepatitis C Infection**

**0000-0002-1582-7313 Yakup Gezer, 0000-0002-2609-264X Muhammed Ridvan Taysi, 0000-0002-1245-3221 Arzu Tarakci, 0000-0001-9137-7150 Şule Ozdemir Armagan, 0000-0003-0817-6011 Mihriban Sengoz**

Konya City Hospital, Infectious Diseases and Clinical Microbiology, Konya

**Aim:** Currently, seven known genotypes of hepatitis C virus (HCV) have been defined, and HCV genotype 1b is the most common in our country. In this study; It was aimed to investigate the distribution of HCV genotypes in patients with hepatitis C in the Infectious Diseases and Clinical Microbiology outpatient clinic of Konya City Hospital.

**Materials and Methods:** HCV genotype results and related sociodemographic characteristics of patients with anti HCV (+) and HCV RNA (+) who applied to the Infectious Diseases and Clinical Microbiology outpatient clinic between September 2020 and September 2022 were retrospectively accessed from the hospital information management system.

**Results:** Of the 160 patients, 120 (75%) were male and 40 (25%) were female. The mean age was  $38 \pm 15.6$ . Genotype 3 in 73 (45.6%) patients, genotype 1b in 37 (23.1%) patients, genotype 1a in 16 (10%) patients, genotype 4 in 12 (7.5%) patients, genotype 2 in 8 (5%), genotype 5 in 2 (1.3%), and 12 (7.5%) mixed genotype were detected. When looking at the mixed genotypes, 9 (5.6%) genotypes (3+4), one (0.6%) genotype (2+3), genotype (2+4) and genotype (3+6) were determined. 41 of the cases (25.6%) were convicted; 63.4% of them were genotype 3, 14.6% genotype 1a, 12.2% genotype 2 and 9.8% mixed genotype (3+4). There were 53 (33%) patients who were intravenous drug users; 64.2% of these were genotype 3, 11.3% genotype 1a, 11.3% genotype 2, 11.3% mixed genotype (3+4) and 1.9% mixed genotype (2+3). When the genotype distribution of 15 foreign patients was examined, it was found that genotype 4 (46.7%), genotype 1a (20%), genotype 1b (20%) and genotype 3 (13.3%).

**Conclusion:** In our study, genotype 3 was found to be the most common genotype. This result was attributed to the presence of intravenous drug users and convicted patients in our sample. Genotype 4 was the most common in foreign patients. Although genotype 1b is the most frequently detected genotype in the general population in our country, the distribution of HCV genotypes may differ from the general population in intravenous drug users, convicted patients and foreign nationals.

**Keywords:** Convicted, intravenous drug users, genotype, hepatitis C virus (HCV).

## **OP079- Colorectal Advanced Adenoma Rates And Its Relationship With Age, Gender, Polyp Numbers And Polyp Size**

**0000-0002-6786-1732 Abdullah Okan**

Izmir University of Economics, Faculty of Health Sciences, Section Of Nursing and Kent Alsancak Medical Center, Dept. of Gastroenterology, Izmir, Türkiye

**Aim:** Advanced adenoma is defined as an adenoma with size of  $\geq 10$  mm or villous histology or high grade dysplasia. Patients with one or more advanced adenomas have a higher risk of colorectal cancer (CRC) during surveillance than patients with non-advanced small or diminutive adenomas. Detection and removal of this type of polyps is very important as it reduces the risk of CRC. The aim of this study was to determine advanced adenoma rate (AAR) defined according to its size ( $\geq 10$  mm) and its relationship with age, gender, polyp numbers and polyp size.

**Material and Methods:** Colonoscopies performed for all indications including screening, surveillance and diagnostic between January 2017 and March 2022 in a private hospital were analyzed. All colonoscopic procedures were categorized into age groups, gender, polyp numbers and size of adenoma. Pearson chi-square test in comparison of categorical variables was used.

**Results:** A total of 3546 colonoscopies were evaluated. Overall Adenom detection rate was 36.5%. The rate of advanced adenoma ( $\geq 10$  mm) among those with adenoma type polyps was found to be 16.5%. AAR was 6% among all colonoscopies. The distribution of those with advanced adenoma in men and women was similar (17.4% vs 15.2, respectively,  $p=0.292$ ). Detection of more than 1 polyp in patients with advanced adenoma was statistically higher than in those with 1 polyp (21.4% vs 11.1%, respectively,  $p<0.001$ ). The detection rate of advanced adenomas in the 50-79 age group was statistically higher than in the 20-49 age group (17.5% vs 12.2%, respectively,  $p=0.030$ ).

**Conclusion:** In cases with more than one polyp, the percentage of "Advanced Adenoma Polyp" is higher than those with one polyp number. Since the incidence of advanced adenoma between 50 and 80 years of age is much higher, special attention should be paid to the detection and removal of advanced adenomas during colonoscopy in this patient group. This finding may also lead to priority to this age group in colorectal cancer screening programs.

**Keywords:** Advanced adenoma, colorectal cancer, colonoscopy.

## **OP080- Evaluation of Medication Belief and Adherence to Treatment in Elderly Individuals Hospitalized in the Cardiology Clinic**

**0000-0002-3546-9656 Birgul Vural Dogru**

Mersin University Faculty of Nursing, Department of Internal Medicine Nursing, Mersin, Türkiye

**Aim:** This study was carried out to evaluate the beliefs about medicines and adherence to treatment of elderly individuals hospitalized in the cardiology clinic.

**Material and Methods:** The sample of this descriptive study consisted of 106 elderly patients who were hospitalized in the cardiology clinic of a public hospital between August and September 2022 and agreed to participate in the study. Data were collected using the "Patient Information Form", "Beliefs About Medicines Questionnaire" and " Adherence to Refills and Medications Scale ". Descriptive statistics, Mann Whitney U and Kruskal Wallis tests were used in the analysis of the data.

**Results:** The average age of the elderly individuals participating in the study was  $71.30 \pm 4.83$ , 53.8% of them were women and 71.7% of them were married. The mean score of the Patients' Beliefs About Medications Questionnaire was  $13.49 \pm 1.46$ . Adherence to Refills and Medications Scale; The mean score of the "Medication Adherence" sub-dimension was  $7.30 \pm 2.03$  and the mean score of the sub-dimension " Refilling medication " was  $7.28 \pm 1.61$ . There was a significant difference between the patients' gender, diagnosis of the disease, knowledge about drugs, regular health check-ups, employment and education status, and different sub-dimensions of the Beliefs About Medications Questionnaire ( $p < 0.05$ ). Medication adherence was significantly higher in patients who had knowledge about drugs, regularly used their drugs, and had a high school or higher education level ( $p < 0.05$ ).

**Conclusions:** The study showed that elderly patients hospitalized in the cardiology clinic had above-average beliefs about medications and moderate levels of adherence to medication therapy. Beliefs about medication and medication adherence were found to be affected by some variables.

**Keywords:** Heart disease; elderly; medication belief; medication adherence

## **OP081- IV Thrombolytic Therapy in Acute Stroke Patients with Atrial Fibrillation**

**0000-0002-9653-3009 Ezgi Sezer Eryıldız<sup>1</sup>, 0000-0002-9864-6904 Atilla Özcan Özdemir<sup>2</sup>**

<sup>1</sup>Manisa City Hospital

<sup>2</sup>Eskişehir Osmangazi University Faculty of Medicine

**Aim:** Atrial fibrillation (AF) is the most common clinical persistent arrhythmia and the risk of ischemic stroke is increased 4-5 times in patients with AF. However, the efficacy of intravenous thrombolytic therapy (IVT) for acute ischemic stroke due to AF is unclear. In this study, the clinical effect of AF was investigated in patients who were treated with IVT.

**Material and Method:** Acute ischemic stroke patients who were treated with IVT in our center between 2009 and 2017 were retrospectively analyzed. The clinical and radiological features of patients with and without AF were compared.

**Results:** A total of 460 patients were included in the study, and AF was detected in 155 (33.6%) of them. It was observed that the patients with AF were older ( $p<0.001$ ) and the female gender was more ( $p<0.001$ ). Again, it was determined that the National Institutes of Health Stroke (NIHSS) scores were higher ( $p<0.001$ ) and The Alberta Stroke Program Early CT (ASPECT) scores were lower ( $p=0.007$ ) in these patients. When the clinical outcomes of these patients were evaluated, it was observed that the Modified Rankin Scale (mRS) scores of the patients with AF were lower ( $p=0.031$ ) and the worse outcome (mRS 3-6) was higher in those ( $p=0.023$ ). No difference was found in terms of symptomatic intracerebral hemorrhages due to IVT.

**Conclusion:** AF was found to be associated with increased stroke severity and poor outcome in patients with acute ischemic stroke who were treated IVT, and these findings should be considered in patient selection for treatment.

**Keywords:** atrial fibrillation, stroke, thrombolysis.

## **OP082- Evaluation of bleeding after tonsillectomy**

**0000-0001-9508-0469 Ahmet Adnan Cırık**

Department of Otorhinolaryngology, University of Health Sciences, Umraniye Training and Research Hospital. İstanbul, Türkiye

**Aim:** This study aims to examine the characteristics of patients who presented with post-tonsillectomy bleeding and were treated, as well as to investigate the related risk factors.

**Material and Methods:** The study comprised 57 patients (36 males and 21 females) who presented to our clinic between January 2010 and December 2019 with the complaint of bleeding from the tonsillar lodge following tonsillectomy/adenotonsillectomy. Age, gender, indication and technique of tonsillectomy, hemoglobin level, bleeding etiology, treatments, blood transfusion requirement, concomitant disorders, and recurrences were investigated in relation to bleeding following tonsillectomy.

**Results:** Eleven patients were hospitalized with primary bleeding, while 46 with secondary bleeding. Five patients experienced recurrent bleeding. 21 female and 36 male patients with bleeding were present. There was no statistically significant difference in the frequency of bleeding between males and females. Bleeding was more prevalent in the adult age group. In terms of platelet, PDW, aPTT, and other hemogram parameters, there was no significant difference between the groups. Thirty patients had chronic tonsillitis, 13 had tonsillar hypertrophy, and 14 had both tonsillar hypertrophy and chronic tonsillitis. 25 individuals were treated with the use of topical treatments, medical care, and follow-up. 32 individuals had surgery. Bipolar cauterization, suturing, and suturing of anterior and posterior pillars were performed. Interventional radiology conducted embolization of the external carotid artery branches in one patient. There were no patient deaths.

**Conclusion:** One of the most dangerous effects of a tonsillectomy is post-tonsillectomy hemorrhage. To minimize increased comorbidities and mortality, preventative interventions and cautious treatment are critical.

**Keywords:** Tonsillectomy, complication, bleeding.

## **OP083- Are Attitudes Towards Infertility Associated With Gender Perception?**

**0000-0001-5707-6178 Hasret Parlan<sup>1</sup>, 0000-0003-3612-2010 Rojjin Mamuk<sup>2</sup>**

<sup>1</sup>Department of Nursing, Dr. Burhan Nalbantoğlu State Hospital, Nicosia, North Cyprus

<sup>2</sup>Nursing Department, Faculty of Health Sciences, Eastern Mediterranean University, Famagusta, North Cyprus

**Aim:** Positive or negative societal attitudes toward infertility have a psychosocial effect on infertile individuals. This study was conducted to determine the relationship between university students' attitudes towards infertility and their gender perceptions.

**Material and Methods:** This descriptive, correlational study included 602 university students. Data were collected using an online questionnaire including a personal information form, the Attitude Toward Infertility Scale (ATIS), and the Gender Perception Scale (GPS). Before starting the study, ethical approval was obtained from the Eastern Mediterranean University Ethics Committee. GPS and ATIS scores were compared according to sociodemographic characteristics using Mann-Whitney U test and Kruskal-Wallis H test. Spearman's correlation analysis and simple linear regression analysis test was used to analyze the association between GPS and ATIS scores.

**Results:** The students' mean GPS and ATIS scores were  $104.60 \pm 15.54$  and  $49.11 \pm 7.62$ , respectively. GPS and ATIS scores were positively associated in linear regression analysis ( $\beta=0.30$ ;  $p<0.05$ ) and correlation analysis ( $r=0.590$ ;  $p<0.05$ ).

**Conclusion:** The results of this study showed that university students had positive gender perception and attitudes toward infertility. In addition, students' attitudes toward infertility were directly associated with the modifiable factor of gender perception.

**Keywords:** Attitude; gender perception; infertility; university students



## **OP084- Mask Use Scale: A Scale Development Study**

**0000-0003-3612-2010 Rojjin Mamuk<sup>1</sup> 0000-0002-2947-3915 Melike Dişsiz<sup>2</sup>**

<sup>1</sup>Nursing Department, Faculty of Health Sciences, Eastern Mediterranean University, Famagusta, North Cyprus

<sup>2</sup>Department of Obstetrics and Gynecology Nursing, Health Sciences University, Hamidiye Faculty of Nursing, Istanbul, Türkiye

**Aim:** The correct use of face masks is one of the most effective ways to prevent the transmission of COVID-19 and other respiratory infections. This study aimed to develop a valid and reliable measure to assess attitudes and behaviors related to mask use in social settings.

**Material and Methods:** A methodological study was conducted with 489 people aged 18 years and older. Data were collected using a sociodemographic information form and the Mask Use Scale. The data were evaluated using descriptive statistics, exploratory and confirmatory factor analysis, dependent-samples t-test, Pearson correlation analysis, and Cronbach's alpha internal consistency coefficients. Before starting the study, ethical approval was obtained from the Health Sciences University Ethics Committee.

**Results:** Of the 48 items in the draft scale, 10 items with item-total correlations below 0.30 were removed from the scale. All remaining items had positive and significant item-total correlation coefficients ( $p < 0.001$ ). Mean scores in the test and retest showed no significant difference ( $p > 0.05$ ). Cronbach's alpha coefficients were .76 for the mask use subscale, .77 for the hygiene subscale, .78 for the cloth mask subscale, .77 for the requirement subscale, .80 for the mask selection subscale, and .93 for the entire scale.

**Conclusion:** The Mask Use Scale is a valid and reliable tool and can be used to determine adults' attitudes and behavior related to the use of face masks in social settings.

**Keywords:** Attitude; communicable disease control; community health; face masks; respiratory tract infections

## **OP085- A Study On Gender Perceptions In Northern Cyprus Turkish Community**

**0000-0003-3612-2010 Rojjin Mamuk<sup>1</sup>, 0000-0002-6309-3473 Ayşe Payas<sup>1</sup>, 0000-0002-0591-3824 Zeynep Kemaloğulları<sup>1</sup>, 0000-0001-6595-0195 Özcan Fırat<sup>1</sup>, 0000-0001-9990-9254 İbrahim Halil Güles<sup>1</sup>**

<sup>1</sup>Nursing Department, Faculty of Health Sciences, Eastern Mediterranean University, Famagusta, North Cyprus

**Aim:** This study aims to identify the gender perception and the affecting factors in individuals from Northern Cyprus.

**Material and Methods:** The sample of this cross-sectional and descriptive study included 304 participants, and the data were collected through the Socio-demographic Form and the Perception of Gender Scale. The data were evaluated using descriptive statistics, parametric test statistics of independent samples t-test and analysis of variance (one-way ANOVA). Before starting the study, ethical approval was obtained from the Eastern Mediterranean University Ethics Committee.

**Results:** Statistical analyses showed that the participants' "Perception of Gender Scale" mean score was  $89,08 \pm 16,28$ . The analysis results also showed that gender perceptions were more positive in women compared to men ( $p < 0.001$ ), in individuals living in İskele compared to the ones living in Yeşilköy ( $p = 0.003$ ), in individuals who lived in the city the longest period compared to the ones lived in the village ( $p = 0,024$ ), in single people compared to married people ( $p = 0,015$ ), and in those aged 25 and below compared to those aged 36 and above ( $p = 0.002$ ). Gender perception also was found to be lower in individuals who had four and more siblings ( $p = 0,022$ ), but it was found to be higher in those who had only girls as siblings ( $p = 0,033$ ). On the other hand, the gender perception of the individuals who had an education level of university and above was higher than the participants who had other education levels ( $p < 0.001$ ). Also high education level of the parents had an positive effect on the gender perception of the individuals ( $p < 0.001$ ).

**Conclusion:** The results of this study showed that although the participants' gender perception was not very high, it was positive and was affected by many factors.

**Keywords:** Cyprus; gender; gender equality; perception; woman.

## **OP086- Evaluation Of The Effects Of Pain Localization And Quality Of Daily Life Of Physiotherapists Working In Special Education**

**0000-0002-8469-4518 Sibel Ateşoğlu Karabaş, 0000-0002-0899-560X Mehlika Küçük**

Department of Anatomy, Faculty of Medicine, Kahramanmaraş Sütçü İmam University, Kahramanmaraş, Türkiye

**Aim:**To evaluate the localization of pain due to musculoskeletal disorders and its effect on the quality of daily life of physiotherapists working in special education.

**Material and Methods:**Data were obtained with a three-part questionnaire form prepared on Google Forms,including demographic information,"Extended Nordic Musculoskeletal Questionnaire" and "Short Form Health Survey(SF-36)".

**Results:**The study included 120 participants, 76(52 women, 24 men) physiotherapists and 44 (16 women, 28 men) controls. It was determined that there was no statistical difference between the study group and the control group in terms of age, height, weight, and frequency of weekly sports ( $p>0.05$ ). In physiotherapists %19.5 in the lower back, %13 in the upper back, %9.8 in the neck, %5.7 in the knee, %4.9 in the shoulder,%4.9 the hand and wrist, %1.6 in the foot and ankle,%1.6 in the elbow,%0.8 in the hip and thigh, In the control group,%29.5 experienced pain in the upper back,%25 in the waist,%13.6 in the neck,%13.6 in the shoulder,%6.8 in the knee,%6.8 in the foot and ankle, and %4.5 in the hand and wrist. It was determined that %48.7 of the individuals in the physiotherapist group had difficulty in doing their normal work due to the pain they experienced, and %42.1 of them started to use medication. When their quality of daily life was compared with one year ago, %39.5 had a slightly worse quality of life and %28.9 had a deteriorating health status.

**Conclusions:**It was concluded that physiotherapists working in special education experienced serious pain in the musculoskeletal system, started to use medication due to increasing pain in the last year, and had difficulty in their work and daily life activities due to their deteriorating general health status. We believe that more studies needs to be done on improving the overall health status of physiotherapists.

**Keywords:** Special education, physiotherapist, localization of pain, quality of daily life.

## **OP087- Evaluation of Comorbidity in Obese Patients with Sleep-Related Respiratory Disorder**

**0000-0003-0348-3194 Aysegül Altıntop Geçkil, 0000-0001-8634-2543 Nurcan Kırıcı Berber, Erdal İn**

Malatya Turgut Özal University, Faculty of Medicine, Department of Chest Diseases

**Aim:** The World Health Organization defines body mass index (BMI)>30 as obesity. Obesity is one of the most important risk factors for OSAS (obstructive sleep apnea syndrome) and OHS (obesity hypoventilation syndrome), known as sleep-related respiratory disorders. In this study, it was aimed to determine the frequency of hypertension (HT), cardiovascular disease (CVD) and diabetes mellitus (DM) in obese patients who underwent polysomnography in Malatya Turgut Özal University Training and Research Hospital Sleep Disorders Center between 2020-2022 and to investigate their relationship with obesity.

**Material and Methods:** In this retrospective study, 388 patients with BMI>30 were evaluated. Age, gender, BMI, polysomnography findings (sleep efficiency, apnea hypopnea index (AHI), mean saturation (SPO<sub>2</sub>), minimum SPO<sub>2</sub>, desaturation index) and accompanying diseases were recorded. Patients with AHI<5 simple snoring, AHI 5-15 mild OSAS, 16<AHI<30 moderate OSAS, AHI>30 severe OSAS, and BMI>30 with hypoventilation were grouped as OHS. The data were evaluated with the SPSS program, Chi Square and Pearson Correlation tests were used. P<0.05 was considered statistically significant.

**Results:** 214 (55.2%) of 388 patients were male and 174 (44.6%) were female. The mean age of the patients was 50.4±12, and the mean BMI was 34.3±5.7. 59 (15.2%) of the patients were morbid obese (BMI>40). Minimum SP<sub>02</sub> was 77.5±10, mean SPO<sub>2</sub> was 89.6±3, desaturation index was 26.1±28. Of the patients, 50 were defined as simple snoring, 49 as mild OSAS, 66 as moderate OSAS, 99 as severe OSAS, and 124 as OHS. 155 (39.9%) of the patients had HT, 49 (12.6%) had CVD, 113 (29.1%) had DM. There was a positive correlation between BMI and HT, CVD and DM and it was statistically significant (p=0.002, p<0.001, p<0.001). There was also a positive correlation between BMI and the number of comorbidities and it was statistically significant (p<0.001). There was a positive correlation between BMI, desaturation index and minimum SPO<sub>2</sub> value, and it was statistically significant (p<0.001, p<0.001). There was a

negative correlation between BMI and mean SPO2 value and it was statistically significant ( $p < 0.001$ ).

**Conclusion:** Obese individuals with CVD and/or DM should definitely undergo polysomnography in terms of sleep-related respiratory diseases. In case of detection of sleep-related respiratory disease, positive airway pressure therapy should be started in these patients and patients should be encouraged to lose weight.

**Keywords:** OSA, OHS, metabolic syndrome

**OP088- Efficacy and safety of Glecaprevir/Pibrentasvir in the treatment of hepatitis C: Single center experience**

**0000-0002-8175-9611 Serdar Durak<sup>1</sup>, 0000-0002-4472-2895 Arif Mansur Coşar<sup>2</sup>**

<sup>1</sup>Kanuni Training and Research Hospital, Department of Gastroenterology, Trabzon, Türkiye

<sup>2</sup>Department of Gastroenterology, Faculty of Medicine, Karadeniz Technical University, Trabzon, Türkiye

**Aim:** Hepatitis C virus (HCV) is an RNA virus that chronically infects approximately 100 million people in the world and can cause fibrosis, cirrhosis and hepatocellular carcinoma if untreated. In recent years, with the introduction of direct-acting antiviral regimens that have a high response rate and are well tolerated, a revolution has been made in the treatment of chronic HCV. In our study, we aimed to investigate the efficacy and safety of Glecaprevir/Pibrentasvir, one of these treatment regimens.

**Material and Methods:** Patients using Glecaprevir/Pibrentasvir due to chronic HCV in Karadeniz Technical University Farabi Hospital were scanned from the hospital archive, and the demographic and biochemical parameters of the patients were examined.

**Results:** 14 patients were included in the study. While 71.4% (n=10) of the patients were male, the mean age was  $57.71 \pm 11.49$  years. While 64.3% (n=9) of the patients received treatment for 8 weeks, 50% (n=7) were genotype 1b, 35.7% (n=4) were genotype 3, 14.3% (n=2) was genotype 2. 64.3% (n=9) of the patients were non-cirrhotic, and 78.6% (n=11) were treatment-naive. sustained virological response was obtained in 92.9% (n=13) of the patients after treatment. When the laboratory parameters were compared, there was no statistical difference in eGFR, creatinine, total bilirubin, AFP, INR, leukocyte and hemoglobin levels when the results before the treatment and 3 months after the end of the treatment were compared. ( $p>0.05$ ). ALT, AST, direct bilirubin, LDH levels were significantly lower after treatment ( $p<0.05$ ), and platelet levels were significantly higher ( $p<0.05$ ). None of the patients had to discontinue treatment due to side effects.

**Conclusion:** The glecaprevir/pibrentasvir regimen is an effective option in the treatment of chronic HCV due to its high sustained virological response rate and good tolerance.

**Keywords:** hepatitis C, glekaprevir, pibrentasvir

## **OP089- The Relationship between Physical Activity and Neurocognitive Functions in Individual with Diabetes – Review**

**0000-0001-9744-0472 Melek Havva Kılıçık<sup>1</sup>, 0000-0001-9421-0233 Filiz Özdemir<sup>2</sup>**

<sup>1</sup>Karamanoglu Mehmetbey University, Vocational School of Health Services, Department of Therapy and Rehabilitation, Karaman, Türkiye

<sup>2</sup>Inönü University, Faculty of Medicine, Department of Physiotherapy and Rehabilitation, Malatya, Türkiye

Diabetes is a group of metabolic diseases characterized by hyperglycemia resulting from disruptions in insulin secretion or action. Cognition is; It is the name given to the whole mental process consisting of attention, perception, recognition, memory, concept formation, production and understanding of language, problem solving skills and decision making. Studies have found that both types of diabetes affect brain structure and function. These studies provide evidence that the causes and consequences of diabetes are related to the mechanisms underlying neurocognitive impairments. It has been known for many years that physical activity is effective in the release of neurotrophic chemicals such as Brain-Derived Neurotrophic Factor (BDNF) and Insulin-Like Growth Factor (IGF-1), and neurotransmitters such as serotonin, which plays an effective role in memory formation. Clarifying the protective role of physical activity on neurocognitive functions in individuals with diabetes will contribute to the literature. In the future, studies are needed to determine the effect of physical activity on the neurocognitive functions of diabetes and the required doses.

**Keywords:** Diabetes, Physical activity, neurocognitive functions

## **OP090- Long-Term Outcomes In Surgical Treatment Of Pelvic Fractures; Twelve Year Analysis**

**0000-0003-4823-4853 Cihat Dağgez, 0000-0003-4182-6215 Ahmet Harma**

Department of Orthopedics and Traumatology, Faculty of Medicine, Inonu University, Malatya, Türkiye

**Aim:** Although pelvic fractures constitute approximately 3% of all fractures, minimally separated fractures; They result in a wide range of injuries, from fully detached pelvic ring injuries that result in bleeding that poses a risk of death. This causes variation in treatment. In this study, we aimed to evaluate the effect of long-term surgical results of patients with pelvis fractures followed in our clinic on the quality of life of the patients.

**Material and Methods:** Demographic data, injury mechanisms, type of treatment applied, length of hospital stay, control orthopedic examinations and final control films of 121 adult patients who underwent surgical treatment for pelvic fracture in our clinic between 2000 and 2012 were recorded from the electronic recording system of our hospital. The patient fracture types were made according to the OTA classification. Treatment methods were divided into three main classes as internal fixation, external fixation, internal and external fixation. The data of the patients were evaluated as very good, good, moderate and bad by Hannover scoring (HS) method.

**Results:** Of the 121 patients included in the study, 86 were male and 35 were female. The most common cause was traffic accidents, and the second most frequent cause was falling from a height. Ten of the patients had OTA Type A, 96 had OTA Type B (29 patients (24%) OTA Type B1-2), and 15 had OTA Type C fractures. Hannover Score was evaluated as excellent in 52 patients (43.0%), good in 54 patients (44.6%), and reasonable in 15 patients (12.4%). No bad results were detected.

**Conclusion:** Our results showed that the functional results of surgical treatment are quite successful. We believe that appropriate surgical treatment is now the first treatment rather than the option for most pelvic fractures. Surgical treatment has become necessary rather than conservative treatment when it is aimed to reduce morbidity.

**Keywords:** Pelvic fracture; surgical treatment; Hanover scoring.



## **OP091- Wedge Osteotomy in Hallux Valgus**

**0000-0003-4823-4853 Cihat Dağgez**

Department of Orthopedics and Traumatology, Faculty of Medicine, Inonu University, Malatya, Türkiye

The aim of the study is in patients with hallux valgus; is to present a new surgical method in which the deformity results in the most anatomical way without the formation of bone shortness. Hallux valgus; It is a progressive disease that threatens foot health and walking in patients. If left untreated, it severely impairs the patient's motility and reduces the quality of life. In this study, the intermetatarsal angle of our patient (35 years old female patient) in the right foot was 55 degrees. The patient's thumbs overlapped the second toe, her gait was markedly impaired, and it was difficult to find suitable shoes. A wedge osteotomy of the thumb was applied to the patient, and shortness of the finger did not occur, and the metatars was reversed 180 degrees around the long axis and corrected. The patient's foot remained in the splint for only 15 days, after which the splint was taken off, he was given weight and returned to his normal life.

**Keywords:** Hallux valgus; Wedge osteotomy; New surgical technique.

**2<sup>ND</sup> INTERNATIONAL DR. SAFIYE ALI CONGRESS ON  
MULTIDICIPLINARY STUDIES IN HEALTH SCIENCES  
SEPTEMBER 30-OCTOBER 2, 2022, ONLINE**

## **FULL TEXTS**



**EDITOR**

**Dr. Deniz SENOL**

**ISBN: 978-605-73001-0-2**

**FT001**

## **16-18 YAŞ ERGENLERDE OTİSTİK MİZAÇ ÖZELLİKLERİNİN PATOLOJİK İNTERNET KULLANIMI İLE İLİŞKİSİ**

**0000-0003-2703-0421 Nuran Gözpinar<sup>1</sup>, 0000-0001-9598-8944 Özalp Ekinci<sup>2</sup>**

<sup>1</sup>İstanbul Medeniyet Üniversitesi Göztepe Prof Dr Süleyman Yalçın Şehir Hastanesi, Çocuk ve Ergen Ruh Sağlığı ve Hastalıkları Bölümü, İstanbul, Türkiye

<sup>2</sup>Sağlık Bilimleri Üniversitesi Tıp Fakültesi, Çocuk ve Ergen Ruh Sağlığı ve Hastalıkları Bölümü, İstanbul, Türkiye

### **Özet**

**Amaç:** Sosyal etkileşim zorlukları patolojik internet kullanımının sebepleri arasındadır. Bu çalışmanın temel amacı, 16-18 yaş arası ergenlerden oluşan toplum örnekleminde otistik mizaç özelliklerinin patolojik internet kullanımı ile ilişkisini araştırmak, ikincil amacı ise, sosyal anksiyete ile patolojik internet kullanımı arasındaki ilişkiyi araştırmaktır.

**Materyal ve Metod:** Bu çalışmaya, 2016-2017 eğitim öğretim yılında Mersin ili Yenişehir ilçesindeki anadolu liselerinde öğrenim gören, 16-18 yaş aralığındaki 239 ergen dahil edilmiştir. Çalışmaya katılan ergenlere Otizm Spektrum Anketi (OSA), Young İnternet Bağımlılığı Ölçeği (YİBÖ) ve Liebowitz Sosyal Anksiyete Ölçeği (LSAÖ) uygulanmıştır. İstatistiksel analizler için ergenler YİBÖ puanlarına göre "ortalama internet kullanıcısı" (YİBÖ puanı <50) ve "riskli/patolojik internet kullanıcısı" (YİBÖ puanı ≥50) olmak üzere iki gruba ayrılmıştır. OSA total puanı ≥26 olanlar "eşik üstü otistik mizaç özellikleri olanlar" olarak tanımlanmıştır.

**Bulgular:** Çalışma örnekleminin YİBÖ total puan ortalaması 49,61±16,25'tir. Araştırmaya katılan ergenlerin 132 (%55,2)'sini ortalama internet kullanıcıları, 107 (%44,8)'sini ise riskli/patolojik internet kullanıcıları oluşturmaktadır. OSA total puan ortalaması, ortalama ve riskli/patolojik internet kullanıcısı olan grup için sırasıyla 19,49±4,67 ve 21,16±5,11'dir. Riskli/patolojik internet kullanıcılarının OSA total ve sosyal beceri, dikkati kaydırabilme, iletişim alt ölçek puanlarının, ortalama internet kullanıcılarından daha yüksek olduğu saptanmıştır. LSAÖ total puanı ve tüm alt ölçek puanları da riskli/patolojik internet kullanıcılarında daha yüksektir. Çoklu lojistik regresyon analizine göre, OSA total puanı ≥26 olmak riskli/patolojik internet kullanımı riskini 2,5 kat artırmaktadır.

**Sonuç:** Çalışmamızın sonuçları, ergenlerde otistik mizaç özellikleri ve sosyal anksiyetenin patolojik internet kullanımı ile ilişkili olduğunu göstermiştir. Patolojik internet kullanımı olan ergenler hem otistik mizaç özellikleri hem de sosyal anksiyete belirtileri açısından değerlendirilmelidir.

**Anahtar Kelimeler:** Ergen, Otistik mizaç özellikleri, Patolojik internet kullanımı, Sosyal anksiyete

## **GİRİŞ**

Sosyal etkileşimde, sözel ve sözel olmayan iletişimde yetersizlik, kısıtlı ilgi alanları ve tekrarlayıcı davranışlarla karakterize olan otizm spektrum bozukluğu belirtilerinin sağlıklı kişilerden oluşan popülasyonda varlığı otistik mizaç özellikleri olarak tanımlanmaktadır (Wheelwright vd., 2010). Patolojik internet kullanımı; çevrimiçi aktivitelerle aşırı uğraşı, internette geçirilen zamanı azaltmakta zorluk, internette veya internet üzerindeki belirli sitelerden ayrılma ile oluşan çekilme belirtilerinin (mutsuzluk, sinirlilik, huzursuzluk hissi vb.) varlığı ile karakterizedir (Brand vd., 2014). Otistik mizaç özellikleri, bireylerdeki kişilik ve davranış farklılıkları ile ilişkilidir ve kişilerin iletişim becerilerini etkiler (Bölte vd., 2011). İnternet ve bilgisayar aracılığı ile olan etkileşimler, otistik özellikleri olan bireyler için doğrudan sosyal etkileşimin bulunmadığı bir iletişim olanağı sunduğundan daha avantajlıdır. Potansiyel avantajlarının yanında, internet kullanımı aşırı olduğunda bağımlılık yapabileceği düşüncesi de giderek artmaktadır (Van den Eijnden vd., 2008). Elektronik medyaya olan güçlü sempatileri göz önüne alındığında, otistik mizaç özellikleri olan bireyler patolojik internet kullanımı açısından riskli bir grup olarak değerlendirilebilir (Lane ve Radesky, 2019). Ergenlik dürtüsellüğün ve bu nedenle bağımlılık potansiyelinin yüksek olduğu bir gelişim dönemi olduğundan patolojik internet kullanımı açısından diğer bir risk faktörüdür (Rømer Thomsen vd., 2018). Literatürde, 16-18 yaş arası sağlıklı ergenlerde otistik mizaç özelliklerinin patolojik internet kullanımı ile ilişkisini inceleyen bir çalışma bulunmamaktadır. Bu nedenle bu çalışmada, Mersin ili Yenişehir ilçesindeki anadolu liselerinde öğrenim gören 16-18 yaş ergenlerden oluşan toplum örneğinde, otistik mizaç özellikleri ile patolojik internet kullanımı arasındaki ilişkinin araştırılması amaçlanmıştır. Çalışmada ek olarak, sosyal anksiyete ile patolojik internet kullanımı arasındaki ilişki de incelenmiştir.

## **MATERYAL VE METOT**

Anket çalışması türünde tasarlanmış olan bu çalışmaya Mersin ili Yenişehir ilçesindeki anadolu liselerinde öğrenim görmekte olan 16-18 yaş aralığındaki öğrenciler dahil edilmiştir. Çalışmaya

dahil edilme kriterleri; 16-18 yaş arası olmak, herhangi bir psikiyatrik veya kronik hastalık tanısının olmaması ve psikiyatrik tedavi almıyor olmak olarak belirlenmiştir. Katılımcılar çalışma hakkında bilgilendirildikten sonra çalışmaya katılmayı kabul eden katılımcılardan ölçekler aracılığı ile veriler elde edilmiştir.

## **Ölçekler**

### **Sosyodemografik Bilgi Formu**

Katılımcılara ait sosyodemografik bilgilerin (yaş, cinsiyet, öğrenim görmekte oldukları okulun adı, psikiyatrik ve tıbbi hastalıkları ve psikiyatrik tedavi alıp almadıkları) sorgulandığı sosyodemografik form araştırmacılar tarafından oluşturulmuştur.

### **Young İnternet Bağımlılığı Ölçeği**

Patolojik internet kullanımını belirlemek için geliştirilmiş beşli Likert tipte bir ölçektir (Bayraktar, 2001; Young, 1996). Çalışmamızda, katılımcılar YİBÖ puanlarına göre 2 gruba ayrılmıştır. YİBÖ puanı 50 ve üzerinde olanlar "riskli/patolojik internet kullanıcısı" olarak, YİBÖ puanı 50'nin altında olanlar ise "ortalama internet kullanıcısı" olarak tanımlanmıştır.

### **Liebowitz Sosyal Anksiyete Ölçeği**

Liebowitz Sosyal Anksiyete Ölçeği, sosyal ortamlarda ve performans gerektiren durumlarda yaşanan korku ve kaçınmanın şiddetini değerlendirmek amacıyla kullanılan, 24 maddeden oluşan 4'lü likert tipte bir ölçektir (Dilbaz, 2001). Önerilen eşik değeri her bir alt ölçek için 25 ve toplam puan için 50'dir.

### **Otizm Spektrum Anketi**

Otizm Spektrum Anketi (OSA), normal zeka düzeyine sahip herhangi bir bireyin hangi derecede otistik özellikler gösterdiğini belirlemeyi amaçlamaktadır. Ölçeğin Türkçe geçerlik ve güvenirlik çalışması Köse ve ark. (Köse vd., 2010) tarafından yapılmıştır.

Bu çalışmada, OSA'dan 26 ve üzerinde puan alanlar "eşik üstü otistik mizaç özellikleri olanlar", 26'nın altında puan alanlar ise "eşik altı otistik mizaç özellikleri olanlar" olarak tanımlanmıştır.

### **İstatistiksel Analiz**

Verilerin değerlendirilmesinde SPSS 11.5 paket programı kullanılmıştır. Normal dağılıma uygunluk Shapiro Wilk testi ile incelenmiştir. Tanımlayıcı istatistikler, normal dağılan veriler için ortalama ve standart sapma olarak, normal dağılıma uymayan veriler için ise medyan ve yüzdelerik değerler şeklinde hesaplanmıştır. İki grup ortalaması arasındaki fark normal dağılan verilerde student t testi ile, normal dağılıma uymayan verilerde Mann Whitney U testi ile incelenmiştir. Ayrıca kategorik yapıdaki değişkenlerle ikili sonuç değişkeni arasında lojistik regresyon analizi yapılmıştır. İstatistik anlamlılık düzeyi  $p < 0.05$  olarak kabul edilmiştir.

## BULGULAR

### Genel örnekleme sosyodemografik veriler

Çalışmamızın örneklemini, 16 yaş grubundan 80 (%33,5), 17 yaş grubundan 80 (%33,5) ve 18 yaş grubundan 79 (%33) kişi olmak üzere toplam 239 ergenden oluşmaktadır. Örnekleme ortalama yaş  $16,9 \pm 0,82$  olarak bulunmuştur. Grubun %56,1'ini kız cinsiyet, %43,9'unu ise erkek cinsiyet oluşturmaktadır.

### Patolojik İnternet Kullanımının Otistik Mizaç Özellikleri ile İlişkisi

Riskli/patolojik internet kullanımı olan ergenlerin OSA total puanı ve sosyal beceri, dikkati kaydırabilme, iletişim alt ölçek puanları, ortalama internet kullanıcısı olan ergenlere kıyasla istatistiksel olarak anlamlı derecede yüksek bulunmuştur (Tablo 1).

**Tablo 1.** Ortalama internet kullanıcısı olan ve riskli/patolojik internet kullanıcısı olan ergenlerin OSA puanlarının karşılaştırılması

OSA	Ortalama İnternet Kullanıcısı n=132 Ort±ss	Riskli/Patolojik İnternet Kullanıcısı n=107 Ort±ss	<i>p</i>
Total puan	19,49±4,67	21,16±5,11	0,010*
Sosyal Beceri	3±1,68	3,44±1,69	0,046*
Dikkati Kaydırabilme	4,63±1,79	5,11±1,83	0,046*
Ayrıntıya Dikkat Etme	6,24±1,88	6±2,04	0,356
İletişim	2,67±1,50	3,77±1,81	0,000*
Hayal Gücü	2,82±1,63	2,91±1,67	0,671

OSA=Otizm Spektrum Anketi, N=kişi sayısı, Ort±ss=ortalama-standart sapma,  $p < 0.05^*$

Eşik üstü otistik mizaç özellikleri olan ergenler ortalama internet kullanıcısı olan grubun %6,9'unu oluştururken, riskli/patolojik internet kullanıcısı olan grubun %17,9'unu oluşturmaktadır. İki grup arasındaki fark istatistiksel olarak anlamlı bulunmuştur (Tablo 2).

**Tablo 2.** İnternet kullanım alışkanlıklarının otistik mizaç özellikleri ile ilişkisi

	Ortalama İnternet Kullanıcısı n=130 n (%)	Riskli/Patolojik İnternet Kullanıcısı n=106 n (%)	<i>p</i>
OSA eşik üstü ( $\geq 26$ )	9 (6,9)	19 (17,9)	0,009*
OSA eşik altı ( $< 26$ )	121 (93,1)	87 (82,1)	

OSA=Otizm Spektrum Anketi, N=kişi sayısı, p<0.05\*

### Patolojik İnternet Kullanımının Sosyal Anksiyete ile ilişkisi

Riskli/patolojik internet kullanıcısı olan ergenlerin LSAÖ total puanı ve tüm alt ölçek puanları, ortalama internet kullanıcısı olan ergenlerden istatistiksel olarak anlamlı derecede yüksek bulunmuştur (Tablo 3).

**Tablo 3.** Ortalama internet kullanıcısı olan ve riskli/patolojik internet kullanıcısı olan ergenlerin LSAÖ alt puanları açısından karşılaştırılması

LSAÖ	Ortalama İnternet Kullanıcısı n=132 Ort±ss	Riskli/Patolojik İnternet Kullanıcısı n=107 Ort±ss	p
Total puan	39,26±20,05	47,82±24,80	0,004*
Total kaygı	20,81±10,52	25,44±12,97	0,003*
Total kaçınma	18,44±10,71	22,37±13,01	0,011*
Sosyal etkileşim kaygı	8,53±5,19	10,82±6,40	0,003*
Sosyal etkileşim kaçınma	7,61±4,98	9,54±6,13	0,008*
Performans kaygı	12,28±6,18	14,61±7,39	0,009*
Performans kaçınma	10,81±6,30	12,85±7,54	0,024*

LSAÖ=Liebowitz Sosyal Anksiyete Ölçeği, N=kişi sayısı, Ort±ss=ortalama standart sapma p<0.05\*

Riskli/patolojik internet kullanımı ile potansiyel ilişkili kategorik değişkenler lojistik regresyon analizi ile incelendiğinde, OSA ölçek puanının 26 ve üzerinde olmasının riskli/patolojik internet kullanımı riskini 2,5 kat artırdığı ve bu risk artışının istatistiksel olarak anlamlı olduğu bulunmuştur (Tablo 4).

**Tablo 4.** YİBÖ puanının 50 ve üzeri olması ile ilişkili faktörler

	p	OR	OR için %95 güven aralığı
OSA eşik üstü (≥ 26)	0,041*	2,481	1,038-5,927
LSAÖ total eşik üstü (≥ 50)	0,618	0,711	0,186-2,717
LSAÖ kaygı eşik üstü (≥ 25)	0,405	1,514	0,570-4,019
LSAÖ kaçınma eşik üstü (≥ 25)	0,234	1,891	0,662-5,401

YİBÖ=Young İnternet Bağımlılığı Ölçeği, OSA=Otizm Spektrum Anketi, LSAÖ=Liebowitz Sosyal Anksiyete Ölçeği, p<0.05\*, OR=odds oranı

## TARTIŞMA

Patolojik internet kullanımı için en önemli risk faktörlerinden birinin online iletişim olduğu bildirilmektedir (Caplan, 2003; Chou ve Hsiao, 2000). Otistik mizaç özellikleri olan bireylerde sosyal inhibisyon ve yüz yüze iletişimi başlatma/sürdürmeye karşı isteksizlik olması, online iletişimi bu bireyler için avantajlı hale getirmektedir. Sosyal inhibisyonun sebebinin bireyin sosyal ortamın dışında kalma isteği olmadığı, aksine bu bireylerin sosyal anksiyetesi olan bireylerdekine benzer şekilde yalnızlık hissi yaşadıkları ve bunun için farklı iletişim yollarına başvurdukları bilinmektedir (Bauminger vd., 2003).

2012 yılında Finkenauer ve arkadaşları tarafından yapılan 309 erişkinin katıldığı ve otistik mizaç özelliklerinin internet kullanımı üzerine etkisinin araştırıldığı bir çalışmada, otistik mizaç özelliklerinin internet kullanım sıklığını değiştirmediği ancak internet kullanım tipini etkilediği saptanmıştır. Patolojik internet kullanımı ile otistik mizaç özellikleri arasında pozitif korelasyon olduğu belirlenmiştir (Finkenauer vd., 2012). Romano ve ark. nın yaş ortalaması 24 olan 60 erişkin ile yaptıkları çalışmada da Finkenauer ve ark.'nın çalışması ile benzer şekilde otistik mizaç özellikleri ile patolojik internet kullanımı arasında pozitif ilişki bulunmuştur (Romano vd., 2014). 2014 yılında Tayvan'da yapılan çalışma, çocuklardaki otistik mizaç özellikleri ile patolojik internet kullanımı arasındaki ilişkiyi inceleyen ilk çalışma olma özelliğiyle dikkat çekicidir. Bu çalışmada, DEHB, sosyal adaptasyon, otistik mizaç özellikleri, ebeveynlik becerileri ve aile desteği gibi değişkenlerin patolojik internet kullanımı üzerine etkisi araştırılmıştır. Erişkinlerdeki bulguların aksine, çocuklarda otistik mizaç özelliği ile patolojik internet kullanımı arasında negatif ilişki bulunmuştur. Araştırmacılar farklı gelişim dönemlerinde internet kullanımına olan ilginin farklı olabileceğini, yani yaşın önemli bir belirleyici olabileceğini belirtmişlerdir (Chen vd., 2015). Otizm Spektrum Bozukluğu (OSB), utangaçlık ve sosyal anksiyete gibi çeşitli problemleri olan bireyler farklı nedenlerle internete başvurabilirler ve bu durum patolojik internet kullanımı için risk oluşturabilir. OSB olan bireyler interneti daha çok takıntılı ilgi alanları gibi sosyal olmayan zorlukların üstesinden gelebilmek için kullanırken, sosyal anksiyetesi olan bireyler gerçek hayatta yaşadıkları sosyal etkileşim zorluğu nedeniyle internete yönelirler. Otistik mizaç özellikleri olan bireylerin internete yönelmesi ise her iki sebepten de kaynaklanıyor olabilir.

Bizim çalışmamızın sonuçları, literatürdeki otistik mizaç özellikleri ile patolojik internet kullanımı arasındaki ilişkiyi inceleyen erişkin çalışmaları ile benzer niteliktedir (Finkenauer vd., 2012; Romano vd., 2014)

Çalışmamızda OSA sosyal beceri ve dikkati kaydırabilme alt ölçek puanları ile patolojik internet kullanımının ilişkili bulunması farklı şekillerde yorumlanabilir (Tablo 1). Öncelikle



bazı ergenlerin, muhtemelen gerçek sosyal ilişkilere daha az ilgi göstermeleri ile bağlantılı olarak, zamanını daha çok internet ile geçirdiği düşünülebilir. Yetersiz sosyal etkileşimi olan ergenlerin, dikkatini internette gerçek sosyal uyaranlara kaydırması gerektiğinde zorluk yaşamaları beklenen bir durum olarak görülebilir. Bireyin sosyal hayattaki ilişkileri başlatması, sürdürmesi dolayısıyla gerçek anlamda ilişki memnuniyetinde iletişimin çok önemli olduğu bilinmektedir. İlişki memnuniyeti ile bireyin internet ortamına yönelmesi arasında ise ters bir ilişki vardır. Dolayısıyla OSA iletişim skorları daha yüksek olan bireylerin sosyal hayattaki ilişkileri başlatma ve sürdürmede zorluk yaşadığını ve bu zorluğun üstesinden gelebilmek amacıyla internete başvurdukları söylenebilir.

Ergenlerdeki sosyal fobi varlığının patolojik internet kullanımı ile ilişkisinin değerlendirildiği bir çalışmada, sosyal fobisi olan ergenlerde patolojik internet kullanımının daha fazla görüldüğü bulunmuştur (Yen vd., 2007). Yuen ve Lavin tarafından yapılan bir çalışmada ise, patolojik internet kullanımı olan ve olmayan bireylerin online iletişim ve yüz yüze iletişim durumlarında yaşadıkları utangaçlık hissine ilişkin bir değerlendirme yapılmış ve patolojik internet kullanımı olan bireylerin online iletişimde yüz yüze iletişime kıyasla daha az utangaçlık hissettikleri, ortalama internet kullanıcısı olan bireylerin ise her iki iletişim tipinde de yaşadıkları utangaçlık hissini benzer olduğu saptanmıştır (Yuen ve Lavin, 2004). Bizim çalışmamızda da literatür ile uyumlu olarak, patolojik internet kullanımı olan ergenlerin LSAÖ total puan ve tüm alt ölçek puanları, ortalama internet kullanıcısı olan ergenlerden anlamlı olarak daha yüksek bulunmuştur.

Çalışmamızda riskli/patolojik internet kullanımı ile ilişkili değişkenler lojistik regresyon analizi ile değerlendirildiğinde, OSA skorunun 26 ve üzerinde olmasının riskli/patolojik internet kullanıcısı olma riskini 2,5 kat artırdığı bulunmuştur (Tablo 4).

## **SONUÇ**

Sonuç olarak bu çalışma ergenlerde otistik mizaç özellikleri ve sosyal anksiyetenin patolojik internet kullanımı ile ilişkili olduğunu göstermiştir. Patolojik internet kullanımı olan ergenler hem otistik mizaç özellikleri hem de sosyal anksiyete belirtileri açısından değerlendirilmelidir.

## **KAYNAKÇA**

- Bauminger, N., Shulman, C., Agam, G. 2003. "Peer interaction and loneliness in high-functioning children with autism". *Journal of autism and developmental disorders*, 33(5), 489-507.
- Bayraktar, F. 2001. "İnternet kullanımının ergen gelişimindeki rolü". Yayınlanmamış Yüksek Lisans Tezi. Ege Üniversitesi, Sosyal Bilimler Enstitüsü. İzmir.

- Bölte, S., Westerwald, E., Holtmann, M., Freitag, C., Poustka, F. 2011. "Autistic traits and autism spectrum disorders: The clinical validity of two measures presuming a continuum of social communication skills". *Journal of autism and developmental disorders*, 41(1), 66–72.
- Brand, M., Laier, C., Young, K. S. 2014. "Internet addiction: coping styles, expectancies, and treatment implications". *Frontiers in psychology*, 5, 1256.
- Caplan, S. E. 2003. "Preference for online social interaction: A theory of problematic Internet use and psychosocial well-being". *Communication research*, 30(6), 625–648.
- Chen, Y.-L., Chen, S.-H., Gau, S. S.-F. 2015. "ADHD and autistic traits, family function, parenting style, and social adjustment for Internet addiction among children and adolescents in Taiwan: A longitudinal study". *Research in developmental disabilities*, 39, 20–31.
- Chou, C., Hsiao, M.-C. 2000. "Internet addiction, usage, gratification, and pleasure experience: the Taiwan college students' case". *Computers & Education*, 35(1), 65–80.
- Dilbaz, N. 2001. "Liebowitz sosyal kaygı ölçeği geçerlik ve güvenilirliği. 37". *Ulusal Psikiyatri Kongresi Özet Kitabı, İstanbul*, 232.
- Finkenauer, C., Pollmann, M. M. H., Begeer, S., Kerkhof, P. 2012. "Brief report: Examining the link between autistic traits and compulsive Internet use in a non-clinical sample". *Journal of Autism and Developmental Disorders*, 42(10), 2252–2256.
- Köse, S., Bora, E., Eremis, S., Aydın, C. 2010. "Otizm-Spektrum Anketi Türkçe formunun psikometrik özellikleri\*/Psychometric features of Turkish version of Autism-Spectrum Quotient". *Anadolu Psikiyatri Dergisi*, 11(3), 253.
- Lane, R., Radesky, J. 2019. "Digital media and autism spectrum disorders: Review of evidence, theoretical concerns, and opportunities for intervention". *Journal of developmental and behavioral pediatrics: JDBP*, 40(5), 364.
- Romano, M., Truzoli, R., Osborne, L. A., Reed, P. 2014. "The relationship between autism quotient, anxiety, and internet addiction". *Research in Autism Spectrum Disorders*, 8(11), 1521–1526.
- Rømer Thomsen, K., Callesen, M. B., Hesse, M., Kvamme, T. L., Pedersen, M. M., Pedersen, M. U., Voon, V. 2018. "Impulsivity traits and addiction-related behaviors in youth". *Journal of behavioral addictions*, 7(2), 317–330.
- Van den Eijnden, R. J. J. M., Meerkerk, G.-J., Vermulst, A. A., Spijkerman, R., Engels, R. C. M. E. 2008. "Online communication, compulsive Internet use, and psychosocial well-being among adolescents: a longitudinal study". *Developmental psychology*, 44(3), 655.
- Wheelwright, S., Auyeung, B., Allison, C., Baron-Cohen, S. 2010. "Defining the broader, medium and narrow autism phenotype among parents using the Autism Spectrum Quotient (AQ)". *Molecular autism*, 1(1), 1–9.
- Yen, J.-Y., Ko, C.-H., Yen, C.-F., Wu, H.-Y., Yang, M.-J. 2007. "The comorbid psychiatric symptoms of Internet addiction: attention deficit and hyperactivity disorder (ADHD), depression, social phobia, and hostility". *Journal of adolescent health*, 41(1), 93–98.
- Young, K. S. 1996. "Psychology of computer use: XL. Addictive use of the Internet: a case that breaks the stereotype". *Psychological reports*, 79(3), 899–902.
- Yuen, C. N., Lavin, M. J. 2004. "Internet dependence in the collegiate population: the role of shyness". *CyberPsychology & Behavior*, 7(4), 379–383.

**FT002**

**SPORDA SİNDESMOZ YARALANMALARI VE REHABİLİTASYON YAKLAŞIMLARI**

**Syndesmosis Injury In Sports and Rehabilitation Approaches**

**0000-0002-3636-8240 Tarık Burcak<sup>1</sup>, 0000-0001-7216-7959 Fatma Kızılay<sup>2</sup>**

<sup>1</sup> İnönü Üniversitesi, Sağlık Bilimleri Enstitüsü, Fizyoterapi ve Rehabilitasyon AD, Malatya, Türkiye

<sup>2</sup> İnönü Üniversitesi, Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, Malatya, Türkiye

**ÖZET**

Ayak bileği burkulmaları spor yaralanmalarında en yaygın yaralanma çeşitlerinden biridir ve sindesmoz yaralanmaları artan oranda teşhis edilmeye başlanmıştır. Sporcularda ayak bileği burkulmalarının yüksek insidansına rağmen sindesmoz yaralanmalarının tarihsel süreçte yetersiz teşhis ve tedavi edildiği düşünülmektedir. Yakın zamanda spor tıbbında artan farkındalık sindesmoz yaralanmalarının daha sık teşhis edilmesine neden olmuştur. Bu da sindesmoz yaralanmalarının tedavisinde daha fazla bilgiye ihtiyaç duyulmasına sebep olmuştur. Ancak literatür tarandığında kanıt düzeyi düşük ve yetersiz sayıda çalışmalara rastlanmaktadır. Bu sistematik derleme, ayak bileği sindesmoz burkulmalarının anatomisini, yaralanma mekanizmasını ve rehabilitasyon sürecini tartışırken, yönetimdeki tartışmaları ve eksiklikleri inceleyecektir. İlgili literatür taramasında ‘sindesmoz yaralanmaları’ ‘spor’ anahtar kelimeleri kullanılarak ‘PubMed, Web of Science ve Google Akademik’ veri tabanları taranmış ve ulaşılabilen altı adet çalışmanın sonuçları derlenmiştir. Bu konuyla ilgili literatürde mevcut olan düşük düzeydeki kanıtlardan açıkça görülmektedir ki, bu yaralanmaların tedavisine ilişkin kesin ifadeler güvenle yapılmadan önce çok fazla çalışmaya ihtiyaç vardır. Genel kanı sindesmoz yaralanmalarının rehabilitasyon sürecinin 3-4 aşamada yönetilebileceği şeklinde olup, cerrahiden önce ve sonra benzer yaklaşımlar bulunduğu yönündedir. Optimal rehabilitasyon kriterlerini ortaya koyabilmek için, hem stabil sindesmoz yaralanmaların rehabilitasyon sürecini, hemde unstabil sindesmoz yaralanmalarının cerrahi öncesi ve sonrası rehabilitasyon sürecini inceleyen, risk faktörlerini, yaralanma mekanizmasını, tekrar oranını ortaya koyan kanıt düzeyi yüksek çalışmalara ihtiyaç vardır.

**Anahtar Kelimeler:** Ayak bileği, Sindesmoz, Spor

## ABSTRACT

Ankle sprains are one of the most common types of injuries in sports injuries, and syndesmosis injuries are increasingly being diagnosed. Despite the high incidence of ankle sprains in athletes, it is thought that syndesmosis injuries have been underdiagnosed and treated poorly in the historical process. Recently, increased awareness in sports medicine has led to more frequent diagnosis of syndesmosis injuries. This has led to the need for more information in the treatment of syndesmosis injuries. However, when the literature is searched, low level of evidence and insufficient number of studies are found. This systematic review will examine the controversies and shortcomings in management while discussing the anatomy, mechanism of injury, and rehabilitation process of ankle syndesmosis sprains. In the relevant literature review, 'PubMed, Scopus, Web of Science and Google Scholar' databases were searched and accessible results of six study were compiled using the keywords 'syndesmosis injuries' and 'sports'. It is clear from the low-level evidence available in the literature on this topic that much work is needed before definitive statements about the treatment of these injuries can be made with confidence. The general opinion is that the rehabilitation process of syndesmosis injuries can be managed in 3-4 stages, and there are similar approaches before and after surgery. In order to reveal the optimal rehabilitation criteria, studies with a high level of evidence are needed that examine both the rehabilitation process of stable syndesmosis injuries and the pre- and post-surgical rehabilitation process of unstable syndesmosis injuries, revealing risk factors, injury mechanism, and recurrence rate.

**Keywords:** Ankle, Syndesmosis, Sport

## GİRİŞ

Ayak bileği burkulmaları sporcular tarafından en sık görülen yaralanmalardır (1). Literatür, ayak bileği burkulmalarının tüm atletik yaralanmaların yaklaşık %20 ila %40'ını oluşturabileceğini ortaya koymaktadır (2-3). Ayak bileği yaralanmalarının çoğu lateral ligamentöz yapıları içerirken, yüksek ayak bileği “sindesmoz” burkulmaları araştırmalara göre ayak bileği burkulmalarının %10 ila 25 kadarını oluşturur (4-6). Sindesmoz yaralanmaları spora dönüş süresini etkileyen önemli yaralanmalardır. Osbahr vd. (2013), tarafından yapılan bir çalışmada ameliyatsız yönetim içeren 53 ayak bileği burkulması incelendi ve bunların sporda kaybedilen ortalama süresi, sindesmozda 15,4 gün ve lateral ayak bileği burkulması gruplarında 6.5 gündü (P<.001). Howard vd. (2012) tarafından sindesmoz ayak bileği burkulmasını inceleyen başka bir çalışmada ise bu süre ortalama  $30.1 \pm 20$  gündü. İnsidansı ve spora dönüş

süresi incelendiğinde sindesmoz yaralanmalarının oldukça önem arz ettiğini görmekteyiz. Fakat literatür incelendiğinde stabil sindesmoz yaralanmalarının rehabilitasyon protokolünü inceleyen randomize kontrollü bir çalışma bulunmamaktadır. Sindesmoz yaralanmalarının rehabilitasyonunu tartışmaya açık bir şekilde açıklayan bazı çalışmalar bulduk. Bu derleme bu çalışmalar üzerinden sindesmoz yaralanmalarının rehabilitasyon sürecinin özetini sunmayı amaçlamaktadır.

### **Anatomi ve Biyomekanik**

Bir sindesmoz, iki bitişik kemiğin güçlü bir zar veya bağ ile birbirine bağlandığı fibröz bir eklem olarak tanımlanır. Bu tanım, iki kemik ve dört bağın oluşturduğu sindesmotik bir eklem olan distal tibiofibular sindesmoz için de geçerlidir

Sindesmoz Anterior inferior tibiofibular bağ (AITFL), İnterosseöz bağ (İOB), Posterior inferior tibiofibular bağ (PITFL) ve İnférieur transvers bağ (İTB) olmak üzere 4 yapıdan oluşur.

Distal tibiofibular eklem, distal tibianın içbükey yüzeyi ile distal fibulanın dışbükey şekli arasında oluşan sindesmotik bir eklemdir. Eklem bir dizi bağ tarafından sıkıca sabitlenir ve bu eklem stabil morfolojisi normal fonksiyon için kritik öneme sahiptir. Toplu olarak, bağlar eklem diyastazını önler. Önde, ön alt tibiofibular bağ (AITFL) frontal düzlemde medialden laterale doğru inferior yönde seyreder. Posterior inferior tibiofibular ligamentöz (PITFL) yapılar da aşağı yönde uzanır ve öndeki muadillerinden biraz daha güçlü ve kalındır (6). Posterior ve inferior transvers tibiofibular bağlar birleşerek diyastatik strese karşı direncin %40-%45'ini sağlar. AITFL, interosseus membrandan (IOB) gelen kalan stabilite (%20-25) ile bu strese karşı direncin yaklaşık %35'ine katkıda bulunur (9). Ayak bileği eklemine 1 mm genişlemesi tibiotalar eklem temas alanını %42 oranında azalttığından bu durum instabiliteye ve dolayısıyla tibiotalar eklem erken osteoartritine sebep olabilir (10).

### **Yaralanma Mekanizması**

Sindesmoz yaralanmaları çoğunlukla ayak bileğinin dış rotasyon ve hiperdorsifleksiyon mekanizması ile zorlanması sonrası oluşur. Dış rotasyon yaralanmaları ayak bileği supinasyonda ya da pronasyonda iken olabilir. Sindesmotik bağların yaralanması genellikle pronasyon- dış rotasyon mekanizması ile oluşan supra-sindesmotik Weber Tip C kırıklarda ya da Maisonneuve tipi yaralanmalar sonrası görülür. Ancak nadir olarak, intra-sindesmotik Weber Tip B ya da infra-sindesmotik Weber Tip A kırıklar sonrası da sindesmoz yaralanabilir (11). Biyomekanik çalışmalarda, medial yaralanmanın olmadığı durumlarda lateral malleol kırıklarında sindesmoz yaralanması bile talusun merkezde ve stabil kalabileceği gösterilmiştir (12). Stabil sindesmoz yaralanması olarak adlandırılan bu tip yaralanmalarda anterior sindesmoz yaralanması ve proksimal fibula kırığı görülür, posterior malleol ise sağlamdır (13).

Yaralanmanın kapsamı burkulmaları, latent veya açık diastazlı burkulmaları ve/veya kırıkları içerebilir.

### **İzole Sindesmoz Yaralanmaları Sınıflandırma**

Ayak bileği burkulmalarının bir kısmı, “yüksek ayak bileği burkulmaları” olarak adlandırılan sindesmotik yaralanmalardır. Bu yaralanmalar, ayak bileği kırığı olmadan oluşan bağ ve yumuşak doku yaralanmalarını ve tibiofibular avulsiyon kırıklarını içerir.

İzole sindesmoz yaralanmaları için tanımlanmış birçok sınıflandırma sistemi vardır. En son tanımlanan ve MR değerlendirmesine dayanan sisteme göre (Sikka Sınıflandırması); Evre 1 izole AİTFB, Evre 2 AİTFB, İOB ve intraosseöz membran (İM), Evre 3 AİTFB, İOB, İM ve PİTFB, Evre 4 bunlarla beraber deltoid bağ yaralanmasını içerir (14).

Sınıflandırma sistemlerinde küçük farklılıklar olsada, temelde yaralanmanın klinik yansıması benzerdir. Evre 1’de instabilite ve diastaz yoktur, Evre 3’te belirgin instabilite ve diastaz vardır. Evre 1’de konservatif tedavi başarıyla Evre 3 ve 4’te kesin cerrahi endikasyon mevcuttur. Evre 2’de gizli instabilite ve belirgin olmayan diastaz vardır (Tablo 1). Cerrahi tedavi önerilmekle beraber tanı konulması zordur. Yaralanmanın zamanına göre; akut (altı haftadan önce), subakut (altı hafta-üç ay), kronik (üç aydan sonra) olarak sınıflandırılması, tedavi yönteminin seçimi açısından önemlidir (15).

**Tablo 1.** İzole sindesmoz yaralanmalarında Sikka Sınıflandırması<sup>14</sup>

<b>Yaralanma Evresi</b>	<b>Tanım</b>
Evre 1	İzole AİTFB yaralanması
Evre 2	AİTFB, İnterresioz ligament ve İnterresioz membran yaralanması
Evre 3	AİTFB, İnterresioz ligament ve İnterresioz membran ve PİTFB yaralanması
Evre 4	Evre 3’e ek olarak Deltoid ligament yaralanması

### **Özel Testler**

Sindesmotik yaralanmalar için çok sayıda klinik test tarif edilmiştir, ancak klinik kullanımları ile ilgili olarak nispeten az şey bilinmektedir. Tanısal doğrulukları, prognostik potansiyelleri, yaralanmanın ciddiyetini ayırt etme yetenekleri veya mevcut instabilite derecesi ile korelasyon kurma yetenekleri henüz tam olarak belirlenmemiştir. Herhangi bir testin tibiofibular yer değiştirmenin derecesini tutarlı bir şekilde ölçmesi pek olası değildir ve ağrının derecesini, gevşekliğin derecesi ile ilişkilendirmek sadece spekülatif olacaktır. Ön Çekmece testi, Talar tilt testi, Stabilizasyon testi ve Dış rotasyon testi tanı koymada yardımcı olabilir (6).

## **MATERYAL VE METOT**

PRISMA yönergelerine göre literatürün sistematik taraması yapılmıştır. Bu bağlamda 'sindesmoz yaralanmaları' 'spor' anahtar kelimeleri kullanılarak 'PubMed, Web of Science ve Google Akademik' veri tabanları taranmış ve 761 çalışmaya ulaşılmıştır. Bu çalışmaların 153 tanesinin tam metnine ulaşılamadı, 174 tanesi Türkçe ve İngilizce dillerinde değildi, 383 tanesi konu dışı özet ve/veya dahil etme kriterlerini karşılamadığı için rededildi, kalan 51 makale incelendikten sonra rehabilitasyon sürecini ayrıntılı olarak inceleyen, altı adet çalışma incelenmiş ve sonuçları derlenmiştir.

## **BULGULAR**

### **Rehabilitasyon Yaklaşımları**

Tibiofibular sindesmoz yaralanmaları için rehabilitasyon programlarının etkililiğini araştıran indeksli dergilerde yayınlanmış randomize kontrollü çalışma bulunmamaktadır. Sonuç olarak, bu yaralanmaları olan hastalar için optimal rehabilitasyon programı şu anda bilinmemektedir. Sindesmoz burkulmaları için rehabilitasyon programlarının tartışmaya izin verecek kadar ayrıntılı olarak açıklandığı 6 makale bulduk. Bu makalelerde sunulan programlar nispeten benzerdir. Her biri 3 aşamalı veya 4 aşamalı bir program içermektedir. İlk aşama, birincil hedeflerin yaralı eklem korunması ve ağrı kontrolü de dahil olmak üzere inflamatuvar yanıtın en aza indirilmesi olduğu akut bir aşamadır. İkinci aşama, hedeflerin normal bir yürüyüş paterniyle yürüme gibi temel görevlerde hareketliliği, esnekliği, gücü ve işlevi eski haline getirmek olduğu bir subakut aşamadır. Geri kalan aşama(lar), gücü, nöromüsküler kontrolü ve koşma, zıplama ve atlama gibi spora özgü görevlerdeki işlevi artırarak sporcuyu spor katılımına geri dönmeye hazırlamaya yönelik ileri eğitimi içerir. Çalışmalardan ikisi Brosky, Nyland, Nitz, Caborn (1995), Nussbaum vd. (2001) faz I'den faz II'ye ilerleme için zamansal kılavuzlar sağlarken, Mulligan (2011), Gerber vd. (1998) ilerlemeye yönelik işlevsel, kritere dayalı bir yaklaşımı tanımlar (Tablo 2). Gerber vd. (1998) ve Nussbaum vd. (2001), her ikisi de faz III'e ilerlemek için hastaların ağrı veya disfonksiyon olmadan tekrar tekrar ayağa kalkma ve zıplama kabiliyeti göstermesi gerektiğini belirtmektedir. Dubbin vd. (2011) ve Mulligan (2011) faz 2 aşamasında TCJ (Talokrural) ve STJ'nin (Subtalar eklem) mobilizasyonunu tavsiye etmektedir.

**Tablo 2.** Sindesmoz Yaralanmalarında Rehabilitasyon Yaklaşımları

Yazar	Rehabilitasyon yaklaşımı			
	Faz 1 (Akut) 0-4 gün	Faz 2 (Subakut) 4-14 gün	Faz 3 (Yeniden Şekillenme) 2-4 hafta	Faz 4 (Spora Dönüş) 4-8 hafta
Brosky ve ark. 16 (1995)	Kriyoterapi, kompresyon ve elevasyon Ayak bileği pompalama (günde 4 kez 30 tekrar) Vücut ağırlığının %50'sine kadar koltuk değneğiyle ambulasyon	Kontrast banyo 3mA/8dk 1.5 cc deksametazon ile iyontofrez Ultrason (1.0w/cm2) / 5dk. Gastrocnemius germe AKZ (plantar flex, dorsi flex, inversiyon) PRE (progresif dirençli egz.) Proprioseptif eğitim	Bağımsız yürüme KKZ egzersizleri BAPS Board aktiviteleri Koşu bandı, trambolin egz. Max. Dorsifleksiyon egz. Barbell squat Yüksek yoğunluklu bisiklet egz. Yürüyüş, koşu Progresif dirençli egzersizler	İleri, geri, yanal koşma. Balistik fonksiyonel egz. İp atlama, zıplama egz. Tek bacak sıçrama. Tek bacak çapraz atlama. İleri düzey PRE egz.
Gerber ve ark. 18 (1998)	Kriyoterapi, kompresyon ve elevasyon	Gastrocnemius germe, güçlendirme Peronoal güçlendirme Bisiklet Ağırlık egzersizleri Nöromusküler eğitim	İleri düzey kas kuvveti sağlama Proprioepsiyon arttırma Denge egzersizleri Koordinasyon egzersizleri Atlama ve zıplama egz.	
Nussbau m ve ark. 17 (2001)	Posterior splint Koltuk değnekleri ile yürüme. Elektrik stimülasyonu ve kriyoterapi Manuel direnç egzersizleri, 30° plantar fleksiyon, 30° dirençli dorsifleksiyon Dorsifleksiyon yönünde germe	Koltuk değneği ile kısmi ağırlık taşıma. ALPII ateli Manuel direnç egzersizleri (tam hareket aralığı) Ağırlık kaldırma Proprioepsiyon egzersizleri	Tam ağırlık taşıma Manuel direnç egzersizlerine inversiyon ve eversiyon eklenmesi Fonksiyonel egzersiz: çift parmak kaldırma, çift bacak atlama, tek parmak kaldırma ve tek bacak atlama Spora özel egzersizler Yürü, koş patlayıcı manevralar	



Williams ve ark. 19 (2007)	İmmobilizasyon (Splintleme, alçılama veya bot) Sınırlı ağırlık taşıma Anti-inflamatuar ilaç kullanımı Kriyoterapi Elektrik stimülasyonu Masaj, Eklem mobilizasyonu Hareket açıklığı sağlandığında bisiklet ergometresi	Gastrocnemius, soleus germe Güçlendirme egzersizleri (düşük yoğunluklu, yüksek tekrarlı) Nöromusküler kontrolü artırma KKZ egzersizleri Koşu, zıplama egzersizleri	Agresif güçlendirme egzersizleri Fonksiyonel/Çeviklik antrenmanları Faz 2 kriterlerinin ilettilmiş versiyonları İp atlama, ileri geri atlama Pilometrik eğitim	
Dubbin ve ark. 1 (2011)	Kriyoterapi Steroid olmayan antiinflamatuar ilaçlar, Elektrikli kas stimülasyonu, darbeli ultrason, ödem önleyici masaj ve düşük seviyeli lazer tedavisi Ayak bileği pompa egz. saatte 10 ila 20 pompalama Kısmi ağırlık verme Aktif Serbest Bırakma Tekniği, Graston Tekniği, kas enerjisi tekniği ve çapraz friksiyon masajı gibi aktif veya pasif yumuşak doku teknikleri Kısa bir ağırlık taşıma periyodu	TCJ ve STJ'nin eklem mobilizasyonu ve yumuşak doku teknikleri Gastrocnemius-Soleus germe İzometrik egzersizler. Thera-Band ile peroneii, tibialis anterior ile triceps suare güçlendirme. Ayakta proprioepsiyon eğitimi Tek ayak üstünde durma Gözler kapalı ilerleme Biyomekanik Ayak Bileği Platform Sistemi (BAPS) tahtası ile oturur pozisyonda proprioepsiyon eğitimi. 5 dk yürüyüş, 3 dk hafif tempo koşu ardından 2 dk yürüyüş Ağrı azaldıkça koşu Yürüyüş periyodunu artırma Her tedavi seansı sonrası buz uygulaması	İp atlama, çeviklik antrenmanları Engel üzerinden atlama Bir çizgi üzerinde ileri ve geri atlama Çok yönlü spora özgü proprioseptif egzersizler Düz bir zeminde, topa vurma, topu yakalama ve atma veya sopayı sallama gibi spora özgü egzersizleri içeren tek bacakla ayakta durma egzersizleri	

Mulligan ve ark. 6 (2011)	Bot, splint veya ortezele ayak bileği ekleminin korunması Buz/Elevasyon/Kompr esyon Retrograt masajı Ağrısız ambulasyon Hidroterapi Tibiofibular, talocrural veya subtalar eklemlerde ağrı kontrolü için derece I-II eklem mobilizasyonu Proksimal kalça/diz güçlendirme	Güç, hareketlilik ve nöromusküler kontrolün restorasyonu. Kontrast termal terapi Ağrısız yaşam aktiviteleri Ağrısız aktif hareket açıklığı egzersizleri Derece 3 ve 4 eklem mobilizasyonu Ağrısız dört yönlü ayak bileği egzersizleri Lateral step up	Aktiviteye özel becerilerin restorasyonu Buz sonrası rehabilitasyon veya aktivite Spora dönüşe hazır olup olmadığını belirlemek için sonuç ölçüm araçlarının ve/veya fonksiyonel testlerin kullanımı Enine düzlemde sagittal den frontal ve rotasyonel aktivitelere dikkatli ilerleme ile fonksiyonel koşu ilerlemesi. Dinamik denge egzersizleri Pilometrik egzersizler	
---------------------------	--	---	---	--

## TARTIŞMA

Doğru bir teşhis ve hızlı tedavi, bir sporcunun sporda kaybettiği zamanı en aza indirebilir ve gelecekte yeniden yaralanmayı önleyebilir. Genel olarak, bir sindesmoz burkulmasının teşhisi oldukça basittir; ancak, yaralanmanın ciddiyetini veya kapsamını açıkça tanımlayan özel bir test veya görüntüleme çalışması yoktur. Sonuç olarak, sporcularda görülen sindesmoz yaralanmalarının spektrumu için oldukça spesifik tedavi stratejileri reçete etmek zor olmaya devam etmektedir (19). Sindesmoz yaralanmaları gerek spora dönüş süresi gerekse insidansı bakımından spor yaralanmalarında önemli bir yere sahiptir. Fakat sindesmoz yaralanmaları ile ilgili birçok yenilik ve çalışmaya rağmen, tam olarak cevaplanmamış sorular ve sindesmoz yaralanmalarının rehabilitasyon süreci ile ilgili net ifadeler kullanabilmek için yeni araştırmalar gerekli görülmektedir. Genel kanı sindesmoz yaralanmalarının rehabilitasyon sürecinin 3-4 aşamada yönetilebileceği şeklindedir. İlk aşama inflamasyonu kontrol altına almayı amaçlayan bir “erken koruma” aşamasıdır. Ayak bileği bu aşamada istirahat halindedir. Buz/elevasyon/kompresyon, elektrik stimülasyonu gibi teknikler kullanılırken, erken dönemde

ağırlık aktarma, eklem mobilizasyonu, ayak bileği pompalama egzersizleri gibi teknikleri savunan yazarlar da vardır. İkinci aşama, germe, güçlendirme egzersizleri, propriosepsiyon egzersizleri gibi teknikleri de içerir. Hafif düzeyde koşu, ağrısız eklem hareketleri, progresif dirençli egzersizler de bu egzersizler arasında bulunmaktadır. Üçüncü aşama ileri düzey kas kuvvetlendirme aşamasıdır. Maksimum düzeyde kas kuvveti geri kazanımı amaçlar. Kapalı kinetik zincir egzersizleri, koşma, zıplama, atlama gibi ileri düzey egzersizleri içerir. Dördüncü aşama, spora özgü ileri düzey egzersizleri içermektedir. İp atlama, zıplama, tek bacak sıçrama gibi egzersizler önerilmektedir.

Spor fizyoterapistlerinin ve alanda çalışan spor bilimi uzmanlarının ele alması gereken rehabilitasyonla ilgili kritik ve yaygın sorular; Tam immobilizasyona ihtiyaç olup olmadığı, eğer tam immobilizasyon gerekli ise bunun ne kadar süre sağlanması gerektiği, rehabilitasyona uygun hasta seçimi için uygun kriterlerin neler olduğu, rehabilitasyonun subakut fazı sırasında eklem üzerine ne kadar güvenli bir şekilde stres uygulanabileceği, hastaların semptomlarının fonksiyonel ilerlemeyi yönlendirip yönlendiremeyeceği, yaralanmanın tekrarlanmasını önlemek için alınması gereken önlemlerin ve koruyucu stratejilerin neler olduğu, ve nihayet sporcunun ne zaman ve hangi kriterlere göre güvenli ve etkili bir şekilde spora dönebileceği şeklindedir.

## **SONUÇ**

Sindezmoz yaralanmalarının yönetimi ağrısız fonksiyonun gecikmeli restorasyonuna neden olan zorlu bir süreçtir. Sindesmoz yaralanmalarının insidansı ve yönetimi ile ilgili birçok çalışma bulunmaktadır. Fakat bu çalışmaların sonuçları değişkendir, bunun nedeni incelenen popülasyon yelpazesinin geniş olmasıdır. Sindesmoz yaralanmalarını dikkatlice tanımlayan, inceleyen, hastaların performansını, kas kuvvetini, dayanıklılık, sensorimotor özelliklerini, uygulanan tedavinin etkililiğini, risk faktörlerini, hastalığın tekrar oranını inceleyen epidemiyolojik ve randomize kontrollü çalışmalara ihtiyaç vardır. Fizik muayene yöntemlerinin özgüllüğünü, özel testlerin duyarlılığını ve geçerliliğini inceleyen çalışmalara ve sensitivite ve spesivitesi yüksek testlerin tanımlanmasına ihtiyaç vardır.

## **KAYNAKÇA**

1. Dubin JC, Comeau D, McClelland RI, Dubin RA, Ferrel E. Lateral and syndesmotik ankle sprain injuries: a narrative literature review. J Chiropr Med 2011 Sep;10(3):204-19.
2. Sawkins K, Refshauge K, Kilbreath S, Raymond J. The placebo effect of ankle taping. Med Sci Sports 2007;39(5):781-7. 9.

3. DiStefano LJ, Padua DA, Brown CN, Guskiewicz KM. Lower extremity kinematics and ground reaction forces after prophylactic lace-up ankle bracing. *J Athl Train* 2008;43(3):234-41.
4. Knapik DM, Trem A, Sheehan J, Salata MJ, Voos JE. Conservative Management for Stable High Ankle Injuries in Professional Football Players. *Sports Health* 2018 Jan/Feb;10(1):80-84.
5. Cedell CA. Ankle lesions. *Acta Orthop Scand* 1975;46:425-445.
6. Mulligan EP. Evaluation and management of ankle syndesmosis injuries. *Phys Ther Sport* 2011 May;12(2):57-69.
7. Osbahr DC, Drakos MC, O'Loughlin PF, Lyman S, Barnes RP, Kennedy JG, Warren RF. Syndesmosis and lateral ankle sprains in the National Football League. *Orthopedics* 2013 Nov;36(11):e1378-84.
8. Howard DR, Rubin DA, Hillen TJ, Nissman DB, Lomax J, Williams T, Scott R, Cunningham B, Matava MJ. Magnetic resonance imaging as a predictor of return to play following syndesmosis (high) ankle sprains in professional football players. *Sports Health* 2012 Nov;4(6):535-43.
9. Ogilvie-Harris DJ, Reed SC, Hedman TP. Disruption of the ankle syndesmosis: biomechanical study of the ligamentous restraints. *Arthroscopy* 1994 Oct;10(5):558-60.
10. Harris J, Fallat L. Effects of isolated Weber B fibular fractures on the tibiotalar contact area. *J Foot Ankle Surg* 2004 Jan-Feb;43(1):3-9.
11. Gönç U, Atabek M. Sindesmoz yaralanmalarında güncel yaklaşımlar. *TOTBİD Dergisi* Mayıs 2016; 15:197–206
12. Brown TD, Hurlbut PT, Hale JE, Gibbons TA, Caldwell NJ, Marsh JL, Nepola JV. Effects of imposed hindfoot constraint on ankle contact mechanics for displaced lateral malleolar fractures. *J Orthop Trauma* 1994;8(6):511–9.
13. Harris IA, Jones HP. The fate of the syndesmosis in type C ankle fractures: a cadaveric study. *Injury* 1997;28(4):275–7.
14. Sikka RS, Fetzer GB, Sugarman E, Wright RW, Fritts H, Boyd JL, Fischer DA. Correlating MRI findings with disability in syndesmotic sprains of NFL players. *Foot Ankle Int* 2012;33(5):371–8
15. Valkering KP, Vergroesen DA, Nolte PA. Isolated syndesmosis ankle injury. *Orthopedics* 2012;35(12): e1705–10.
16. Brosky T, Nyland J, Nitz A, Caborn DN. The ankle ligaments: consideration of syndesmotic injury and implications for rehabilitation. *J Orthop Sports Phys Ther* 1995;21:197-205.

17. Nussbaum ED, Hosea TM, Sieler SD, Incremona BR, Kessler DE. Prospective evaluation of syndesmotic ankle sprains without diastasis. *Am J Sports Med* 2001;29:31-35.
18. Gerber JP, Williams GN, Scoville CR, Arciero RA, Taylor DC. Persistent disability associated with ankle sprains: a prospective examination of an athletic population. *Foot Ankle Int* 1998;19:653-660.
19. Williams GN, Jones MH, Amendola A. Syndesmotic ankle sprains in athletes. *Am J Sports Med* 2007 Jul;35(7):1197-207.

**FT003**

## **NADİR GÖRÜLEN FREİBERG HASTALIKLI BİR OLGU**

### **A Case of Rare Patient With Frieberg's Disease**

**0000-0002-8033-4208 Nurmuhammet Taş**

Erzurum Bölge Eğitim ve Araştırma Hastanesi, Fiziksel Tıp ve Rehabilitasyon Anabilim Dalı,  
Erzurum, Türkiye

#### **Özet**

Freiberg hastalığı (FH) metatars başını tutan ağrılı bir avasküler nekrozdur. Özellikle ikinci dekatta ve daha çok kadınlarda görülmektedir. FH erkeklere oranla kadınlarda daha çok görülen tek osteokondrozdur. Bizim polikliniğimize başvuran 20 yaşında erkek bir hastanın sağ ayak ağrısı mevcuttu. Hastanın sağ ayağında metatarsa-falangeal(MTF) ekleminde özellikle ağırlık verildiğinde ağrı vardı. Hastanın 2. parmağında basmakla hassasiyet, eklem hareketlerinde özellikle ekstansiyonda kısıtlılık vardı. Hastanın direk grafisinde 2. MTF eklemde genişlediği ve metatars başının çöktüğü ve skleroze olduğu görüldü. Metatars başının düzensizliği ve düzleşmesine ek olarak dorsal çıkıntı da oluşabilir. İkincil olarak, ekleminde serbest cisimler ve metatars gövdesinin kalınlaşması görülebilir. Manyetik rezonans(MR) görüntüleme, özellikle erken evrede, ekleminde artritik değişiklikler oluşmadan tanı koymada yardımcıdır. T1 sekanslarda epifizde hipointens, T2 sekanslarda da karışık olarak hipo ve hiperintens sinyaller görülür. Hastamızın MR ında da aynı görüntü mevcuttu. Bu hastalığın romatizmal hastalıklar ile ayırıcı tanısı yapılmalıdır. Hastamızın laboratuvar değerleri normaldi. Hastanın 2. Metatars kemiğinde FH için Smillie evreleme sistemine göre Evre 3 ve Gauthier/Elbaz evreleme sistemine göre hastada stage 2 osteonekroz mevcuttu. Hastaya konservatif tedavide destekli veya desteksiz 4 hafta immobilizasyon önerildi. Destek olarak nonsteroid anti-inflamatuvar ilaçlar ve fizik tedavi uygulandı. Bu süre içinde fiziksel aktivite mümkün olduğu kadar sınırlandırıldı. Semptomlar azaldıktan sonra kademeli olarak fiziksel aktiviteye dönüş sağlandı. MTF eklemi yükten kurtaracak ortez ve ayakkabı modifikasyonları yapıldı. Başlangıç döneminde yakalanabilen hastaların çoğu konservatif olarak semi-rigid ortezler ve metatarsal bar içeren tabanlıklar, fizik tedavi ve medikal tedavi ile tedavi edilebilirler. Nadir görülen bu hastalığı tanımızda göz önünde bulundurmalıyız. Erken tanı ve tedavi cerrahiye engeller. Bu yazıda, nadir bir vaka olan FH tanılı olgu güncel literatür eşliğinde sunulmuştur.

**Anahtar Kelimeler:** Freiberg hastalığı, avasküler nekroz, ayak ağrısı

## Abstract

Freiberg's disease (FH) is a painful avascular necrosis involving the metatarsal head. It is seen especially in the second decade and mostly in women. FH is the only osteochondrosis that is more common in women than in men. A 20-year-old male patient who applied to our outpatient clinic had right foot pain. The patient had pain in the metatarsa-phalangeal (MTF) joint of his right foot, especially when weight was given. The patient had tenderness on the second finger, and limitation in joint movements, especially in extension. On direct X-ray of the patient, it was observed that the 2nd MTF joint was enlarged and the metatarsal head was collapsed and sclerosed. In addition to irregularity and flattening of the metatarsal head, dorsal protrusion may also occur. Secondarily, loose bodies and thickening of the metatarsal body may appear in the joint. Magnetic resonance (MR) imaging is helpful in making the diagnosis, especially in the early stage, before arthritic changes occur in the joint. Hypointense in the epiphysis in T1 sequences and mixed hypointense and hyperintense signals in T2 sequences. The same image was present in the MRI of our patient. Differential diagnosis of this disease with rheumatic diseases should be made. Laboratory values of our patient were normal. The patient had stage 3 osteonecrosis according to the Smillie staging system for FH in the 2nd metatarsal bone and stage 2 osteonecrosis according to the Gauthier/Elbaz staging system. The patient was offered 4 weeks of immobilization with or without support in conservative treatment. Nonsteroidal anti-inflammatory drugs and physical therapy were used as support. During this period, physical activity was limited as much as possible. After the symptoms subsided, a gradual return to physical activity was achieved. Orthoses and shoe modifications were made to relieve the MTF joint from the load. Most of the patients who can be caught in the initial period can be treated conservatively with semi-rigid orthoses and metatarsal bar insoles, physical therapy and medical therapy. We should consider this rare disease in our diagnosis. Early diagnosis and treatment prevent surgery. In this article, a rare case diagnosed with FH is presented in the light of current literature.

**Keywords:** Freiberg's disease , avascular necrosis , foot pain

## GİRİŞ

Freiberg 1914 yılında, 2. Metatars başında kırıldak yüzeyin düzleşmesi ve litik sklerotik alanlar görülmesiyle karakterize ağrılı bir durum tanımlamıştır (1). Hastalığın sıklığı bilinmemektedir. Özellikle ikinci dekatta ve daha çok kadınlarda görülmektedir. Freiberg hastalığı erkeklere oranla kadınlarda daha çok görülen tek osteokondrozdur. Etiyolojisi tam

olarak aydınlatılmamış olmamakla birlikte tekrarlayan mikrotravmaların hastalığın gelişiminde etkili olduğu düşünülmektedir (2). Teorik olarak, travma, stres tekrarı, vasküler anormallikler veya yüksek topuklu ayakkabılara bağlı olduğu düşünülmektedir(3). En sık 2. metatars başı, daha sonra 3. metatars başı tutulur. Tekrarlayan mikrotravmalar sonrası sıklıkla daha uzun fakat daha az hareketli olan 2. metatars başında subkondral bölgede kan akımı bozulmakta ve sinovitin eşlik ettiği kondral kollaps ve nekroz gelişmektedir. Sinovitin miktarına göre o bölgede şişlik oluşur ve özellikle ekstansiyon da olmak üzere parmak hareketlerinde kısıtlılık oluşur. Buna bağlı olarak metatarsın diafizine aşırı yük binmeye başlar. Bu anormal yük transferinin devamı halinde bikortikal değişiklikler ve ardından düzensiz ossifikasyonlar ile birlikte metatars başında fragmentasyonlar meydana gelir (2-5). Hastalığın semptomları olayın bulunduğu metatarsa-falangeal eklemden özellikle ağırlık verildiğinde ağrı olması, bu bölgede lokal hassasiyet, eklem hareketlerinde özellikle ekstansiyonda kısıtlılık ve sinovitis varlığında şişlik görülebilir. Başlangıç döneminde yakalanabilen hastaların çoğu konservatif olarak tedavide semi rijid ortezler, metatarsal barlar ve kısa bacak alçı kullanılabilir (5). Hastalığın farkında olursak erken evrede konservatif tedaviyle iyileşme mümkündür.

## **OLGU**

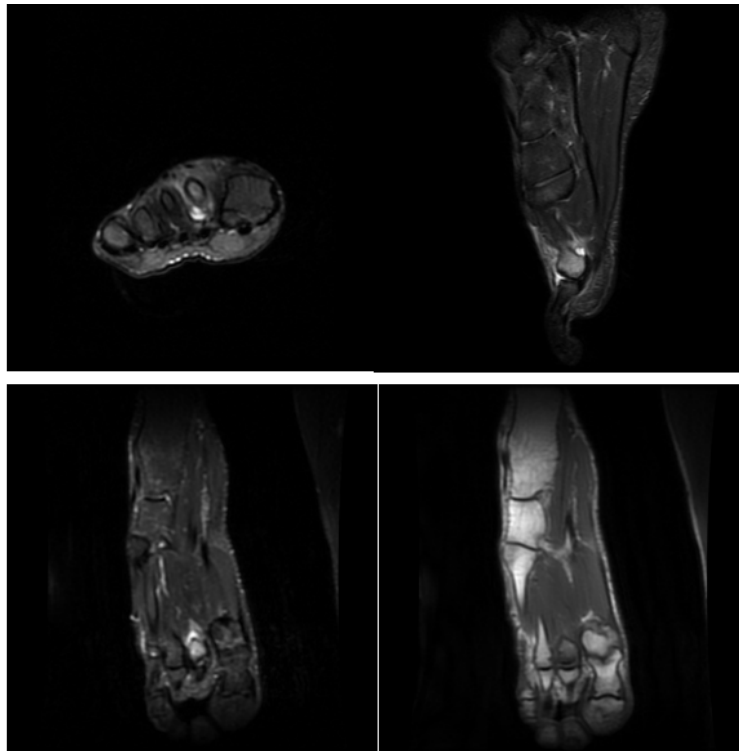
Bizim polikliniğimize başvuran 20 yaşında erkek bir hastanın sağ ayak ağrısı mevcuttu. Hastanın sağ ayağında metatarsa-falangeal(MTF) eklemden özellikle ağırlık verildiğinde ağrı vardı. Hastanın 2. parmağında basmakla hassasiyet, eklem hareketlerinde özellikle ekstansiyonda kısıtlılık vardı. Hastanın direk grafisinde 2. MTF eklemde genişlediği ve metatars başının çöktüğü ve skleroze olduğu görüldü. Metatars başının düzensizliği ve düzleşmesine ek olarak dorsal çıkıntı da oluşabilir. İkincil olarak, eklemden serbest cisimler ve metatars gövdesinin kalınlaşması görülebilir (Şekil 1). Manyetik rezonans(MR) görüntüleme, özellikle erken evrede, eklemden artritik değişiklikler oluşmadan tanı koymada yardımcıdır. T1 sekanslarda epifizde hipointens, T2 sekanslarda da karışık olarak hipo ve hiperintens sinyaller görülür. Hastamızın MR ında da aynı görüntü mevcuttu (Şekil 2). Bu hastalığın romatizmal hastalıklar ile ayırıcı tanısı yapılmalıdır. Hastamızın laboratuvar değerleri normaldi. Hastanın 2. Metatars kemiğinde FH için Smillie evreleme sistemine göre Evre 3 ve Gauthier/Elbaz evreleme sistemine göre hastada stage 2 osteonekroz mevcuttu. Hastaya konservatif tedavide destekli veya desteksiz 4 hafta immobilizasyon önerildi. Destek olarak nonsteroid anti-inflamatuvar ilaçlar ve fizik tedavi uygulandı. Bu süre içinde fiziksel aktivite mümkün olduğu kadar sınırlandırıldı. Semptomlar azaldıktan sonra kademeli olarak fiziksel aktiviteye dönüş sağlandı. MTF eklemi yükten kurtaracak ortez ve ayakkabı modifikasyonları yapıldı. Başlangıç



döneminde yakalanabilen hastaların çoğu konservatif olarak semi-rigid ortezler ve metatarsal bar içeren tabanlıklar, fizik tedavi ve medikal tedavi ile tedavi edilebilirler. Nadir görülen bu hastalığı tanımızda göz önünde bulundurmalıyız. Erken tanı ve tedavi cerrahi engeller.



**Şekil 1:** Direk grafi 2. MTF eklemin genişlediği ve metatars başının çöktüğü ve skleroze



**Şekil 2:** MR T1 sekanslarda epifizde hipointens, T2 sekanslarda da hipo ve hiperintens sinyaller

## TARTIŞMA

Freiberg 1914 yılında, 2. Metatars başında kırık yüzeyin düzleşmesi ve litik sklerotik alanlar görülmesiyle karakterize ağrılı bir durum tanımlamıştır (1). Spesifik bir etiyoloji net olarak belirlenmemiş olsa da travmatik, vasküler, mekanik, sistemik veya bu faktörlerin

bazılarının veya hepsinin bir kombinasyonunun bu nadir eklem yıkıcı duruma neden olabileceği belirtilmiştir (7,9-12). En sık olarak ikinci metatars etkilenir, bunu üçüncü metatars ve nadiren dördüncü ve beşinci metatarsların tutulumu izler (8,12). Bu durum yaralanma sürecinin akut fazında sıklıkla metatarsalji, nöroma, sinovit veya stres kırığı gibi diğer birçok durum gibi yanlış teşhis edilebilir ve eklem yüzeyinde önemli bir çöküşe kadar teşhis edilmeden kalabilir. Metatars başında fragmantasyon yapan nedenlerin ayırıcı tanısında Diyabetes Mellitus, Gut hastalığı, Sistemik lupus eritematosus, Romatoid Artrit ve sinovit yer alır. Bizim hastamızda daha önceden başvurduğu polikliniklerde farklı tanıları almıştı. Laboratuvar değerleri normaldi. FH nin fizik muayenesinde sıklıkla metatarsın başında lokalize hassasiyet veya etkilenen kişinin dorsal ve plantar palpasyonu ile ağrı ortaya çıkar. Daha sonraki aşamalarda kemik çıkıntıları, krepitus ve sınırlı hareket açıklığı da fark edilebilir. Bizim hastamızda da 2. MTF de hassasiyet ve ekstansiyonda kısıtlılık vardı. Erken radyografiler, etkilenen metatars başında hiçbir anormallik veya ince lokalize osteopeni göstermeyebilir ve ilk semptom başlangıcından 3 ila 6 hafta sonra asimetrik eklem aralığında genişleme görülebilir (7,12,13,14). Radyografilerde kortikal kalınlaşma ve eklem yıkımı belirgin olduğundan sonraki aşamalarda tanı daha kolaydır (6,7,13-15).

Freiberg hastalığı için birincil tedavi hedefleri ağrıyı azaltmak veya ortadan kaldırmak ve patolojik olmayan fonksiyonel bir yürüyüşü sürdürmektir. İkincil bir amaç, ilerleyici eklem yıkımının gerilemesi veya kesilmesidir, ancak bu, tedavinin erken evrelerde başlaması durumunda ortaya çıkma olasılığı daha yüksektir. Freiberg enfarktüsü için konservatif tedavi seçenekleri arasında immobilizasyon, ağırlık taşıma kısıtlamaları, nonsteroid antiinflatuar ilaçlar, ortez, dolgu, ayakkabı modifikasyonu, ultrason tedavisi ve steroid enjeksiyonları yer almaktadır (6,7,11,12,14). Korumalı mobilizasyon ve kademeli aktiviteye dönüş, herhangi bir osteokondroz için konservatif tedavinin iki genel aşamasıdır (16). Etkilenen ayağın korumalı immobilizasyonu, alçı immobilizasyon, çıkarılabilir yürüyüş botu veya cerrahi ayakkabı kullanımı gibi çeşitli yöntemlerle gerçekleştirilebilir. Kısmi veya ağırlıksız yüklenme ve korumalı mobilizasyon 2- 6 hafta arasında veya semptomlar düzeline kadar önerilir. Aktiviteye kademeli dönüş daha sonra başlatılabilir. Bizim hastamıza da 4 hafta yük verilmedi. İkinci, üçüncü ve dördüncü metatars başlarının hemen yakınına yerleştirilmiş bir metatarsal pedin kullanımının, bir hastada tepe plantar ön ayak basınçlarında (%12) önemli azalmaya yol açtığı bulundu (17). Semptomlar azaldıktan sonra kademeli olarak fiziksel aktiviteye dönüş sağlanır.

## **Kaynaklar**

1. Freiberg AH. Infraction of the second metatarsal bone, a typical injury. *Surg Gyn Ob* 1914;19:191.
2. Smillie IS. Freiberg's infarction (Kohler's second disease). *J Bone Joint Surg Br* 1957;39:580.
3. Ihedioha U, Sinha S, Campbell AC. Surgery for symptomatic Freiberg's disease: Excision arthroplasty in eight patients. *The Foot* 2003;13:143-145.
4. Farrar MJ, Walker AP. Freiberg's disease following fracture of the second metatarsal bone. *The Foot* 1997;7:52-53.
5. Murphy AG, Richardson GE. Lesser toe abnormalities. *Campbell's operative orthopaedics*. Vol. 2, 11th ed. St. Louis Philadelphia: Mosby; 2008. 1252-1253.
6. Freiberg AH. The so-called infraction of the second metatarsal bone. *J Bone Joint Surg* 1926;8(2):257-261.
7. Lewin P. Juvenile deforming metatarsophalangeal osteochondritis: Freiberg's infraction of the metatarsal head. *JAMA* 1923;81(3):189-192.
8. Nguyen VD, Keh RA, Daehler RW. Freiberg's disease in diabetes mellitus. *Skeletal Radiol* 1991;20(6):425-428.
9. Walsh HP, Dorgan JC. Etiology of Freiberg's disease: ? trauma. *J Foot Surg* 1988;27(3):243-244.
10. Atanda A Jr, Shah SA, O'Brien K. Osteochondrosis: common causes of pain in growing bones. *Am Fam Physician* 2011;83(3):285-91.
11. Arnold AI. Freiberg's infraction: its sequelae and treatment with ultrasound therapy. *J Natl Assoc Chiropr* 1957;47(5):240-241.
12. Cerrato RA. Freiberg's disease. *Foot Ankle Clin* 2011;16(4):647-658.
13. Scartozzi G, Schram A, Janigian J. Freiberg's infraction of the second metatarsal head with formation of multiple loose bodies. *J Foot Surg*. 1989;28(3):195-199.
14. Miller ML, Lenet MD, Sherman M. Surgical treatment of Freiberg's infraction with the use of total joint
15. Helal B, Gibb P. Freiberg's disease: a suggested pattern of management. *Foot Ankle*. 1987;8(3):94-102.
16. Omer GE Jr. Primary articular Osteochondrosis. *Clin Orthop Relat Res* 1981;158:33-40. t replacement arthroplasty. *J Foot Surg*. 1984;23(1):35-40.
17. Hähni M, Hirschmüller A, Baur H. The effect of foot orthoses with forefoot cushioning or metatarsal pad on forefoot peak plantar pressure in running. *J Foot Ankle Res* 2016;9:44.

**FT004**

## **KAMU HASTANELERİNDE FATURALAMA YÖNETİM SÜREÇLERİ**

### **Billing Management Processes in Public Hospitals**

**0000-0002-6546-9200 Erdem Pirim<sup>1</sup>, 0000-0001-5893-1762 Sinan Bulut<sup>2</sup>**

<sup>1</sup>Bolvadin Dr. Halil İbrahim Özsoy Devlet Hastanesi, Afyonkarahisar, Türkiye

<sup>2</sup>Çankırı Karatekin Üniversitesi, Sağlık Yönetimi Ana Bilim Dalı, Çankırı, Türkiye

### **Özet**

Birçok ülkede ve Türkiye’de, hızlı gelişen sektörlerin başında yer alan sağlık hizmetlerine, talep her geçen gün katlanarak artmaktadır. Sağlık hizmetlerine olan talepteki bu artış, sağlık harcamalarındaki artışları da beraberinde getirmektedir. Ülkeler, bütçe kalemleri içerisinde sağlık hizmetlerine ayrılan payı daha etkin ve verimli kullanabilmek, sağlık hizmetlerinin sürdürülebilirliğini sağlamak, harcamaları kontrol altına almak, maliyetleri azaltmak, hakkaniyetli ve uygulanabilir sağlık finans sistemleri için, her geçen gün daha fazla çaba göstermektedirler. Özellikle sağlık hizmetlerinde geri ödeme yöntemleri başta olmak üzere birçok etken, sağlık hizmetlerinin kalitesini ve sağlık hizmet sunucularının finansal yönetimini etkilemektedir. Hizmet kalitesinin ve sürdürülebilirliğinin sağlanmasında sağlık kuruluşlarının gelirleri önemli bir belirleyicidir. Bu gelirin sağlanması için hizmetlerin kapsamı, ulaşılabilirliği ve maliyetleri yanında, doğru faturalandırılması ve tahsilatı da sağlık kurumların için iyi yönetilmesi gereken süreçler olarak ortaya çıkmaktadır. Bu çerçevede, çalışmada kamu hastanelerinde sunulan hizmetlerin faturalandırılması süreçleri ele alınmış ve bu süreçlerin yönetiminin önemine vurgu yapılmıştır.

**Anahtar kelimeler:** Faturalama, Hastane, Süreç

### **Abstract**

The demand for health services, which is one of the fastest growing sectors in many countries and Türkiye, is increasing exponentially every day. This increase in the demand for health services brings along the increase in health expenditures. Countries are making more and more efforts to use the share allocated to health services in their budget items more effectively and efficiently, to ensure the sustainability of health services, to control expenditures, to reduce costs, and for a fair and applicable health finance model. Many factors, especially repayment methods in health services, affect the quality of health services and the financial management of health service providers. Income of health institutions is an important determinant in ensuring service quality and sustainability. In order to provide this income, the scope, accessibility and

costs of the services, as well as the correct invoicing and collection, are the processes that need to be well managed for health institutions. In this framework, the processes of billing the services offered in public hospitals were discussed in the study and the importance of the management of these processes was emphasized.

**Keywords:** Billing, Hospital, Process

## GİRİŞ

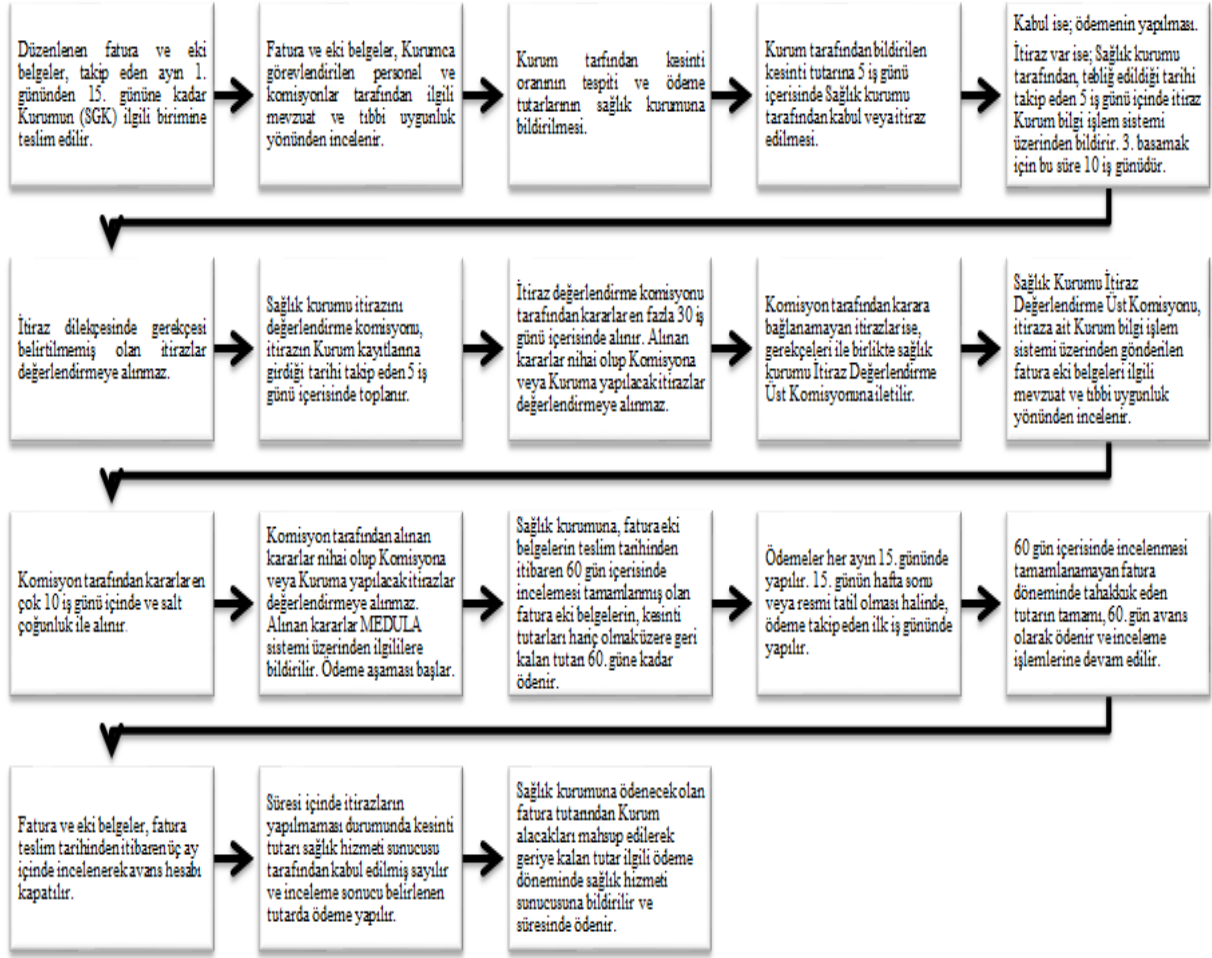
Sürdürülebilir ve kaliteli sağlık hizmeti sunumu, dünya genelinde pek çok ülkenin temel amaçları arasında yer almaktadır. Bu amacı gerçekleştirmenin yöntemlerinden biri ise sağlık için ayrılan bütçenin etkili ve verimli kullanımınıdır. Bu doğrultuda ülke sağlık sistemlerinde yer alan, başta kamu kurumları olmak üzere sistemdeki tüm sektör aktörlerinin, mevcut kaynaklarını kullanmada belirli düzeyde sorumluluklar yüklemektedir. Bu bakımdan kamu hastaneleri finansal girdileri yönünden başta sunmuş oldukları sağlık hizmet bedellerini eksiksiz olarak zamanında tahsil edebilmeleri ve bunun için gerekli yöntemleri belirlemeleri, tedbirleri almaları ve süreçleri takip etmeleri, kurumların finansal yönetimleri için önem arz etmektedir.

Şekil 1’de Sağlık Bakanlığı’na (SB) bağlı kamu hastanelerinde, faturaların tahakkuk ettirilerek Sosyal Güvenlik Kurumu (SGK) gönderilmesi ve SGK tarafından ödeme yapılması süreci özetle gösterilmiştir.



**Şekil 1.** Kamu hastanelerinde faturalama döngüsü.

Şekil 1’de özetlenen fatura oluşturma ve geri ödeme kurumundan tahsilatına ilişkin süreç, Sağlık Bakanlığı tarafından 2017 yılında yayınlanarak yürürlüğe giren “Sağlık Hizmeti Sunucularının Faturalarının İncelenmesine ve Bedellerinin Ödenmesine İlişkin Usul ve Esaslar Hakkında Yönetmeliğe” göre ayrıntılı değerlendirildiğinden de Şekil 2’deki gibi bir süreç işletilmektedir.



Şekil 2. Kamu hastaneleri fatura bedeli tahsilat süreci.

### Kamu Hastaneleri Faturalama Yönetim Süreçleri

Kamu sağlık hizmet sunucularında faturalandırma işlemleri giderek önem kazanmaya başlamıştır. Geçmişte kamu hastaneleri faturalandırma uygulamalarını, 209 sayılı SB'ye Bağlı Sağlık Kurumları İle Esenlendirme (Rehabilitasyon) Tesislerine Verilecek Döner Sermaye Hakkında Kanununa göre uygulamakta ve giderleri merkezi yönetim tarafından finanse edilmekle birlikte, ayrıca geri ödeme kurumlarının (Sosyal Sigortalar Kurumu, Emekli Sandığı, Bağ-Kur vb.) farklılığı ve fatura bedellerinin geri ödenmesi konusunda yaşanan sorunlar nedeniyle faturalama süreçlerinde ve içeriklerinde gerekli hassasiyet gösterilmemekteydi (1).

Geleneksel noktada kurum faturalama süreçleri başta finansal yönetim olmak üzere, sunulan hizmetlerin kalitesi ve devamlılığı yönünden önem arz etmektedir. Bu sürecin mevzuata uygun olarak uygulanması başta sağlık kurumu için gelir kaybının önlenmesini sağladığı gibi, kurum stratejilerini, hedef ve planlarının daha gerçekçi hazırlanmasını da yardımcı olmaktadır.

Kamu sağlık hizmet sunucularında faturalama süreçleri çok yönlü ve ilişkili süreçler olup aşağıdaki gibi sıralamak mümkündür (2).

Kamu hastanelerinde faturalama yönetim süreçleri:

- Kayıtlama,
- Yönetim,
- Denetim,
- Mevzuat,
- Eğitim,
- Ödemeci kurumlar,
- Donanım, olarak sıralanabilir.

### **Kayıtlama**

Veri ve bilgi güvenliği, ülkelerin sınır güvenliği kadar önemli görülmekte, bu sebeple verilerin, bilgilerin ve kullanılan dijital altyapılar için gerekli güvenlik önlemlerinin alınması ve korunması zorunlu kılınmıştır (3)

Bu kapsamda 2019/12 sayılı genelge (Bilgi Güvenliği Tedbirleri Rehberi) ile ülke genelinde hizmet sunan tüm kamu kuruluşları başta olmak üzere kritik önemde hizmet sunan işletmelere kurulması planlanan bilgi sistemlerini, rehberde belirtilen usul ve esaslar çerçevesinde kurulumlarının yapılması zorunluluğu getirilmiştir. Bu zorunluluk kapsamında sağlık hizmet sunucuları da, kurumlarından hizmet alan hastaların tüm verilerini doğru ve eksiksiz olarak kayıt altına alma ve muhafaza etmekle sorumlu tutulmuşlardır. Bu sorumlulukla ilgili olarak Sağlık hizmet sunucularına 5510 sayılı Sosyal Sigortalar ve Genel Sağlık Sigortası Kanunu 71. Maddesinde aşağıdaki şekilde sorumluluk yüklemektedir.

*“Sağlık hizmeti sunucuları, genel sağlık sigortalısı ve bakmakla yükümlü olduğu kişilere sağlık hizmeti sunumu aşamasında (acil hallerde ise acil halin sona ermesinden sonra), 67’nci maddenin üçüncü fıkrasında sayılan belgeleri ve bu belgelerin başvuran kişiye ait olup olmadığını kontrol etmek zorundadır...”*

Ayrıca SUT’un kimlik tespiti başlıklı maddesinde;

*“Sağlık kurum ve kuruluşlarınca, kişilerin müracaatı aşamasında, acil hallerde ise acil halin sona ermesinden sonra, nüfus cüzdanı, sürücü belgesi, evlenme cüzdanı, pasaport veya verilmiş ise Kurum sağlık kartı belgelerinden biri ile kimlik tespiti ve biyometrik yöntemlerle kimlik doğrulaması yapılması zorunludur”* denilerek sağlık hizmet sunucuları, tüm kayıtlama süreçlerini doğru bir şekilde yapmakla mükellef kılınmıştır.

Yasal yükümlülük yanında ayrıca aşağıdaki nedenlerden dolayı sağlık hizmet sunucuları kayıtlarını tutmak ve muhafaza etmekle yükümlü kılınmışlardır (4).

- Başta hastalar olmak üzere kurum personeli ve kurumun korunması,

- Bilginin toplanması ve aktarılmasının hızlandırılması,
- Elde edilen bilgilerin birleştirilmesi ve işlenmesi sonucunda daha sağlam yeni bilgi ve sonuca ulaşılması,
- Epidemiyolojik veri elde edilmesi ve aktarılması,
- Önceki yıllara ait sağlık istatistiklerinin elde edilmesi,
- Hasta değerlendirmesine veri sağlanması ve tıbbi karar sürecinde yardımcı olunması,
- Kurumsallaşmayı sağlaması,
- Yönetim/yöneticiye karar vermede destek olunması,
- Kayıt tutmanın iletişim aracı görevi üstlenmesi,
- Mesleklerin profesyonelleşmesine katkı sağlaması.

## Yönetim

Hastanelerde önemli bir fonksiyonunu yerine getiren faturalama/gelir tahakkuk birimleri hali hazırda SB'ye bağlı taşra teşkilatlarında Şekil 3'teki yapı şeklinde yapılanmıştır.



**Şekil 3.** Kamu hastaneleri gelir tahakkuk birim yapılanması.

Kamu hastanelerinde gelir tahakkuk ve faturalama biriminin, İdari ve Mali Hizmetler Müdürlüğü bünyesinde hizmet verdiği görülmektedir. Hastanelerde sunulan hizmetlerinin bedelleri, sosyal güvencesi olan sigortalı hastalara, faturalar elektronik ortamda veya manuel olarak oluşturulup ilgili geri ödeme kurumlarına, faturalama birimi tarafından fatura edilmektedir. Ayrıca hiçbir sosyal güvencesi olmayan ücretli hastaların ise hizmet bedelleri hastane veznesi aracılığı ile tahsil edilmektedir. Faturalama süreci ile ilgili olarak hastanelerde maliyet-kar analizinin yapıldığı fatura inceleme komisyonu kurularak faturalama sürecindeki



genel işleyiş ve hizmetlerin maliyet-kar analizleri yapılmaktadır. İl genelinde ise İl Sağlık Müdürlüğüne bağlı Kamu Hastaneleri Hizmetleri Başkanlığı bünyesinde fatura inceleme komisyonu kurularak tüm il genelinde sunulan sağlık hizmetlerinin, faturalandırma sürecinin, mevzuat yönünden uygunluğu denetlenmektedir.

### **Denetim**

Denetim ortaya çıkan sonuçları, daha önceden belirlenen amaçlara, standartlara ve kriterlere göre bağımsız bir şekilde analiz ederek değerlendirmek, gelecekte olması muhtemel hataların önüne geçerek kalite, verimlilik ve etkinliğin artırılması amacıyla uygulanan bir süreç olarak tanımlanmaktadır (6).

Kamu hastanelerinin kesmiş olduğu faturaların kontrolleri ise il müdürlükleri bünyesinde kurulan fatura inceleme komisyonu, hastane bünyesinde kurulan fatura inceleme heyeti, SGK tarafından yapılan fatura kontrolleri, Sağlık Bakanlığı merkez teşkilatı tarafından yapılan teftiş kontrolleri ve Sayıştay tarafından yapılan teftiş kontrolleri olarak sıralanabilir (2).

### **Mevzuat**

Kamu hastanelerinde faturalama süreciyle ilgili yasal mevzuat (yasa, genelge, yönetmelik, yönerge, tebliğ vb.) sayıca çok fazla olmakla birlikte sık sık değişmesi ve karışık olması nedeniyle, faturalama sürecinde sorunlar yaşanmakta ve kurumlar arası farklı uygulamalar ortaya çıkmaktadır. Bu nedenle kamu hastanelerinde yasal mevzuatın takibi ve ilgili birim ve kişilerin konu hakkında bilgi ve eğitimlerinin sağlanması önem arz etmektedir.

### **Eğitim**

Faturalama süreçlerinin önemli bir unsurunu teşkil eden eğitim süreçleri, özellikle hızlı gelişen teknolojik yenilikler ile mevcut bilginin güncellenmesi adına başta kurum yöneticileri olmak üzere tüm çalışanların güncel yaklaşımlardan ve uygulamalardan haberdar olması adına gerekli olan bir süreçtir. Özellikle teknolojik ve güncel verilerin yoğun kullanıldığı sağlık hizmetlerinde her alanda olduğu gibi faturalama konusunda da rutin eğitimlerin tüm personeli kapsayacak şekilde planlanması, uygulanması ve kontrolünün sağlanması gerekmektedir. Faturalandırma, gelir tahakkuk, mevzuat konusunda yöneticilerin eğitim almış olması hatta bu konuların lisan ve yüksek lisans düzeyinde eğitim planlarında yer alması, hastane yönetimi, kurum performans ve finansal yönetim açısından önemli konuların başında gelmektedir. Yine bu süreçte sağlık hizmet personelinin, veri giriş personelinin ve diğer personelin yaptıkları asli

işlerini faturalama süreçleri yönünden kayıt altına almaları için eğitimler planlamalı ve uygulamalarının kontrolünün sağlanması bu sürecin önemli adımlarını oluşturmaktadır.

### **Ödemeci Birimler**

Sağlıkta Dönüşüm Programı (SDP) öncesi, kamu hastaneleri tarafından birçok kamu/özel kurum ve kuruluş sigortalıları ile ücretli olarak hizmet alan kişilere fatura kesilmekte olup, bu çeşitlilik, faturalama süreçleri yönünden zor bir süreç gerektirmekteydi. 2005 yılında çıkarılan ve uygulamaya konulan 5283 sayılı “Bazı Kamu Kurum ve Kuruluşlarına Ait Sağlık Birimlerinin Sağlık Bakanlığını Devredilmesine Dair Kanun” ile çoklu ve parçalı bir yapı uygulaması olan Emekli Sandığı, Bağ-Kur ve SSK, tek çatı altında toplanmıştır. Günümüzde Sağlık Bakanlığı’na bağlı kamu hastaneleri gelirlerinin çok büyük bir bölümünü SGK’ya kesilen fatura gelirleri oluşturmaktadır. SGK’nın yanında kamu hastanelerinden hizmet alan ücretli hastalara, banka/yardımlaşma sandıklarının çalışanları ve bakmakla yükümlü oldukları kişiler ve emeklileri, özel sigortalı hastalar ile diğer kişi ve kurumlara fatura kesilmektedir.

### **Donanım**

Kamu hastanelerinde faturalandırma konusunda, donanım süreçlerine incelendiğinde, hasta bilgilerinin bilgisayar destekli ortamlara, yazılım (otomasyon) olarak kaydedilmesini sağlayan tüm yazılım sağlayan donanım araçları ile fatura olarak çıktılarına dönüştürülmesini sağlayan süreçler ve bu süreçlerde kullanılan tüm cihazlar, donanım süreçlerinin birer parçasını oluşturmaktadırlar (2).

### **SONUÇ**

Sonuç olarak, kamu hastanelerinde faturalama yönetim süreçleri; hastaların sağlık hizmet sunucusuna müracaatı ve ilk kaydının oluşturulması ile başlamakta ve sonrasında sunulan hizmetlerin tamamının HBYS’ye kaydedilmesi ile devam eden, hastanın sağlık kurumundan taburcu edilmesi ile birlikte hizmet bedelinin kişiye veya sigorta şirketine (SGK veya diğer sigorta kurumları) fatura düzenlenmesi ile sonuçlanan bir süreçtir. Sistem üzerinden taburculuk işlemleri tamamlanan hastanın faturası HBYS üzerinden otomatik olarak faturalama modülüne iletilmektedir. Faturalama birimince gerekli kontrolleri ve düzeltmeleri yapılan fatura tekrar elektronik ortamda veya adli vaka, iş kazası vb. durumlarda ekleriyle birlikte elden postayla ilgili kurumlara gönderilmektedir. Geri ödeme kurumları bu fatura ve eklerini kendi inceleme komisyonlarında değerlendirdikten sonra itiraz, iade veya ödeme ile süreci devam ettirebilmekte veya tamamlamaktadırlar. Bu süreçte başta kişisel veri kayıpları başta olmak

üzere kurum gelirler kayıplarının önüne geçilmesi, süreçlerin gözden geçirilerek kurum yapısına göre yeniden düzenlenmesi, süreçte görevli personelin eğitilmesi, işleyişin takip edilerek denetlenmesi kamu hastaneleri adına önem arz etmektedir.

## KAYNAKLAR

1. Sayım, F. ve Temur, Y. (2014). Kamu hastanelerinde mevzuat ve uygulama açısından faturalamaya yönelik kayıtlama ve denetim süreçlerinin ilişkisi. Lefke Avrupa Üniversitesi. Kongre 10-12 Eylül 2014. Kıbrıs.
2. Sayım, F. ve Temur, Y. (2013). Denetim ve mevzuat açısından kamu hastanelerinde faturalama süreçleri (Baskı:1). Akademik Arge-Sağlık Yönetimi Araştırmaları.
3. <https://cbddo.gov.tr/> E.T:20.05.2021.
4. Esatoğlu, A.E. ve Köksal, A. (2010).Sağlık hizmetlerinde bilgi yönetimi, (s.9). Ankara: Ankara Üniversitesi Uzaktan Eğitim Yayınları. Yayın No:73.
5. Sağlık Bakanlığı, (2019). 2018 Yılı Sayıştay Düzenlilik Denetim Raporu.
6. Azak, S. (2007). Bazı Avrupa Birliği Üyesi Ülkeler Ve Türkiye'deki Sağlık Denetim Sistemleri Üzerine Karşılaştırmalı Bir Araştırma. Ankara Üniversitesi, Sağlık Bilimleri Enstitüsü, (Yüksek lisans tezi), Ankara.
7. Sosyal Güvenlik Kurumu Sağlık Uygulama Tebliği. 24.03.2013 Resmî Gazete Sayısı: 28597.
8. Sosyal Güvenlik Kurumu, Fatura Bedellerinin Ödenmesi Hakkında Genelge (2014) 12.09.2011 Tarih ve 2011/62 numaralı Genelge.
9. 5510 sayılı Sosyal Sigortalar ve Genel Sağlık Sigortası Kanunu. Resmî Gazete Tarih Sayısı 16.06.2006, Sayı: 26200.
10. 5283 sayılı Bazı Kamu Kurum ve Kuruluşlarına Ait Sağlık Birimlerinin Sağlık Bakanlığına Devredilmesine Dair Kanun. 06.01.2005, Resmi Gazete Sayısı: 25725 (Mükerrer).
11. Sağlık Bakanlığına Bağlı Sağlık Kurumları İle Esenlendirme (Rehabilitasyon) Tesislerine Verilecek Döner Sermaye Hakkında Kanun. 04.01.1961. Resmi Gazete Sayısı: 10702.
12. 2019/12 sayılı Bilgi ve İletişim Güvenliği Tedbirleri konulu genelge. 06.07.2019 Resmî Gazete Sayısı: 30823.

**FT005**

**THE EFFECT OF ORAL PARACETAMOL ON THE INTRAOCULAR PRESSURE AND ANTERIOR SEGMENT PARAMETERS**

**Oral parasetamolün göz içi basıncı ve ön segment parametreleri üzerine etkisi**

**0000-0002-3233-7906 Kürşad Ramazan Zor<sup>1</sup>, 0000-0001-8179-9181 Kadir Eren Biçer<sup>2</sup>, 0000-0001-9566-0906 Esin Benli Küçük<sup>3</sup>, 0000-0003-3058-6308 Gamze Yıldırım Biçer<sup>1</sup>, 0000-0002-1474-9237 Erkut Küçük<sup>1</sup>**

Niğde Ömer Halisdemir University School of Medicine Department of Ophthalmology<sup>1</sup>

Niğde Education and Research Hospital Clinic of Orthopedics and Traumatology<sup>2</sup>

Niğde Ömer Halisdemir University School of Medicine Department of Physical Medicine and Rehabilitation, Niğde, Türkiye<sup>3</sup>

**Abstract:**

**Aim:** In this study we aimed to investigate the effect of oral paracetamol on the IOP and the anterior segment parameters in patient without glaucoma.

**Materials and Methods:** The study group consisted of 30 eyes of 30 patients. All of these patients used oral paracetamol 1gr/day in two divided doses for 21 days. Measurements were taken before the beginning of oral paracetamol therapy and 21 days after the beginning of therapy. A detailed eye examination was performed. Eye pressure was measured with a Goldmann applanation tonometer. The central corneal thickness (CCT) measurements were performed using Topcon TRK-2P (Topcon, Tokyo, Japan) optical pachymeter. The anterior chamber depth (ACD) and axial length (AL) measurements were performed using IOL Master 500 (Carl Zeiss Meditec, Jena, Germany). The measurements obtained from the right eyes of the patients were included in the study.

**Results:** The IOP values were significantly lower after 21-day oral paracetamol therapy (15,7±2.1 mmHg vs 14.3±2.1 mmHg, p<0.001). There was no significant difference in CCT values measured before and after oral paracetamol therapy (551,6±26.7 µm vs 545.6±46.6 µm, p:0.361). AL values were significantly lower after the oral paracetamol therapy (23.8±0.9 mm vs 23.7±0.9 mm p. 0.003). ACD values were also significantly lower after the oral paracetamol therapy (3.13±0.25 mm vs 3.11±0.24 mm p: 0.005)

**Conclusion:** The findings of this study suggest that a decrease in IOP can be achieved by using paracetamol 500 mg bid in healthy volunteers. Future studies including glaucoma patients are necessary to determine its potential role in glaucoma treatment.

**Keywords:** anterior chamber depth, axial length, glaucoma, eye pressure, paracetamol

## **INTRODUCTION**

Glaucoma is an important cause of permanent visual loss worldwide<sup>1,2</sup>. Its prevalence is reported to be 3.54% for people over 40 years of age<sup>3</sup>. It is an optic neuropathy characterised by loss of ganglion cells and associated visual field loss. Increased intraocular pressure is a major factor in the pathogenesis of glaucoma and currently the treatment mostly focused on decreasing intraocular pressure to stop the progression of the disease<sup>4,5</sup>. Medical treatment using topical antiglaucoma drugs are the most preferred choice in the initial treatment of glaucoma<sup>6</sup>. There are several drug molecules options available for glaucoma patients, but many patients need more than one drug to control intraocular pressure (IOP)<sup>7</sup>. Besides, a substantial portion of patients require surgery if the IOP cannot be controlled by medical treatment. There is continuous research to find more efficient drugs with less adverse effects to treat glaucoma. Cannabinoids have also been suggested as a potential drug for glaucoma management<sup>8,9</sup>. Cannabinoids show their effect by interaction with cannabinoid receptors 1 and 2 which are located in the trabecular meshwork, Schlemm's canal, ciliary body and retina<sup>10,11</sup>. These molecules were reported to exert both IOP lowering effect and neuroprotective effect<sup>9</sup>. The exact mechanism of action of these molecules is not still fully understood<sup>12</sup>. However systemic side effects, development of tolerance and their short-lasting effect on IOP limit their usage in glaucoma (9). Several studies have also indicated that paracetamol, a commonly used analgesic, exerts its analgesic action through the cannabinoid receptors by its conversion to N-arachidonoylphenolamine (AM404) which is an endogenous cannabinoid<sup>13,14</sup>. It is a well-known drug and has a known safety profile when taken in the appropriate doses. These findings led to studies that investigate the effect of paracetamol on intraocular pressure. The results were conflicting. While some of the studies reported favourable effects on IOP with both the oral and intravenous forms of the drug other studies did not show this effect<sup>11,15,16</sup>. In this study we investigated the effect of oral paracetamol on the IOP in patient without glaucoma. We also investigated the anterior segment parameters to see the possible effects of oral paracetamol on the structures.

## **MATERIALS AND METHODS**

The study protocol received ethical approval from the local ethics committee and performed in accordance with tenets of the Declaration of Helsinki. The study protocol, procedures and measurements were explained to the participants and verbal and written informed consent were obtained from them. In this prospective study, the study group was formed from patients who

admitted to the Department of Orthopaedics and Traumatology and Department of Physical Medicine and Rehabilitation and accepted to participate in the study.

All of these patients had soft tissue trauma and used oral paracetamol 1gr/day in two divided doses for 21 days. These participants were referred to Ophthalmology Department for ophthalmologic examination before the beginning of oral paracetamol therapy and 21 days after the beginning of therapy. A detailed eye examination was performed on all participants including the measurement of best-corrected visual acuity, anterior segment examination using slit-lamp biomicroscopy, intraocular pressure (IOP) measurement using Goldmann applanation tonometry, central corneal thickness (CCT), anterior chamber depth (ACD) and axial length (AL) measurements. Gonioscopy and dilated funduscopy were performed at the first examination only. The pachymetry measurements were performed using Topcon TRK-2P (Topcon, Tokyo, Japan) optical pachymeter. The anterior chamber depth and axial length measurements were performed using IOL Master 500 (Carl Zeiss Meditec, Jena, Germany). Measurements were taken at the same time of the day (10:00-11:00) by the same investigator (KRZ). The measurements obtained from the right eyes of the patients were included in the study.

Patients with spherical refractive errors over 6.0 diopters and/or cylindrical refractive error over  $\pm 2.0$  diopters, patients with glaucoma, ocular hypertension, uveitis, diabetic retinopathy and other retinal diseases, patients who had prior intraocular surgery retinal laser treatment were excluded from the study.

### **Statistical Analysis**

Statistical analysis was performed using SPSS version 20.0 (IBM Corporation, Armonk, NY). Quantitative data were expressed as the means  $\pm$  standard deviations and qualitative data were expressed as proportions (%). Paired-Samples t test was used to compare pre-treatment and posttreatment measurements.

## **RESULTS**

Thirty participants with a mean age of  $47.1 \pm 7.2$  were included in the study. Of these participants 16 (53,3%) were female and 14 (46,7%) were male.

The mean values and standard deviations of IOP, CCT, AL and ACD measurements were presented in table 1. The IOP values were significantly lower after 21 day oral paracetamol

therapy ( $15, 7 \pm 2.1$  mmHg vs  $14.3 \pm 2.1$  mmHg,  $p < 0.001$ ). There was no significant difference in CCT values measured before and after oral paracetamol therapy ( $551,6 \pm 26.7$   $\mu\text{m}$  vs  $545.6 \pm 46.6$   $\mu\text{m}$ ,  $p: 0.361$ ). AL values were significantly lower after the oral paracetamol therapy ( $23.8 \pm 0.9$  mm vs  $23.7 \pm 0.9$  mm  $p: 0.003$ ). ACD values were also significantly lower after the oral paracetamol therapy ( $3.13 \pm 0.25$  mm vs  $3.11 \pm 0.24$  mm  $p: 0.005$ ).

**Table 1.** Comparison of intraocular pressure, corneal thickness, axial length, and anterior chamber measurements obtained before and after oral paracetamol therapy

	Before the oral paracetamol (n:30)	After the oral paracetamol (n:30)	p
Intraocular Pressure (mmHg)	$15, 7 \pm 2.1$	$14.3 \pm 2.1$	$< 0.001$
Central corneal thickness ( $\mu\text{m}$ )	$551,6 \pm 26.7$	$545.6 \pm 46.6$	$0.361$
Axial length (mm)	$23.8 \pm 0.9$	$23.7 \pm 0.9$	$0.003$
Anterior chamber depth (mm)	$3.13 \pm 0.25$	$3.11 \pm 0.24$	$0.005$

## DISCUSSION

In this study, a three-week oral paracetamol treatment significantly reduced the intraocular pressure in a group of patients without glaucoma or ocular hypertension. In addition, the anterior chamber depth and axial length of the patients were also lower after the treatment. There was no significant change in the central corneal thickness values.

Apart from its well-known role in inhibiting cyclooxygenase pathway, paracetamol's therapeutic effects are also mediated through cannabinoid receptors<sup>11,14</sup>. The cannabinoid agonists demonstrated ocular hypotensive, and neuroprotective effect on retinal ganglion cells in experimental studies<sup>12</sup>. These findings suggest a possible role of paracetamol in glaucoma treatment. There are limited number of studies investigating the effect of paracetamol on the intraocular pressure and the results of these studies are conflicting. Mohamed et al. investigated the effect of oral paracetamol in a 2-week, prospective, randomized, controlled study in which they compared the effect of paracetamol with levobunolol<sup>11</sup>. Their study included patients with open angle glaucoma and their participants used paracetamol 1000 mg qid for two weeks. In this study paracetamol showed a comparable effect to levobunolol and significantly decreased IOP both at day 7 and 14. In another study by Heever et al the short-term effect of intravenous

paracetamol on IOP was investigated<sup>15</sup>. Their study participants were not glaucoma patients, and they compared the effect of intravenous paracetamol with that of oral acetazolamide, and topical timolol. Although the effect was lower than timolol and acetazolamide, paracetamol significantly decreased IOP compared to the control group within the first six hours after the administration. A commentary on the results of this study stated that the IV paracetamol formulations contain mannitol, and this may at least partially contribute the IOP lowering effect of IV paracetamol<sup>17</sup>. Another study by Jampel investigated the effect of oral paracetamol in patients with increased IOP<sup>16</sup>. In this study the IOP did not change significantly after 1 week 650 mg qid paracetamol use. The use of different doses, different intervals and other differences in study protocols makes the direct comparison difficult. In our study we found a reduction in IOP with oral paracetamol use similar to the findings of the study by Mohamed et al. Unlike their study, we used lower dose (500mg bid) of paracetamol but for a longer interval (three weeks) in our study and our study group did not include glaucoma patients. Our results are different from the study by Jampel whose results did not show a significant reduction in IOP after oral paracetamol use. The longer study period (1 week vs 3 weeks) and inclusion of different patient groups (glaucoma patients vs normal participants) may be a factor for this difference.

We also found that the anterior chamber depth and axial length of the patients were lower after three weeks of paracetamol treatment. The effect of paracetamol on these parameters were not investigated in other studies. There are studies reporting that IOP variations affect the axial length with increased IOP associated with increased axial length<sup>18,19</sup>. Since we had lower IOP after paracetamol use in our study, this may explain decreased axial length measurement obtained in our study. It has been found that the diurnal rhythm changes observed in axial length may be caused by changes in IOP, and these changes in IOP may cause changes in axial length by causing expansion and contraction of the globe<sup>18</sup>. Saeedi et al found a significant decrease in AL in parallel with the decrease in IOP after trabeculectomy<sup>20</sup>. Hata et al reported an increase in AL correlated with increased IOP in primary angle closure<sup>21</sup>. In a study by Yin et al, they found that corneal thickness and anterior chamber depth were positively correlated with AL, but they did not find a relationship between IOP and AL<sup>22</sup>. Hosny et al also reported that anterior chamber depth and AL were positively correlated<sup>23</sup>. Mauger et al iv monitored changes in IOP, AL and ACD after mannitol and found no change in AL and ACD. They explained the lack of expected reduction in ACD by a centrally mediated mechanism of IOP reduction and the inability to detect small changes in the measurement techniques they used<sup>24</sup>. In a population-based study it is reported that the ACD values were not associated with changes in IOP<sup>19</sup>. We



had lower ACD measurements after the paracetamol treatment in our study. This may be an effect of paracetamol on anterior chamber structures. Further studies on the effect of paracetamol on anterior chamber parameters and the axial length are necessary.

There are several limitations of this study. Firstly, we included patients without glaucoma or ocular hypertension. So, the effect we saw on normal participants does not indicate that we can achieve similar results in glaucoma patients. Secondly, we used only one dose paracetamol (500 mg bid) in the study. As a result, studies are necessary to investigate the effect of different doses of paracetamol on glaucoma patients.

In conclusion the findings of this study suggest that a decrease in IOP can be achieved by using paracetamol 500 mg bid. Paracetamol has a known safety profile. Its effect on IOP is thought to be mediated by cannabinoid receptors and it does not have the known side effects of cannabinoids which limit their use. Future studies including glaucoma patients are necessary to determine its potential role in glaucoma treatment.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

## References

1. Pascolini D, Mariotti SP. Global estimates of visual impairment: 2010. *British Journal of Ophthalmology*. 2012;96(5):614-8.
2. Flaxman SR, Bourne RRA, Resnikoff S, Ackland P, Braithwaite T, Cicinelli MV, et al. Global causes of blindness and distance vision impairment 1990-2020: a systematic review and meta-analysis. *The Lancet Global health*. 2017;5(12):e1221-e34.
3. Tham YC, Li X, Wong TY, Quigley HA, Aung T, Cheng CY. Global prevalence of glaucoma and projections of glaucoma burden through 2040: a systematic review and meta-analysis. *Ophthalmology*. 2014;121(11):2081-90.
4. Schmidl D, Schmetterer L, Garhöfer G, Popa-Cherecheanu A. Pharmacotherapy of glaucoma. *Journal of ocular pharmacology and therapeutics: the official journal of the Association for Ocular Pharmacology and Therapeutics*. 2015;31(2):63-77.

5. Rocha-Sousa A, Rodrigues-Araújo J, Gouveia P, Barbosa-Breda J, Azevedo-Pinto S, Pereira-Silva P, et al. New Therapeutic Targets for Intraocular Pressure Lowering. *ISRN Ophthalmology*. 2013;2013:261386.
6. Prum BE, Jr., Rosenberg LF, Gedde SJ, Mansberger SL, Stein JD, Moroi SE, et al. Primary Open-Angle Glaucoma Preferred Practice Pattern((R)) Guidelines. *Ophthalmology*. 2016;123(1):P41-p111.
7. Tanna AP, Lin AB. Medical therapy for glaucoma: what to add after a prostaglandin analogs? *Curr Opin Ophthalmol*. 2015;26(2):116-20.
8. Tomida I, Pertwee RG, Azuara-Blanco A. Cannabinoids and glaucoma. *Br J Ophthalmol*. 2004;88(5):708-13.
9. Passani A, Posarelli C, Sframeli AT, Perciballi L, Pellegrini M, Guidi G, et al. Cannabinoids in Glaucoma Patients: The Never-Ending Story. *Journal of clinical medicine*. 2020;9(12).
10. Straiker AJ, Maguire G, Mackie K, Lindsey J. Localization of cannabinoid CB1 receptors in the human anterior eye and retina. *Investigative ophthalmology & visual science*. 1999;40(10):2442-8.
11. Mohamed N, Meyer D. Intraocular pressure-lowering effect of oral paracetamol and its in vitro corneal penetration properties. *Clin Ophthalmol*. 2013;7:219-27.
12. Pinar-Sueiro S, Rodríguez-Puertas R, Vecino E. [Cannabinoid applications in glaucoma]. *Archivos de la Sociedad Espanola de Oftalmologia*. 2011;86(1):16-23.
13. Ottani A, Leone S, Sandrini M, Ferrari A, Bertolini A. The analgesic activity of paracetamol is prevented by the blockade of cannabinoid CB1 receptors. *European journal of pharmacology*. 2006;531(1-3):280-1.
14. Bertolini A, Ferrari A, Ottani A, Guerzoni S, Tacchi R, Leone S. Paracetamol: new vistas of an old drug. *CNS drug reviews*. 2006;12(3-4):250-75.
15. van den Heever H, Meyer D. The intraocular pressure-lowering properties of intravenous paracetamol. *Clin Ophthalmol*. 2016;10:1283-9.
16. Jampel HD. Effect of oral paracetamol on intraocular pressure: a pilot study. *Clin Exp Ophthalmol*. 2017;45(6):645-7.
17. Allegaert K. Intravenous paracetamol and intraocular pressure reduction: mannitol may also be involved. *Clin Ophthalmol*. 2016;10:1775-7.
18. Read SA, Collins MJ, Iskander DR. Diurnal Variation of Axial Length, Intraocular Pressure, and Anterior Eye Biometrics. *Investigative ophthalmology & visual science*. 2008;49(7):2911-8.

19. Hoffmann EM, Aghayeva F, Wagner FM, Fiess A, Nagler M, Münzel T, et al. Intraocular Pressure and Its Relation to Ocular Geometry: Results From the Gutenberg Health Study. *Investigative ophthalmology & visual science*. 2022;63(1):40.
20. Saeedi O, Pillar A, Jefferys J, Arora K, Friedman D, Quigley H. Change in choroidal thickness and axial length with change in intraocular pressure after trabeculectomy. *Br J Ophthalmol*. 2014;98(7):976-9.
21. Hata M, Hirose F, Oishi A, Hiramami Y, Kurimoto Y. Changes in choroidal thickness and optical axial length accompanying intraocular pressure increase. *Jpn J Ophthalmol*. 2012;56(6):564-8.
22. Yin G, Wang YX, Zheng ZY, Yang H, Xu L, Jonas JB; Beijing Eye Study Group. Ocular axial length and its associations in Chinese: the Beijing Eye Study. *PLoS One*. 2012;7(8):e43172.
23. Hosny M, Alio JL, Claramonte P, Attia WH, Perez-Santonja JJ. Relationship between anterior chamber depth, refractive state, corneal diameter, and axial length. *J Refract Surg*. 2000;16(3):336-40.
24. Mauger TF, Nye CN, Boyle KA. Intraocular pressure, anterior chamber depth and axial length following intravenous mannitol. *J Ocul Pharmacol Ther*. 2000;16(6):591-4.

**FT006**

**Evaluation of The Efficacy of A New Potential Biosimilar Bevacizumab in The Treatment of Corneal Neovascularization in Rabbits**

**0000-0001-9111-8060 Armağan Özgür<sup>1</sup>, 0000-0002-8632-2873 Nilüfer Yeşilirmak<sup>2</sup>, 0000-0002-6179-2828 Mehmet Arda İnan<sup>3</sup>, 0000-0002-8066-5816 Emin Ümit Bağrıaçık<sup>4</sup>, 0000-0002-3164-6336 Mehmet Cüneyt Özmen<sup>1</sup>**

<sup>1</sup> Gazi University Faculty of Medicine, Department of Ophthalmology, Ankara, Türkiye

<sup>2</sup> Yildirim Beyazıt University Faculty of Medicine, Department of Ophthalmology, Ankara, Türkiye

<sup>3</sup> Gazi University Faculty of Medicine, Department of Pathology, Ankara, Türkiye

<sup>4</sup> Gazi University Faculty of Medicine, Department of Immunology, Ankara, Türkiye

**Aim:** To compare the antiangiogenic effects of bevacizumab and a new potential biosimilar bevacizumab (Anti-Human VEGF GU01) on suture induced corneal neovascularization (CNV) in rabbits.

**Material methods:** CNV was induced in the right eyes of fifteen rabbits by placing 7.0 black silk suture in the corneal stroma (3 mm wide and 1-1.5 mm distance from the superior limbus). All sutures were removed on the day 7 under general anesthesia and the rabbits were randomly divided in 3 groups. The first group and was treated with 0.1ml of balanced salt solution (BSS) (control group), the second group was treated with 0.1ml/2.5mg of bevacizumab (bevacizumab group), and the third group was treated with 0.1ml/2.5mg of Anti-Human VEGF GU01 (potential biosimilar bevacizumab group), subconjunctivally. After the suture application, on the 7<sup>th</sup> day (pre injections) and 14<sup>th</sup> day (7 days after injections), standard corneal images were recorded to analyze the CNV area. The area of CNV was calculated in square millimeters using the Image J program. On day 14, all animals were sacrificed and corneal specimens were analyzed histopathologically with hematoxylin-eosin.

**Results:** On the 7<sup>th</sup> day after suturing, significant amount of CNV was observed in all eyes. In the bevacizumab and biosimilar bevacizumab groups, the percentages of reduction of CNV areas were significantly higher compared to control group (control group: %24,6, bevacizumab group: %82,2, biosimilar group: %83,4), ( $p < 0.05$ ). There was no statistically significant difference between bevacizumab and biosimilar groups with respect to CNV regression rates

( $p > 0.05$ ). Hematoxylin-eosin staining showed numerous vessels in the control group, while no vessels in the bevacizumab and biosimilar group

**Conclusion:** In this experimental study, the subconjunctival application of Anti-Human VEGF GU01, which is potential biosimilar of bevacizumab, was found to be as effective as subconjunctival bevacizumab in CNV treatment.

**Keywords:** Bevacizumab, biosimilar bevacizumab, Anti-Human VEGF GU01, corneal neovascularization.

## INTRODUCTION

Cornea is an avascular tissue providing good vision with its' transparent feature.<sup>1</sup> With some reasons such as stress and lack of oxygen (due to infection, inflammation, ischemia, degeneration, trauma or limbal stem cell deficiency), abnormal blood vessels grow through this normally clear, translucent cornea and cause corneal neovascularization (CNV) condition.<sup>2</sup> Various surgical and medical methods have been used in the treatment and they achieve success in varying degrees.<sup>3,4</sup> The aim of the treatment is to prevent both the formation of new vessels (by focusing underlying etiology and pathophysiology) and to regress existing vessels.<sup>5</sup> It has been shown that vascular endothelial growth factor (VEGF) has a major role in the development of CNV and inhibition of VEGF can reduce this condition.<sup>6</sup> With the discovery of anti-VEGF therapies that are helpful in treating and preventing of CNV, exposure to these side effects has been reduced.

Today, there are some well-known anti-VEGF agents in the market such as pegaptanib sodium (Macugen; OSI/Eyetech, Inc., USA), ranibizumab (Lucentis; Genentech, Inc., USA), bevacizumab (Avastin; Genentech, Inc., CA) and aflibercept, which have been tried and used in the treatment of CNV.<sup>7</sup> Topical and subconjunctival bevacizumab has been shown to be effective in reducing CNV in cases unresponsive to conventional anti-inflammatory drops or other anti-VEGF agents.<sup>8</sup> Nonetheless, it is off-label for the treatment of ocular angiogenesis.

Although these anti-VEGF agents in the market are meaningfully effective in the treatment of CNV, they are quite costly and are not always widespread available. To facilitate access to these agents (via reducing costs), biosimilar molecules have been developed.<sup>9,10</sup> Recently, a new monoclonal VEGF antibody (Anti-Human VEGF GU01), which is a potential biosimilar of bevacizumab, has been developed in our university's immunology laboratory.<sup>11</sup> In this current in vivo experimental study, we used this Anti-Human VEGF GU01 agent in the

treatment of CNV subconjunctivally, investigated its pharmacological characteristics and compared its efficacy with conventional subconjunctival bevacizumab applications.

## **MATERIALS AND METHODS**

### **Experimental Animals**

Fifteen healthy, young albino (white New Zealand) rabbits (weighed 2.5 to 3 kg) were provided for this experimental study. Approval for this study was obtained from the Ethical Committee for Animal Care at Gazi University (G.U.ET-15.025).

### **Animal Model**

Corneal neovascularization was induced in the right eyes of a total 15 rabbits using a modified suturing technique under general anesthesia using intramuscular 50 mg/kg ketamin and 5 mg/kg xylazine combination. Topical proparacaine HCl 0.5% (Alcaine; Alcon Pharmaceuticals Ltd., Fort Worth, Texas) was also applied to minimize eye movements before each operation. Under a surgical microscope, 3 mm wide, 7.0 black silk sutures (1-1.5 mm distance from the superior limbus) were placed in the mid-stroma of each eye. All sutures were placed by the same surgeon (MCO).

Topical moxifloxacin (Vigamox, Alcon, Fort Worth, Texas) eye drops were applied to all operated eyes twice a day for a week for infection prophylaxis. All sutures were removed on the day 7 under general anesthesia after conformation of a significant presence of CNV.

### **Study Groups**

After the sutures were removed on the 7<sup>th</sup> day, 15 rabbits were randomly divided in 3 groups: Control group: Five control corneas were treated with 0.1ml of balanced salt solution (BSS).

Bevacizumab group: Five corneas were treated with subconjunctival 0.1ml/2.5mg of bevacizumab.

Biosimilar group: Five corneas were treated with subconjunctival 0.1ml/2.5mg of Anti-Human VEGF GU01. (Table 1).

All subconjunctival injections were performed with 30 gauge needles by same surgeon (MCO) in the in the region of neovascularization developed and 1mm distance from the limbus.

## **Analysis of corneal neovascularization**

After the suture application, on the 7<sup>th</sup> day (pre injections) and 14<sup>th</sup> day (7 days after injections), standard images were recorded (using 16x magnification) with the operating microscope (Möller-Wedel FS 3000, Haag Streit) and the recording system (Avermedia) mounted on the operating microscope to determine the CNV area. The area of CNV was calculated in square millimeters using the Image J program (Wayne Rasband at Research Services Branch, National Institutes of Health, Bethesda, Md.). For standardization, a ruler picture was used taken with 16x magnification. Before the area calculation, a 1 mm length line was drawn on the ruler and this measurement was recorded, so that the area calculation could be made to be standard and millimetric. The neovascular region extending from limbus to suture line was marked on the screen. The calculated area before injections was accepted as 100%. The remaining neovascularization in the first week after injections was calculated as a percentage. Subsequently neovascularization regression rates were recorded. These measurements were performed by two double-blind examiners (AÖ and MCO).

## **Histopathological and immunohistochemical evaluation**

On the 14<sup>th</sup> day, all animals were sacrificed. Enucleation was applied to the right eyes. The corneal regions where the neovascular area is present were removed (the limbus was left intact). These tissues were kept in formaldehyde for 24 hours and then embedded in paraffin. 4-micron sections were taken and stained with hematoxylin-eosin and CD31. The prepared samples were photographed and evaluated using 200x magnification.

## **Statistical Analysis**

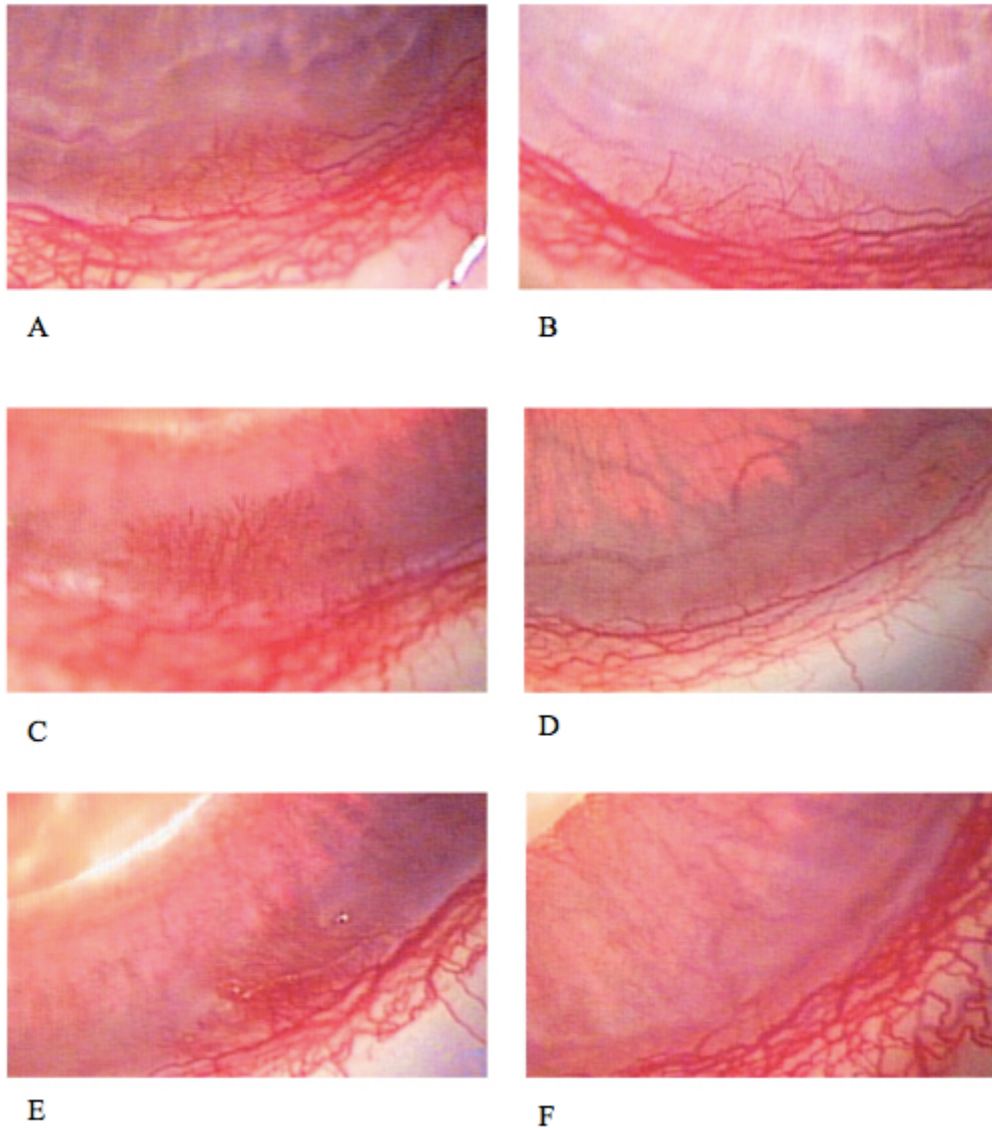
Statistical analyses were performed with Statistical Product and Service Solutions (SPSS) version 22 (IBM SPSS, Armonk, NY, USA). The Kruskal Wallis test was used for pre- and post-treatment area comparisons, and the Mann-Whitney U test was used to compare the CNV area regression rates after treatment. P-values < 0.05 were considered to be statistically significant.

## **RESULTS**

### **Analysis of CNV region**

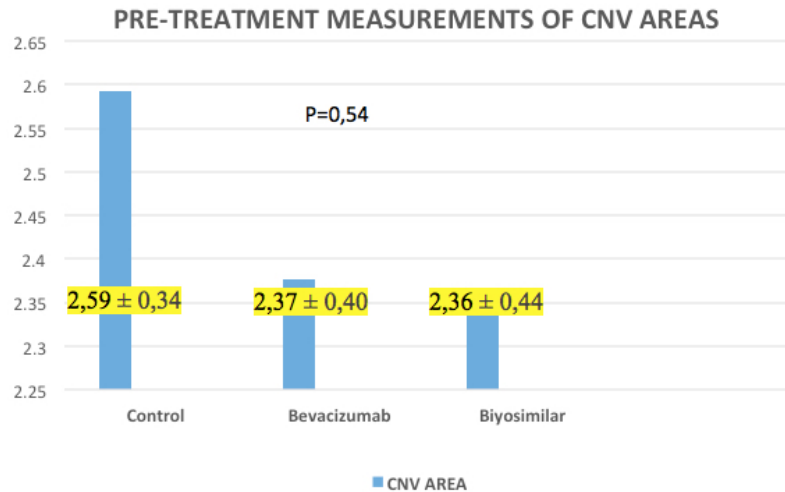
On the 7<sup>th</sup> day after suturing, significant amount of CNV was observed in all eyes. No eye infections or other complications were observed. After suture removal, the neovascularization

areas calculated in the control, bevacizumab and biosimilar groups were  $2.59 \pm 0.34 \text{ mm}^2$ ,  $2.37 \pm 0.40 \text{ mm}^2$ ,  $2.36 \pm 0.44 \text{ mm}^2$  respectively, and there was no significant difference between these values ( $p < 0.05$ ) (Figure 1 and 2).



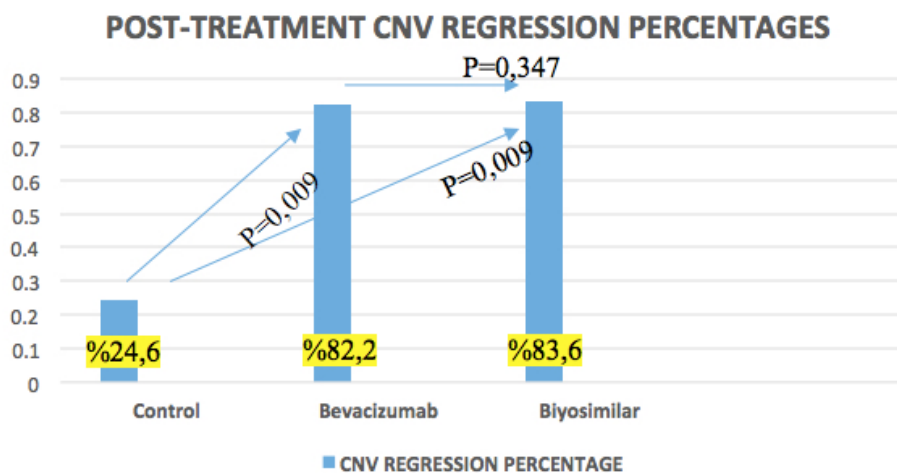
**Figure 1:** Microscopy images showing pre-treatment (on the 7<sup>th</sup> day, just after the suture removal) and post treatment (on the 14<sup>th</sup> day) CNV areas. **A:** Pre-treatment control group. **B:** Post-treatment control group. **C:** Pre-treatment bevacizumab group. **D:** Post-treatment bevacizumab group. **E:** Pre-treatment biosimilar group. **F:** Post-treatment biosimilar group.





**Figure 2:** The CNV areas on the 7th day of suturing. P values were calculated using Kruskal Wallis test, there was no significant difference between groups

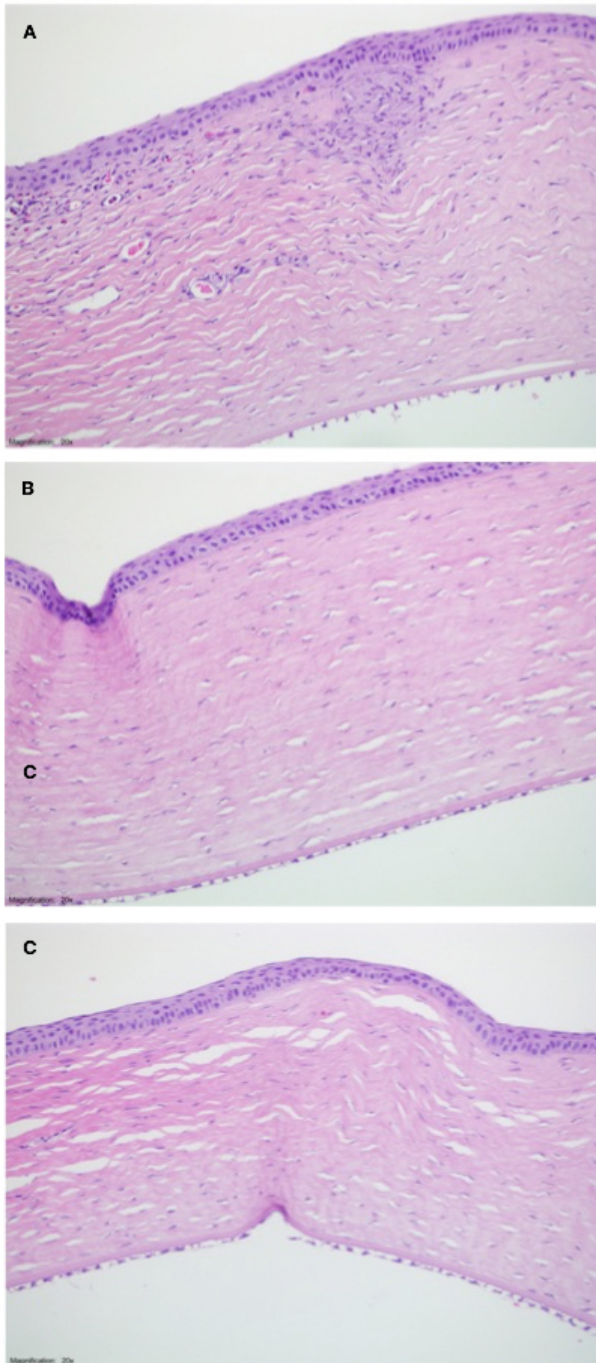
In the bevacizumab and biosimilar groups, the neovascularization areas significantly regressed compared to control group (control group: %24,6±0,03, bevacizumab group: %82,2±0,03, biosimilar group: %83,4±0,03), ( $p < 0.05$ ). There was no statistically significant difference between bevacizumab and biosimilar groups with respect to CNV regression rates ( $p > 0.05$ ), (Figure 1 and 3).



**Figure 3:** Regression percentages in the CNV areas on the 7th day of injections. P values were calculated using Mann Whitney U test, CNV was significantly regressed in bevacizumab and biosimilar groups compared to control group, and there was no significant difference between bevacizumab and biosimilar groups with respect to CNV regression.

## Histopathological and immunohistochemical evaluation

Hematoxylin-eosin staining showed numerous vessels in the control group, while no vessels in the bevacizumab and biosimilar group (Figure 4). Immunohistochemical evaluation with CD31 showed that the staining levels were not sufficient, and no data could be obtained to evaluate the staining difference between groups.



**Figure 4:** Histopathology images. **A:** Control group; the appearance of inflammation in the suture line and erythrocyte containing vessels in the stroma. **B:** Bevacizumab group; the

appearance of inflammation in the suture line, no erythrocyte containing vessels in the stroma.  
C: Biosimilar group; the appearance of inflammation in the suture line and few amount of erythrocyte containing vessels in the stroma

## DISCUSSION

Biosimilar term is used for substances that resemble highly to biologically active agents but are not identical in efficacy, safety and purity.<sup>9</sup> Biosimilar drugs make easier for the patients to reach medications worldwide, and in this way broader success can be achieved in the healing process.<sup>9</sup> The production of biosimilar drugs is a complex process, a small structural difference in the production process can cause significant changes in the efficacy and safety of the drug.<sup>9</sup> In this study, we investigated the effect of a potential biosimilar agent (Anti-Human VEGF GU01, biosimilar of bevacizumab),<sup>11</sup> produced in our immunology laboratory, on experimental CNV model and compared it with bevacizumab.

Bevacizumab is commercially available as a 4 ml or 16ml single bottle and small doses are prepared into insulin injectors for ocular use. Negligence in preparing conditions has led to microbial contamination, endophthalmitis and severe visual loss in different regions worldwide.<sup>12-14</sup> Also, there is no standardization in bevacizumab preparation process between countries, which increases contamination and infection risk, therefore ready commercial form of bevacizumab for ocular use is needed. Besides, the cost of a single dose of bevacizumab is about 40 times less than the cost of other antiVEGFs, and from this point of view, the widespread use of bevacizumab has great potential to reduce spending in this drug group.

There are many experimental and clinical studies related to CNV treatment and most of them are on bevacizumab. Firstly in 1998, Yatoh et al. found that inhibition of VEGF resulted in prolonged graft survival in mice.<sup>15</sup> Later on, the reducing activity of bevacizumab on CNV was demonstrated in several animal studies. Most of these experimental studies have used suture models, which is closer to real structure than other models.<sup>16,17</sup> With the help of this information, we also used suture model in this current study.

The maturation degree in vessels is an important point in the selection of CNV treatment. For instance, medical treatment has been shown to be effective during active vessel formation, however in the presence of mature vessels, medical treatment has shown to be inadequate and fine needle cautery is more effective in that cases.<sup>18,19</sup> This can also be explained by the study, which has shown that in two weeks immediately after the CNV developed, vessels were covered

by pericytes that decrease the sensitivity to pharmacological agents.<sup>20</sup> Likewise, Lin CT et al. has demonstrated how effective starting Anti-VEGF therapy just after the CNV developed and how ineffective when it is delayed.<sup>18</sup> In the light of these information, we applied treatments on the 7<sup>th</sup> day immediately after the suture removal (when the CNV formation was seen). According to our results, more than 80% of CNV areas were regressed on the 14<sup>th</sup> day in both bevacizumab and Anti-Human VEGF GU01 injected groups.

There is still no consensus on the dosage and frequency of subconjunctival application of bevacizumab in the treatment of CNV. In a study including 24 CNV patients, a single dose application of 2.5 and 5mg subconjunctival bevacizumab was found to be similarly effective on CNV regression.<sup>21</sup> In another experimental study involving 100 rats, the effect of 1 mg, 5 mg and 25 mg of subconjunctival bevacizumab was found to be similar in CNV treatment.<sup>22</sup> In our current study, we used 2.5 mg single dose of subconjunctival bevacizumab and Anti-Human VEGF GU01 and found similarly effective regression in CNV in both groups. Since the half-life of single dose 1.25 mg subconjunctival bevacizumab application was shown as 1.8-2.8 weeks in rabbits,<sup>23</sup> we did not repeat the injections in this experimental study.

It has been demonstrated that corneal transplantation is the most successful method among all organ transplants with a success rate of 90%.<sup>24</sup> However, this success rate can decrease to 20-40% when surgery performed in an inflamed or vascularized recipient bed.<sup>25</sup> Dekaris et al. evaluated the effect of 0.5 ml/25 mg subconjunctival and 25 mg/ml topical bevacizumab on graft survival after penetrating keratoplasty in high-risk 50 eyes, and they found that the graft transparency was maintained in 70% of the patients after three years of follow-up.<sup>26</sup> Although our current study does not include corneal transplantation cases, we know that this patient group is one of the most affected groups from CNV and widespread use of bevacizumab in these high-risk patients may increase the success rate. After the phase studies are completed, we believe that Anti-Human VEGF GU01, which is potential biosimilar of bevacizumab (but cheaper and easier to supply), can increase the surgical success rate of high-risk penetrating keratoplasties.

In conclusion, bevacizumab is one of the most used anti-VEGF agents in the CNV treatment in the literature. In this experimental study, as a first in the literature, the subconjunctival application of Anti-Human VEGF GU01, found to be as effective as subconjunctival bevacizumab in CNV regression. Although these outcomes are promising, advanced preclinical and clinical studies are needed to support the production steps of Anti-Human VEGF GU01 as a biosimilar bevacizumab.

## REFERENCES

- 1- Chang JH, Garg NK, Lunde E, Han KY, Jain S, Azar DT. Corneal neovascularization: an anti-VEGF therapy review. *Surv Ophthalmol.* 2012;57(5):415-29.
- 2- Chang JH, Gabison EE, Kato T, Azar DT. Corneal neovascularization. *Curr Opin Ophthalmol.* 2001;12(4):242-9.
- 3- Kenyon BM, Voest EE, Chen CC, Flynn E, Folkman J, D'Amato RJ. A model of angiogenesis in the mouse cornea. 1996;37(8):1625-1632.
- 4- Kruse FE, Jousseaume AM, Rohrschneider K, Becker MD, Volcker HE. Thalidomide inhibits corneal angiogenesis induced by vascular endothelial growth factor. *Graefes Arch Clin Exp Ophthalmol.* 1998;36(6):461-6.
- 5- Cursiefen C, Hofmann-Rummelt C, Kuchle M, Schlotzer-Schrehardt U. Pericyte recruitment in human corneal angiogenesis: an ultrastructural study with clinicopathological correlation. *Br J Ophthalmol.* 2003;87(1):101-
- 6- Phillips GD, Stone AM, Jones BD, Schultz JC, Whitehead RA, Knighton DR. Vascular endothelial growth factor (rhVEGF165) stimulates direct angiogenesis in the rabbit cornea. 1994;8(6):961-965.
- 7- Roshandel D, Eslani M, Baradaran-Rafii A et al. Current and upcoming therapies for corneal neovascularization. *Ocul Surf.* 2018 Jun 14. pii: S1542-0124(18)30024-7. doi: 10.1016/j.jtos.2018.06.004
- 8- Cheng SF, Dastjerdi MH, Ferrari G, et al. Short-term topical bevacizumab in the treatment of stable corneal neovascularization. *Am J Ophthalmol* 2012;154(6):940–8.
- 9- Zalberg J Biosimilars are coming: ready or not.. *Intern Med J.* 2018 Jul 9. doi: 10.1111/imj.14033.
- 10- Casak SJ, Lemery SJ, Chung J et al. FDA's Approval of the First Biosimilar to Bevacizumab. *Clin Cancer Res.* 2018 May 9. doi: 10.1158/1078-0432.CCR-18-0566.
- 11- Bagriacik UE, Yaman M, Oruklu N. Development and characterization of monoclonal antibodies specific for human vascular endothelial growth factor. *J Biotechnol* 2017;256:31–32.
- 12- Falavarjani KG, Modarres M, Hashemi M, Parvaresh MM, Naseripour M, Zare-Moghaddam A, et al. Incidence of acute endophthalmitis after intravitreal bevacizumab injection in a single clinical center. *Retina.* 2013;33(5):971-4.
- 13- Goldberg RA, Flynn HW, Jr., Isom RF, Miller D, Gonzalez S. An outbreak of

- streptococcus endophthalmitis after intravitreal injection of bevacizumab. *Am J Ophthalmol.* 2012;153(2):204-8.
- 14- Gonzalez S, Rosenfeld PJ, Stewart MW, Brown J, Murphy SP. Avastin doesn't blind people, people blind people. *Am J Ophthalmol.* 2012;153(2):196-203.
- 15- Yatoh S, Kawakami Y, Imai M et al. (1998): Effect of topically applied neutralizing antibody against vascular endothelial growth factor on corneal allograft rejection of rat. *Transplantation* 66: 1519– 1524.
- 16- Williams KA, Grutzmacher RD, Roussel TJ, Coster DJ. A comparison of the effects of topical cyclosporine and topical steroid on rabbit corneal allograft rejection. *Transplantation.* 1985;39(3):242-4.
- 17- Montezuma SR, Vavvas D, Miller JW. Review of the ocular angiogenesis animal models. *Semin Ophthalmol.* 2009;24(2):52-61.
- 18- Lin CT, Hu FR, Kuo KT, Chen YM, Chu HS, Lin YH, et al. The different effects of early and late bevacizumab (Avastin) injection on inhibiting corneal neovascularization and conjunctivalization in rabbit limbal insufficiency. *Invest Ophthalmol Vis Sci.* 2010;51(12):6277-85.
- 19- Pillai CT, Dua HS, Hossain P. Fine needle diathermy occlusion of corneal vessels. *Invest Ophthalmol Vis Sci.* 2000;41(8):2148-53.
- 20- Cursiefen C, Hofmann-Rummelt C, Kuchle M, Schlotzer-Schrehardt U. Pericyte recruitment in human corneal angiogenesis: an ultrastructural study with clinicopathological correlation. *Br J Ophthalmol.* 2003;87(1):101-6.
- 21- Acar BT, Halili E, Acar S. The effect of different doses of subconjunctival bevacizumab injection on corneal neovascularization. *Int Ophthalmol.* 2013;33(5):507-13.
- 22- Hashemian MN, Moghimi S, Kiumehr S, Riazi M, Amoli FA. Prevention and treatment of corneal neovascularization: comparison of different doses of subconjunctival bevacizumab with corticosteroid in experimental rats. *Ophthalmic Res.* 2009;42(2):90-5.
- 23- Nomoto H, Shiraga F, Kuno N, Kimura E, Fujii S, Shinomiya K, et al. Pharmacokinetics of bevacizumab after topical, subconjunctival, and intravitreal administration in rabbits. *Invest Ophthalmol Vis Sci.* 2009;50(10):4807-13.
- 24- Rocha G, Deschenes J, Rowsey JJ. The immunology of corneal graft rejection. *Crit Rev Immunol.* 1998;18(4):305-25.
- 25- The collaborative corneal transplantation studies (CCTS). Effectiveness of histocompatibility matching in high-risk corneal transplantation. *The Collaborative*

Corneal Transplantation Studies Research Group. Arch Ophthalmol. 1992;110(10):1392-403.

26-Dekaris I, Gabric N, Draca N, Pauk-Gulic M, Milicic N. Three-year corneal graft survival rate in high-risk cases treated with subconjunctival and topical bevacizumab. Graefes Arch Clin Exp Ophthalmol. 2015;253(2):287-94.

FT007

## **DİYABETLİ BİREYLERDE FİZİKSEL AKTİVİTENİN NÖROBİLİŞSEL FONKSİYONLARLA İLİŞKİSİ – DERLEME**

**The Relationship Between Physical Activity And Neurocognitive Functions In Individual with Diabetes – Review**

**0000-0001-9744-0472 Melek Havva Kılıç<sup>1</sup>, 0000-0001-9421-0233 Filiz Özdemir<sup>2</sup>**

<sup>1</sup>Karamanoğlu Mehmetbey Üniversitesi, Sağlık Hizmetleri Meslek Yüksek Okulu, Terapi ve Rehabilitasyon Bölümü, Karaman, Türkiye

<sup>2</sup>İnönü Üniversitesi Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Anabilim Dalı, Malatya, Türkiye

### **Öz**

Diyabet, insülin sekresyonunda veya etkisinde meydana gelen bozulmalar neticesinde oluşan hiperglisemiyle karakterize bir grup metabolik hastalıktır. Kognisyon ise; dikkat, algı, tanıma, hafıza, konsept oluşturma, dilin üretimi ve anlaşılması, problem çözme becerileri ve karar verme işlemlerinden oluşan mental sürecin tümüne verilen isimdir. Yapılan çalışmalarda, her iki diyabet tipinin de beyin yapı ve fonksiyonunu etkilediği keşfedilmiştir. Bu çalışmalar diyabetin neden ve sonuçlarının, nörokognitif bozulmaların altında yatan mekanizmalarla ilişkili olduğuna dair kanıtlar ortaya koymaktadır. Fiziksel aktivitenin ise Beyin Kaynaklı Nörotrofik Faktör (BDNF) ve İnsülin Benzeri Büyüme Faktörü (IGF-1) gibi nörotrofik kimyasalların, hafıza oluşumunda etkili rol oynayan serotonin gibi nörotransmitterlerin salınımında etkili olduğu uzun yıllardır bilinmektedir. Bu durum, fiziksel aktivitenin diyabetli bireylerdeki koruyucu rolünün sadece glisemik kontrolden ibaret olmadığını düşündürmektedir. Fiziksel aktivitenin, diyabetli bireylerde nörokognitif fonksiyonlar üzerinde de koruyucu rolünün aydınlatılması literatüre katkı sunacaktır. Gelecekte, fiziksel aktivitenin diyabetin nörokognitif fonksiyonları üzerindeki etkisini ve gerekli dozlarını belirleyecek çalışmalara ihtiyaç vardır.

**Anahtar Kelimeler:** Diyabet, Fiziksel aktivite, Nörokognitif fonksiyonlar

### **Abstract**

Diabetes is a group of metabolic diseases characterized by hyperglycemia resulting from disruptions in insulin secretion or action. Cognition is; It is the name given to the whole mental process consisting of attention, perception, recognition, memory, concept formation, production and understanding of language, problem solving skills and decision making. Studies



have found that both types of diabetes affect brain structure and function. These studies provide evidence that the causes and consequences of diabetes are related to the mechanisms underlying neurocognitive impairments. It has been known for many years that physical activity is effective in the release of neurotrophic chemicals such as Brain-Derived Neurotrophic Factor (BDNF) and Insulin-Like Growth Factor (IGF-1), and neurotransmitters such as serotonin, which plays an effective role in memory formation. Clarifying the protective role of physical activity on neurocognitive functions in individuals with diabetes will contribute to the literature. In the future, studies are needed to determine the effect of physical activity on the neurocognitive functions of diabetes and the required doses.

**Keywords:** Diabetes, Physical activity, neurocognitive functions

### **Diyabet ve Kognisyon**

Diyabet, insanlarda en sık görülen ciddi metabolik bozukluktur ve klinik olarak, insülin sekresyonundaki veya insülin etkisine dirençteki veya her ikisindeki defektlerin sonucu olarak hiperglisemi ile karakterize bir grup metabolik hastalık olarak tanımlanır. Tip 2 diyabet, vücudun insüline direnç göstermesi veya yeterli insülin üretememesiyle ortaya çıkan, en yaygın diyabet türüdür (1). Kognisyon ise; dikkat, algı, tanıma, hafıza, konsept oluşturma, dilin üretimi ve anlaşılması, problem çözme becerileri ve karar verme işlemlerinden oluşan mental sürecin tümüne verilen isimdir (2).

### **Fiziksel aktivitenin nörobilişsel faktörler üzerine etkisi**

Merkezi sinir sistemi, fiziksel aktivitenin akut ve kronik sonuçlarından etkilenmektedir. Merkezi sinir sistemindeki prefrontal korteks, anterior hipokampus gibi bilişsel fonksiyonlarla ilişkili bölgelerde fiziksel aktivite sonucunda sinaptik unsurların geliştiği tespit edilmiştir. Ayrıca bu bölgelerde nörojenez, anjiogenez ve beyin kan akımının hızlandığı bulunmuştur (3,4).

Hayvan çalışmalarında elde edilen sonuçlara göre, fiziksel aktivite esnasında dolaşımda Beyin Kaynaklı Nörotrofik Faktör (BDNF) ve İnsülin Benzeri Büyüme Faktörü (IGF-1) gibi bazı nörokimyasalların arttığı tespit edilmiştir. (5–8). Nöronların yaşamını büyümesinde, devam ettirmesinde, doğru fonksiyon göstermesinde görev alan BDNF, hipokampüste yüksek miktarda bulunur (9). BDNF'nin miktarının akut aerobik egzersizde periferde, kronik aerobik egzersizlerde merkezi sinir sisteminde miktarı arttığı bulunmuştur. IGF-1 de, aerobik egzersize cevap olarak hem beyinde hem de periferde üretilerek nörotrofik etki göstermektedir (6,10). Ayrıca, fiziksel aktivitenin, hipokampüste nöron proliferasyonunda etkili rol oynayan, hafıza

ve öğrenmeyle ilişki olan serotonin gibi moleküllerin gen ekspresyonlarının artışı sağladığı bulunmuştur (6,11,12).

### **Diyabetli Bireylerde Fiziksel Aktivitenin ve Nörobilişsel Fonksiyonların İlişkisi**

Nöroradyolojik ve nörofizyolojik çalışmalar, her iki diyabet tipinin de beyindeki fonksiyonel ve yapısal bozukluklarla ilişkili olduğuna dair daha fazla kanıt sağlamaktadır. Bu komplikasyonların gelişimi diyabetin süresine ve metabolik kontrolün kalitesine bağlıdır ve yoğun insülin ile ancak kısmen önlenbilir (1).

Nörokognitif fonksiyonların bozulmasının altında yatan mekanizmalar arasında diyabet sürecinde beyinde meydana gelen amiloid birikimi, oksidatif stres, insülin direnci/hiperinsülinemi, hipoglisemi ve hiperglisemi sayılmaktadır (13,14).

Literatürde; diyabetin bireylerin nörobilişsel fonksiyonları üzerindeki yıkıcı etkisini gösteren kanıtlar mevcuttur. Hatta bu durum diyabet tanısından önceki prediyabet dönemine kadar uzanır. Marseglia ve ark.'nın yaptığı popülasyona dayalı 60 yaşın üstündeki 455 bireyin 9 yıllık sürecini takip eden bir kohort çalışmasında; diyabet, prediyabet ve sağlıklı bireyler Mini Mental Durum Testi ve beyin manyetik rezonans görüntüleme ile değerlendirildi. Diyabeti olmayan bireylerle karşılaştırıldığında, prediyabet ve diyabet bağımsız olarak hızlanmış bilişsel gerileme ile ilişkiliydi. Prediyabet, normal glisemik düzeydeki bireylere kıyasla daha küçük toplam beyin dokusu hacmi, özellikle daha küçük beyaz cevher hacmi ile kesitsel olarak ilişkiliydi. Prediyabet veya diyabet ile hipokampal hacim arasında bir ilişki bulunamadı (15).

Thein ve ark.'nın yaptığı çalışmada diyabetli kişilerde diyabetik olmayan bireylere kıyasla daha yüksek bir bilişsel bozulma ve/veya fiziksel kırılabilirlik prevalansı olup olmadığını ve diyabetik yaşlı kişilerde kognitif bozukluk ve fiziksel kırılabilirliğin fonksiyonel ve mortalite sonuçları üzerindeki bireysel ve birleşik etkisini araştırıldı. Çalışmanın sonucunda diyabet, önemli ölçüde daha yüksek kognitif bozukluk ve/veya fiziksel kırılabilirlik prevalansı ile ilişkilendirildi. Bilişsel bozulma ve/veya fiziksel kırılabilirlik, yüksek mortalite riski taşıyan diyabetli kişileri belirleyen güçlü prognostik faktörlerdir (16).

Tip 2 diyabet, beyinde belirgin vasküler patolojiye neden olmaktadır. Ortaya çıkan vasküler hasar vasküler demansın tanı kriterlerine uyan klinik tablo ortaya çıkarır.(17) Yapılan bir metaanalizde diyabetli hastaların demans riskinde %73 artış bildirilmektedir. Bu artış Alzheimer tipi demansta %56, vasküler tip demansta %127 olarak bildirilmiştir (18). Birçok çalışma, Tip 2 diyabetin hafif bilişsel bozukluk ve hatta Alzheimer hastalığını refere ettiğini bildirdi. Hafif bilişsel bozukluk insidansı, tip 2 diyabetli bireylerde diyabeti olmayanlara göre daha yüksektir. Bilişsel değişikliklerin kişiye göre önemi, işe ve duruma bağlı olarak değişebilir. Günlük aktiviteleri etkileyebilir (19).

Bilişsel bozukluk da dahil olmak üzere ciddi komorbid hastalıkları olan diyabetin, kontrol altına alınması gereklidir. Diyabet hastalarında bilişsel fonksiyonların sürdürülmesi ve bozulmanın geciktirilmesi büyük önem taşımaktadır. Gelecekte, fiziksel aktivitenin diyabetin nörokognitif fonksiyonları üzerindeki etkisini ve gerekli dozlarını belirleyecek çalışmalara ihtiyaç vardır.

### **Kaynaklar**

1. Sadeghi A, Hami J, Razavi S, Esfandiary E, Hejazi Z. The effect of diabetes mellitus on apoptosis in hippocampus: cellular and molecular aspects. *Int J Prev Med.* 2016;7.
2. Kör İ. Nörokognitif Özelliklerin Annenin Hamilelik Dönemindeki İyilik Halinin Doğumdan Sonraki Çocuğun İlerleyen Yaşlardaki Davranışlarına Etkisi. [İstanbul]; 2021.
3. Dolu N, Bahür S, Demirer F, Kulak E, Çam A. Fiziksel aktivitenin kognitif fonksiyonlar üzerine etkisi. *İzmir Üniversitesi Tıp Dergisi, D (5).* 2016;
4. Gligoroska JP, Manchevska S. The effect of physical activity on cognition–physiological mechanisms. *Mater Sociomed.* 2012;24(3):198.
5. Bechara RG, Lyne R, Kelly ÁM. BDNF-stimulated intracellular signalling mechanisms underlie exercise-induced improvement in spatial memory in the male Wistar rat. *Behavioural brain research.* 2014;275:297–306.
6. Dolu N, Bahür S, Demirer F, Kulak E, Çam A. Fiziksel aktivitenin kognitif fonksiyonlar üzerine etkisi (The effect of physical activity on cognitive function). *İzmir Üniv Tıp Dergisi (İzmir Univ Medical Journal).* 2016 Jan 1;1:7–8.
7. Szuhany KL, Bugatti M, Otto MW. A meta-analytic review of the effects of exercise on brain-derived neurotrophic factor. *J Psychiatr Res.* 2015;60:56–64.
8. Lista I, Sorrentino G. Biological mechanisms of physical activity in preventing cognitive decline. *Cell Mol Neurobiol.* 2010;30(4):493–503.
9. Yarım G, Kazak F. Beyin kaynaklı nörotrofik faktör. *Atatürk Üniversitesi Veteriner Bilimleri Dergisi.* 2015;10(2):120–9.
10. Kotan Z, Sarandöl A, Eker SS, Akkaya C. Depresyon, nöroplastisite ve nörotrofik faktörler. *Psikiyatride Güncel Yaklaşımlar.* 2009;1(1):36–44.
11. Brezun JM, Daszuta A. Depletion in serotonin decreases neurogenesis in the dentate gyrus and the subventricular zone of adult rats. *Neuroscience.* 1999;89(4):999–1002.
12. Fabel K, Kempermann G. Physical activity and the regulation of neurogenesis in the adult and aging brain. *Neuromolecular Med.* 2008;10(2):59–66.
13. Karadakovan A. Diabetes And Cognitive Functions. *Journal.* 2015;31(3):99–107.

14. Ünal E, Akan O, Üçler S. Diyabet ve nörolojik hastalıklar. *Okmeydanı Tıp Dergisi*. 2015;31(ek sayı):45–51.
15. Marseglia A, Fratiglioni L, Kalpouzos G, Wang R, Bäckman L, Xu W. Prediabetes and diabetes accelerate cognitive decline and predict microvascular lesions: a population-based cohort study. *Alzheimer's & Dementia*. 2019;15(1):25–33.
16. Thein FS, Li Y, Nyunt MSZ, Gao Q, Wee SL, Ng TP. Physical frailty and cognitive impairment is associated with diabetes and adversely impact functional status and mortality. *Postgrad Med*. 2018;130(6):561–7.
17. Exalto LG, Whitmer RA, Kappele LJ, Biessels GJ. An update on type 2 diabetes, vascular dementia and Alzheimer's disease. *Exp Gerontol*. 2012;47(11):858–64.
18. Gudala K, Bansal D, Schifano F, Bhansali A. Diabetes mellitus and risk of dementia: A meta-analysis of prospective observational studies. *J Diabetes Investig*. 2013;4(6):640–50.
19. Yuan XY, Wang XG. Mild cognitive impairment in type 2 diabetes mellitus and related risk factors: a review. *Rev Neurosci*. 2017;28(7):715–23.