Atatürk Üniversitesi Tıp Fakültesi Cerrahi Tıp Bilimleri Dergisi

Atatürk University Faculty *of* Medicine Journal *of* Surgical Medical Sciences

Official journal of Atatürk University Faculty of Medicine

Cilt / Volume 3 • Sayı / Issue 3 • Aralık / December 2024

EISSN 2822-3519
https://dergipark.org.tr/tr/pub/jsmsau

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Atatürk University Faculty of Medicine Journal of Surgical Medical Sciences

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Atatürk University Faculty of Medicine Journal of Surgical Medical Sciences is published triannual in Turkish and English in April, August, and December.

All expenses of the journal are covered by the Atatürk University Faculty of Health Sciences. Processing and publication are free of charge with the journal. No fees are requested from the authors at any point throughout the evaluation and publication process. All manuscripts must be sub- mitted via the online submission system, which is available at https://dergipark.org.tr/tr/pub/jsmsau. The journal guidelines, technical information, and the required forms are available on the journal's web page.

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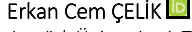
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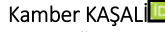
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Önsöz

Değerli Okurlarımız;

Atatürk Üniversitesi Tıp Fakültesi Cerrahi Bilimler Dergisi'nin 2024 Aralık sayısını sizlerle paylaşmaktan büyük mutluluk ve gurur duyuyoruz. Bu sayımızda, tıp biliminin farklı alanlarında önemli katkılar sunan yedi araştırma makalesi ve iki olgu sunumuna yer verilmiştir. Her sayıda olduğu gibi, bu sayımızda da sağlık biliminin gelişimine önemli katkı sağlayacak değerli çalışmalar yer almakta olup, yazarlarımız araştırmalarını titizlikle tamamlayarak bizlere sunmuşlardır.

Bu sayımızda yer alan makaleler, tıp camiasına katkı sağlamak adına oldukça önemli bulgular sunmaktadır. ''Propofol ve Klorpromazin ile Akut Migren Tedavisi,'' '' Pediatrik Hastalarda Santral Venöz Kateter Uygulamaları'' ve ''Kadın ve Erkek Cerrahların Deneyimleri'' gibi konular, hem klinik pratiğe hem de bilimsel bilgiye değerli katkılar sağlamaktadır. Bunun yanı sıra, ''Tıp Fakültesi Öğrencilerinin "Kötü Haber Verme" Deneyimleri, ''Akut Pnömoni Hastalarında LAR ve CURB-65 Skorlarının Hastaneye Yatış Kararındaki Etkinliğinin Karşılaştırılması'' ve ''Türkiye'de Anesteziyoloji ve Reanimasyon Hekimlerinin Mesleki Stresle İlişkili Sorunları ve Zihinsel ve Fiziksel Sağlıklarının İyileştirilmesine Yönelik Öneriler'' gibi çalışmalar, sağlık hizmetlerinin iyileştirilmesine yönelik önemli farkındalıklar yaratmaktadır. ''Akciğer Malignite Şüphesiyle Opere Olan Hastalara İyi Haber: Unisentrik Castleman Hastaliği'' ve ''Rekürrens ile Gelen Sıtma Olgusu'' nun da ilginizi çekeceğini umuyorum

Dergimizin, EBSCO ve DOAJ gibi prestijli uluslararası indekslerde yer alması, bilimsel yayına katkımızı küresel ölçekte artırma hedefimize önemli bir adım daha yaklaşmamızı sağlamaktadır. Bu başarı, bize sorumluluk ve motivasyon kazandırmakta olup, bilimsel yayıncılıktaki amacımıza ulaşmak için kararlılıkla ilerlemeye devam edeceğiz.

Son olarak, dergimizin başarısına katkı sağlayan tüm yazarlarımıza, hakemlerimize, editörlerimize ve okuyucularımıza teşekkürlerimizi sunuyor, bu sayının bilimsel camiaya faydalı olmasını temenni ediyoruz.

Saygılarımla

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Preface

Dear Readers;

We are delighted and honored to present the December 2024 issue of the Atatürk University Faculty of Medicine Journal of Surgical Sciences. This issue features seven original research articles and two case reports that contribute significantly to various fields of medical science. As with every issue, this publication includes valuable studies that are expected to make a meaningful impact on the advancement of health sciences, with our authors meticulously completing their research and sharing their findings with us.

The articles included in this issue offer substantial insights aimed at advancing medical knowledge and clinical practice. Topics such as "Acute Migraine Treatment with Propofol and Chlorpromazine," "Central Venous Catheter Applications in Pediatric Patients," and "Experiences of Male and Female Surgeons" provide valuable contributions to both clinical practice and scientific understanding. Furthermore, studies such as "Medical Students' Experiences in Delivering Bad News," "Comparing the Effectiveness of LAR and CURB-65 Scores in Hospitalization Decisions for Acute Pneumonia Patients," and "Professional Stress-Related Issues and Recommendations for Improving the Mental and Physical Health of Anesthesiologists in Turkey" shed light on critical aspects of healthcare delivery and foster awareness for improvement in these areas. Additionally, case reports like "Good News for Patients Undergoing Surgery for Suspected Pulmonary Malignancy: Unicentric Castleman Disease" and "A Malaria Case Presenting with Recurrence" are anticipated to capture your interest.

The inclusion of our journal in prestigious international indices such as EBSCO and DOAJ marks a significant step toward our goal of increasing the global visibility and impact of our scientific contributions. This achievement reinforces our sense of responsibility and motivation, driving us to continue progressing toward our objectives in academic publishing.

Lastly, we extend our gratitude to all our authors, reviewers, editors, and readers who contribute to the success of our journal. We hope that this issue proves beneficial to the scientific community.

Kind regards

Chief Editor
Associate Professor Sevilay ÖZMEN

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Propofol vs. Chlorpromazine for Acute Migraine Treatment: Insights from a Prospective Randomized Trial

Akut Migren Tedavisinde Propofol ve Klorpromazin: Prospektif Randomize Bir Çalışma Bulguları

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ABSTRACT

Objective: This study aimed to compare the efficacy of propofol and chlorpromazine in managing acute migraine attacks and to contribute to optimizing the treatment of patients with migraine in the ED.
Methods: This prospective, randomized observational study included 180 migraine patients aged 18–65 presenting to the ED. Patients were randomized into two groups: one received propofol (10 mg every 10 minutes, up to 50 mg), and the other received chlorpromazine (12.5 mg every 20 minutes, up to 37.5 mg). Pain was monitored every 10 minutes using a visual analog scale (VAS).
Results: At admission, the mean VAS score was 8.24 ± 1.72 in the propofol group and 8.83 ± 1.43 in the chlorpromazine group. In the propofol group, the VAS score decreased by 5.19 ± 2.79, 2.66 ± 2.91, and 1.25 ± 2.14 units at the 10th, 20th, and 30th minutes, respectively. In the chlorpromazine group, the VAS score decreased by 4.82 ± 2.99, 2.50 ± 2.93, and 1.03 ± 2.20 units at the 10th, 20th, and 30th minutes, respectively. By the 60th minute, the total VAS reduction was 25.00 ± 12.25 in the propofol group and 23.10 ± 11.40 in the chlorpromazine group. Although pain reduction initially occurred more rapidly in the chlorpromazine group, there was no statistically significant difference between the groups at the 60-minute mark.
Conclusion: Propofol was as effective as chlorpromazine for treating migraines in the ED, with a comparable onset of action and a better side-effect profile.

Keywords: Migraine Attack, Propofol, Chlorpromazine, Acute Migraine Treatment

ÖZ

Amaç: Bu çalışma, akut migren ataklarının yönetiminde propofol ve klorpromazinin etkinliğini karşılaştırmayı ve acil serviste (AS) migren tedavisinin optimize edilmesine katkıda bulunmayı amaçlamıştır.
Yöntemler: Bu prospektif, randomize gözlemsel çalışmada, yaşları 18-65 arasında değişen 180 migren hastası iki gruba randomize edildi. Bir gruba her 10 dakikada bir 10 mg (maksimum 50 mg'a kadar) propofol, diğer gruba ise her 20 dakikada bir 12.5 mg (maksimum 37.5 mg'a kadar) klorpromazin uygulandı. Ağrı, görsel analog skala (VAS) kullanılarak her 10 dakikada bir değerlendirildi.
Bulgular: Başlangıçtaki ortalama VAS skorları propofol grubunda 8,24 ± 1,72, klorpromazin grubunda ise 8,83 ± 1,43 idi. Propofol grubunda VAS skorları 10., 20. ve 30. dakikalarda sırasıyla 5,19 ± 2,79, 2,66 ± 2,91 ve 1,25 ± 2,14 birim azaldı. Klorpromazin grubunda bu azalmalar sırasıyla 4,82 ± 2,99, 2,50 ± 2,93 ve 1,03 ± 2,20 birim olarak ölçüldü. 60. dakikada toplam VAS azalması propofol grubunda 25,00 ± 12,25, klorpromazin grubunda ise 23,10 ± 11,40 olarak belirlendi ve gruplar arasında istatistiksel olarak anlamlı bir fark saptanmadı.
Sonuç: Propofol, AS'de akut migren yönetiminde klorpromazin kadar etkiliydi ve benzer bir etki başlama süresi ile daha iyi bir yan etki profili gösterdi.

Anahtar kelimeler: Migren atağı, propofol, klorpromazin, akut migren tedavisi

This study was conducted as part of a thesis at the University of Health Sciences Kartal, Dr. Lütfi Kırdar Training and Research Hospital.

Received/ Geliş Tarihi 15.11.2024
Revision request/Revizyon Talebi 26.11.2024
Accepted/Kabul Tarihi 18.12.2024
Publication Date/Yayın Tarihi 28.12.2024

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Cite this article: Saglam SS, Guneysel O. Propofol vs. Chlorpromazine for Acute Migraine Treatment: Insights from a Prospective Randomized Trial. *Atatürk Univ Fac Med J Surg Med Sci*. 2024;3 (3): 56-64

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INTRODUCTION

It is estimated that approximately 240 million people worldwide experience approximately 1.4 billion migraine attacks annually. [1] According to World Health Organization reports, migraine is ranked 25th among diseases causing labor loss. [2] In a prevalence study conducted by Stewart et al. in 1992, they detected that one out of every four people in the United States had at least one migraine attack per year. [3] While prevalence studies conducted in Turkey are useful in determining fighting strategies against migraine, the lifetime prevalence of migraine in Turkey is 16%. [4]

Headaches are broadly divided into primary and secondary types. Primary headaches include migraines, trigeminal autonomic cephalalgia, and other primary headaches, whereas secondary headaches result from distinct pathological processes or brain-independent organic disorders. [5] Migraines, often characterized by recurring similar attacks with a family history, may present with aura, which includes visual anomalies such as scintillation scotomas (flare/spark-shaped scotomas) or notched lines. [5] Complicated migraines are marked by neurological findings like hemiparesis, paresthesia, ophthalmoplegia, and aphasia. [5]

Although the pathophysiology of migraine, a theory based on neuronal events, has become prominent in recent years, no consensus has been reached regarding its pathophysiology. [6, 7] Modern imaging methods have made it possible to demonstrate that primary headaches are of structural origin. Therefore, evidence showing the association of migraine and cluster headaches with vascular dilatation and neuronal structures has increased. [6- 8]

Currently, migraine is classified into clinical practice and scientific studies according to The International Classification of Headache Disorders, 3rd edition). [5] Accordingly, the treatment of migraine, which deteriorates quality of life, begins with a correct diagnosis. After the diagnosis is made, the clinician prepares a treatment plan considering the type, character, frequency of migraine attacks, additional illnesses, and current medications of the patient. [8-10]

Pharmacological treatment for migraines may be acute or prophylactic. Acute treatment aims to decrease or stop the progression of headache after it has begun. Acute treatment drugs can be divided into two categories: migraine-specific and non-specific. Migraine-specific drugs include ergot derivatives and triptans. Medications that are not specific to migraine but are still in use include analgesics, antiemetics, anxiolytics, NSAIDs, steroids, major tranquilizers, and opiates. [11] On the other hand, prophylactic treatment aims to reduce the frequency and severity of the expected attacks, even if there is no headache at that time. Acute treatment is appropriate for most patients even if they receive prophylactic treatment. Acute treatment should not be administered more than three times per week to prevent rebound headaches. Owing to the diversity of patients presenting with migraine attacks, clinicians have difficulty choosing treatment. This study aimed to contribute to the termination of migraine attacks and the use of Propofol and Chlorpromazine in Emergency Department.

METHODS

This study was approved by the Scientific Research Evaluation and Support Committee of the University of Health Sciences Kartal Dr. Lütfi Kırdar Training and Research Hospital (Ethics Committee No: 89513307/1009/370, Date: 09.12.2014). This was a prospective, randomized, observational, single-blind study. The study population included patients admitted to the Health Sciences Kartal Dr. Lütfi Kırdar Training and Research Hospital Emergency Department between January 1 and May 1, 2015. Patients who were admitted to the emergency department with headache, who had been diagnosed with migraine, or who had a medical history and neurological examination at the time of admission, met the International Headache Society Migraine Diagnostic Criteria, and whose complaints persisted for more than 4 hours were included in this study. A flowchart of our patients is shown in Figure 1.

Inclusion criteria: Patients aged between 18-65 years and patients with moderate or severe pain despite the administration of oral non-steroidal anti-inflammatory drugs (NSAIDs) in the last two hours or 30 min after intramuscular NSAIDs (75 mg Diclofenac Sodium) were administered in our emergency department were included.

Exclusion criteria: Patients under the age of 18 or over 60 years; pregnancy or suspected pregnancy; patients who took migraine-specific 5-HT receptor agonists (triptan derivative), narcotic analgesics, or sedative medications in the last 24 hours; patients diagnosed with malignancy; patients with conditions that constitute contraindications or patients with soy allergy; and patients with any of the following vital signs (body temperature <36 °C or> 38 °C, systolic blood pressure <90 mmHg or > 150 mmHg).

Study design: Age, sex, and the presence of previous migraine diagnoses were recorded. The severity of pain at the beginning was evaluated via a 10 cm equally divided

"Visual Analogue Scale (VAS)". [1] Participants indicated the severity of pain by marking the appropriate number on the scale.

The randomization process was conducted using a computer-based random number generator to ensure unbiased group allocation. Participants were assigned to the propofol or chlorpromazine group in a 1:1 ratio. To maintain balance between the groups, stratified randomization was used based on age and sex to ensure equal distribution of these characteristics in both groups. The group assignment was concealed from the emergency department personnel by using sealed opaque envelopes, which were drawn by personnel blinded to the study.

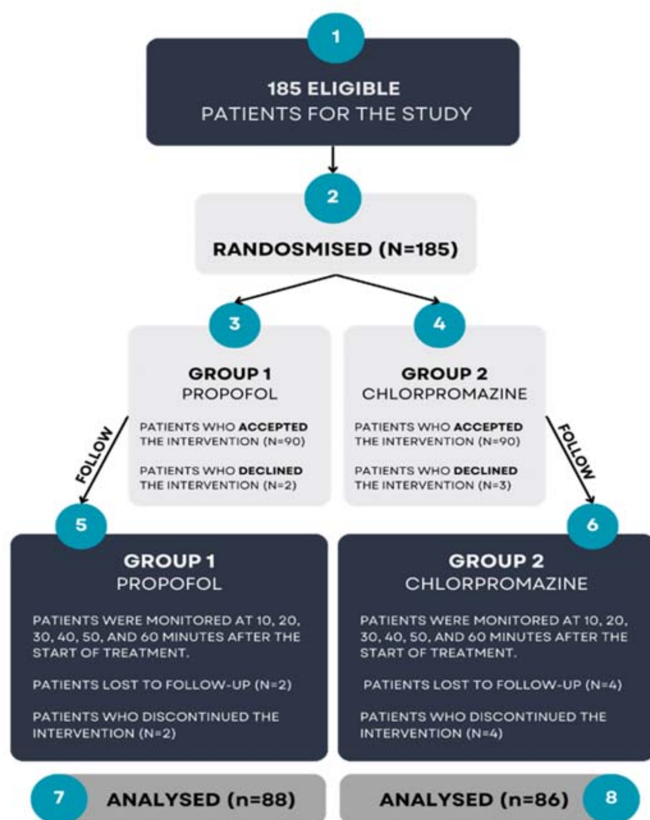

Figure 1: The Flowchart graph of the patients and study

After group allocation, the patients were placed in stretchers in the observation room, and vascular access was established using a 20-gauge catheter from the right antecubital vein in the supine position. Continuous monitoring of pulse and oxygen saturation was performed, and arterial blood pressure was measured at five-minute intervals.

In the propofol group, participants received 10 mg of intravenous propofol at 10-minute intervals, with a maximum dose not exceeding 50 mg. In the chlorpromazine group, 12.5 mg of chlorpromazine was dissolved in 20 cc of saline (0.9%) and administered intravenously over one minute at 20-minute intervals, with a maximum dose not exceeding 37.5 mg.

Study Termination Criteria Pain severity was assessed before each drug dose: In patients with a severity of two or less out of 10 points, the target was considered achieved, and the study was terminated. The study was terminated in the following situations.

1. Patients with low oxygen saturation, blood pressure, and pulse abnormalities.
2. Patients with allergic reactions, or developed akathisia, sedation or anxiety
3. Patients who do not want to continue treatment for any reason.

Participant Interests and Funding Disclosure: None of the participants in this study had any financial or personal interest related to the drugs or treatments evaluated. The study was conducted independently without any external funding or sponsorship from pharmaceutical companies or other institutions. All authors declare that they have no conflicts of interest related to the content of this manuscript.

Statistical Analysis

The NCSS (Number Cruncher Statistical System) 2007 program (Kaysville, Utah, USA) was used for statistical analysis. When evaluating study data, student's t test was used to compare quantitative data showing normal distribution as well as descriptive statistical methods (Mean, Standard Deviation, Median, Frequency, Ratio, Minimum, and Maximum) and Mann Whitney U test was used for those who did not show normal distribution. Fisher's exact test and Yates continuity correction test were used to compare the qualitative data. Statistical significance was set at *P* <.05.

RESULTS

In our study, there were 180 patients, of whom 39 (21.7%) were male and 141 (78.3%) were female. Their ages ranged from 18 to 59 years old. The mean age was 38.58 ± 10.81 years. A total of 103 (52.7%) patients were previously diagnosed with migraine by a neurologist, and 77 (42.8%) cases had an unknown diagnosis of migraine but met the criteria. In addition to headaches, nausea was present in 103 patients (57.2%), vomiting in 25 (13.9%), photophobia

in 61 (33.9%), and phonophobia in 25 (13.9%). In 50 patients (27.8%), there were additional complaints. After treatment, no side effects occurred in 115 patients (63.9%) but occurred in 65 patients (36.1%). The side effects were as follows: nausea, 2 (1.1%); vomiting, 2 (1.1%); dizziness, 37 (20.6%); hypotension, 22 (12.2%); allergic reaction, 3 (1.7%); dystonic reaction, 6 (3.3%); and sedation, 17 (9.4%). The mean age and sex distribution of the patients were not statistically different between the groups (*P* >.05). The rates of migraine diagnosis did not differ significantly between the groups (*P* >.05). The rate of comorbidities was not significantly different between groups (*P* > .05). There was no statistically significant difference between the groups in terms of success rates after treatment (*P* > .05). Statistically significant differences were detected between the groups in terms of the incidence of side effects (*P* = .044; *P* <.05). The dystonic reaction rate was significantly higher in the chlorpromazine group than in the propofol group (*P* =,029; *P* <,05). The demographic and clinical data of the patients are presented in Table 1.

The initial VAS scores in the chlorpromazine group were significantly higher than those in the propofol group (*P* = .012 and *P* < .05, respectively).
There was no statistically significant difference between the groups in terms of the VAS scores at 10th, 20th, 30th, 40th, 50th and 60th minutes (*P* > .05).
When the times, which VAS scores of cases were reduced to 2 and below, evaluated according to groups, in propofol group that time was average of 25.00 ± 12.25 minutes and in chlorpromazine group was average of 23.10 ± 11.40 minutes. There was no statistically significant difference between the two groups in terms of the reduction times of VAS to ≤ 2 (*P* > .05). Figure 2 shows the evaluation of VAS measurements during follow-up according to group and The evaluation of VAS Measurements during follow-up according to groups is shown in Table 2.

The decrease in VAS levels at 10th 30th 40th and 50th minutes in the chlorpromazine group was significantly higher than that in the propofol group (*P* < .05). The decrease in VAS levels in the chlorpromazine group at the 20th and 60th min when compared to the baseline was higher than that in the propofol group, but the difference was not significant (*P* = .076, *P* = .067; *P* > .05).

The evaluation of VAS scores during Follow-ups according to group is shown in Table 3. The distribution of the VAS changes is shown in Figure 3.

Table 1: The demographic and clinical data of the patients

Variables		Total Patients (n=180)	Propofol Group (n=90)	Chlorpromazine Group (n=90)	*P*
Age (years)		38.58±10.81	38.48±10.75	38.68±10.93	.902
Gender	Male	39 (21,7)	20 (22.2)	19 (21.1)	1.000
	Female	141 (78,3)	70 (77.8)	71 (78.9)	
Migraine Diagnosis	No	77 (42,8)	63 (70.0)	56 (62.2)	.270
	Yes	103 (52,7)	27 (30.0)	34 (37.8)	
Additional complaints	Nausea	103 (52,7)	51 (56.7)	52 (57.8)	.880
	Vomiting	25 (13,9)	10 (11.1)	15 (16.7)	.389
	Photophobia	61 (33,9)	34 (37.8)	27 (30.0)	.270
	Phonophobia	25 (13,9)	17 (18.9)	8 (8.9)	.085
	No additional complaints	50 (27,8)	23 (25.6)	27 (30.0)	.618
Side effects	No	115 (63,9)	64 (71.1)	51 (56.7)	**.044**
	Yes	65 (36,1)	26 (28.9)	39 (43.3)	
Types of side effects	Nausea	2 (1,1)	1 (1.1)	1 (1.1)	1.000
	Vomiting	2 (1,1)	2 (2.2)	0 (0.0)	.497
	Vertigo	37 (20,6)	16 (17.8)	21 (23.3)	**.461**
	Hypotension	22 (12,2)	10 (11.1)	12 (13.3)	.820
	Allergic reaction	3 (1,7)	1 (1.1)	2 (2.2)	1.000
	Dystonic reaction	6 (3,3)	0 (0.0)	6 (6.7)	**.029**
	Sedation	17(9,4)	6 (6.7)	11 (12.2)	.308

Values are presented as number (%) or mean ± standard deviation (SD). P <.05 indicates statistical significance.

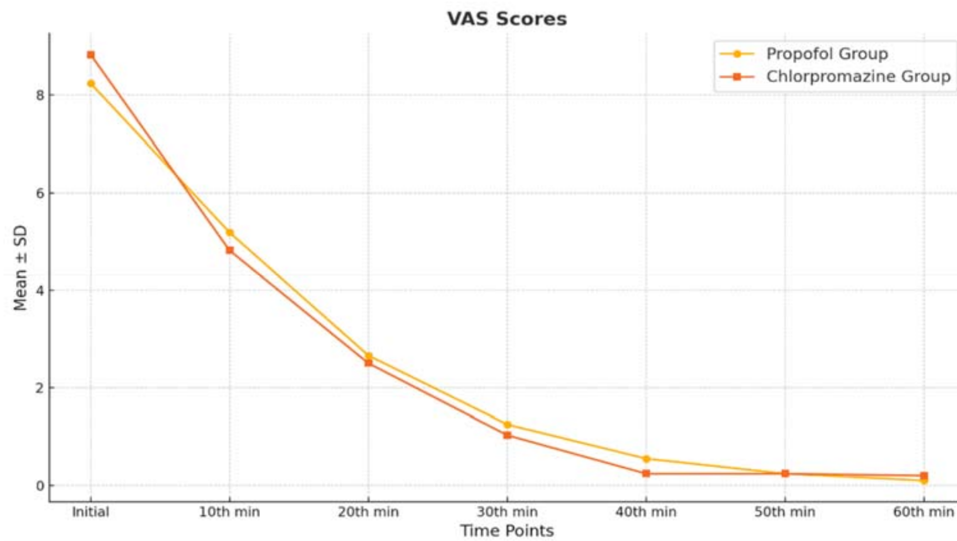

Figure 2: Evaluation of VAS measurements during follow-up according to groups

Table 2: Evaluation of VAS Measurements during Follow-up according to Groups.

		n	Propofol Group	n	Chlorpromazine Group	^{e}P
Initial	Min-Max (Median)	90	3-10 (8.00)	90	5-10 (10.00)	*.012**
	Mean ± SD		8.24±1.72		8.83±1.43	
10.min	Min-Max (Median)	90	0-10 (5.00)	90	0-10 (5.00)	*.395*
	Mean ± SD		5.19±2.79		4.82±2.99	
20.min	Min-Max (Median)	90	0-10 (1.00)	90	0-10 (1.00)	*.701*
	Mean ± SD		2.66±2.91		2.50±2.93	
30.min	Min-Max (Median)	90	0-9 (0.00)	90	0-10 (0.00)	*.455*
	Mean ± SD		1.25±2.14		1.03±2.20	
40.min	Min-Max (Median)	90	0-8 (0.00)	90	0-6 (0.00)	*.723*
	Mean ± SD		0.55±1.46		0.24±0.90	
50.min	Min-Max (Median)	90	0-6 (0.00)	90	0-10 (0.00)	*.873*
	Mean ± SD		0.24±0.90		0.24±1.28	
60.min	Min-Max (Median)	90	0-6 (0.00)	90	0-10 (0.00)	*.495*
	Mean ± SD		0.10±0.71		0.20±1.22	
VAS<2 Reach Time (min)	Min-Max (Median)	88	10-60 (20.00)	88	10-60 (20.00)	*.317*
	Mean ± SD		25.00±12.25		23.10±11.40	

^{e}MannWhitney U Test * $P<.05$

DISCUSSION

The pathophysiology of migraine is not fully understood, and as such, a single indispensable drug for acute migraine attack treatment is yet to be developed. Researchers continue to search for the “ideal medication” that can rapidly terminate migraine attacks with minimal side effects, high efficacy, low interaction potential with other drugs, and convenience for both patients and clinicians. However, it is evident that the search for such ideal medications will continue for some time.

In this study, we compared the effects of "propofol," which has gained popularity for its analgesic properties in recent years, with "chlorpromazine," a well-established option for migraine attack management. Our findings demonstrate that propofol is as effective as chlorpromazine in terminating migraine attacks. Although chlorpromazine initially provided faster relief within the first few minutes, there was no statistically significant difference between the two drugs in terms of the overall efficacy at the end of one hour. Furthermore, propofol exhibited a more favorable side effect profile than chlorpromazine, making it a safer option.[12]

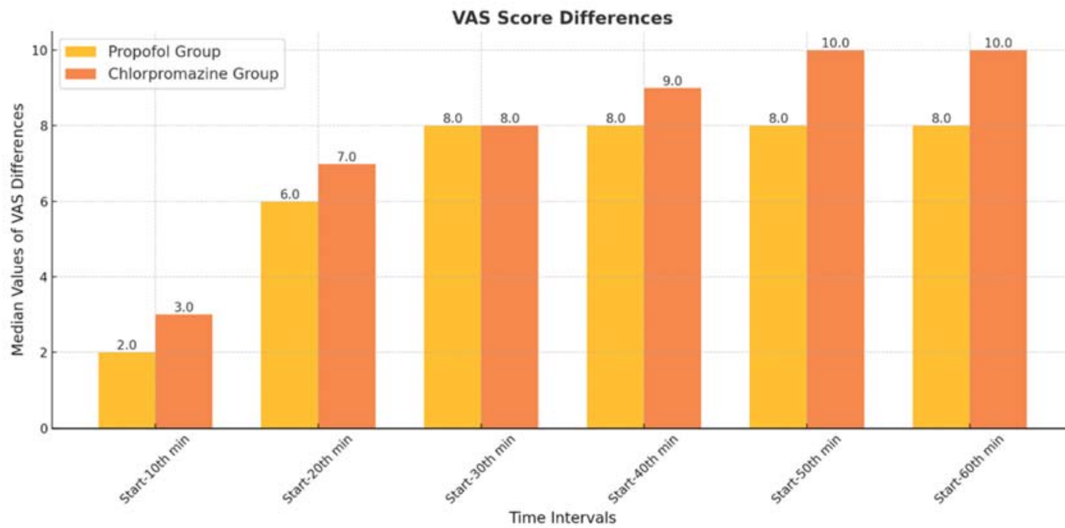

Figure3: Distribution of VAS changes

Table 3: Evaluation of VAS Levels during Follow-ups according to Groups

		Propofol Group(n=90)	Chlorpromazine Group(n=90)	^{e} *P*
Initial-10.min	Min-Max (Median)	0-9 (2.00)	-1-10 (3.00)	*0.017**
	Mean ± SD	3.06±2.45	4.01±2.90	
Initial -20.min	Min-Max (Median)	0-10 (6.00)	-1-10 (7.00)	*0.076*
	Mean ± SD	5.59±2.84	6.35±2.88	
Initial -30.min	Min-Max (Median)	0-10 (8.00)	0-10 (8.00)	*0.023**
	Mean ± SD	6.97±2.57	7.83±2.35	
Initial -40.min	Min-Max (Median)	1-10 (8.00)	0-10 (9.00)	*0.031**
	Mean ± SD	7.67±2.19	8.43±1.99	
Initial-50.min	Min-Max (Median)	3-10 (8.00)	0-10 (10.00)	*0.042**
	Mean ± SD	7.98±1.90	8.63±1.80	
Initial-60.min	Min-Max (Median)	3-10 (8.00)	0-10 (10.00)	*0.067*
	Mean ± SD	8.11±1.80	8.67±1.77	

^{e}MannWhitney U Test * P <.05

The International Headache Society recommends acetaminophen and non-steroidal anti-inflammatory drugs (NSAIDs) for mild-to-moderate migraine attacks, whereas 5-HT1 agonists (triptans) are recommended for more severe cases. [13] Given the high prevalence of migraine, numerous studies have investigated acute headache management in patients presenting to the emergency department (ED) with migraine attacks. Some studies have highlighted the importance of aggressive intravenous pain management in acute migraine attacks. [14]

In our study, the age and gender demographics in both the chlorpromazine and propofol groups were consistent with previous literature. [15-18] The first study to assess the efficacy of chlorpromazine in headache management was conducted by Iserson et al. [18] Their study, which lacked a control group, indicated that a dose of 1 mg/kg of chlorpromazine achieved the highest degree of pain relief. Ninety-six percent of the patients reported complete pain relief within the first minute, with 92% remaining pain-free for an entire day. However, 18% of patients experienced orthostatic hypotension and 11% developed symptomatic side effects. [19] Iserson's study successfully drew attention to the potential of chlorpromazine in headache relief.

Subsequent placebo-controlled studies, such as those by McEwen et al. and Bigal et al., have further investigated the efficacy of chlorpromazine. [20, 21] McEwen et al. found that 1 mg/kg intramuscular (IM) chlorpromazine was superior to imatinib in 1 mg/kg normal saline (47.4% vs. 23.5%; *P* = .18). Patients receiving chlorpromazine also had a significantly lower need for additional narcotic analgesics than those administered normal saline, although they experienced higher rates of imbalance and systolic blood pressure drops. [20] Bigal et al. demonstrated that 0.1 mg/kg intravenous (IV) chlorpromazine provided a significantly higher percentage

of complete pain relief at one hour compared to placebo, particularly in patients with aura. [22]

Studies comparing chlorpromazine to other active agents have provided relevant insights. For instance, Lane et al. reported that 0.1-0.3 mg/kg IV chlorpromazine was more effective in pain reduction than 0.4 mg/kg IV meperidine combined with 25 mg IV dimenhydrinate (70.6% vs. 44.5%; P <.05). [22] Similarly, Bell et al. found chlorpromazine to be more effective than lidocaine and dihydroergotamine in migraine management, with a headache termination rate of 79.5% compared with 50% and 36.7%, respectively (P <.05). [23] Our findings align with these results, as 96.7% of the patients in the chlorpromazine group experienced complete pain relief, a result comparable to that of Iserson et al. and exceeding the success rates reported by Bigal et al.
Chlorpromazine has a well-documented side effect profile, with common adverse effects including dizziness, hypotension, sedation, and dystonic reactions. [24, 25] In our study, dizziness and hypotension were the most frequent side effects in both the treatment groups. Although sedation and dystonic reactions were more prevalent with chlorpromazine, these adverse effects were managed with rest and isotonic fluid supplementation, and no permanent effects were observed.

The efficacy of propofol in treating migraine was initially discovered incidentally by Krusz et al. during regional anesthesia, marking a significant milestone in migraine management. [26] Since then, multiple studies have tested propofol for migraines and other headache disorders, yielding positive outcomes. The precise mechanism of action of propofol in migraine is not fully understood; however, possible mechanisms include gamma-aminobutyric acid-A (GABA-A) receptor stimulation, sympathetic activity inhibition, nitric oxide release stimulation, and N-methyl-d-aspartate receptor suppression. [26] Folkerts et al. observed in 1995 that propofol effectively terminated migraine attacks in a patient undergoing electroconvulsive therapy, further supporting its potential for migraine treatment. [27]

Following Krusz et al., subsequent studies evaluated propofol in refractory migraine cases. [14] For example, Drummond and Scher administered 1 mg/kg IV propofol to two patients and achieved significant pain relief, although airway complications required intervention. [28] Similarly, Mosier et al. observed that a single 1 mg/kg bolus of propofol significantly reduced VAS scores in four patients, with mild sedation observed in all cases. [29] These findings suggest that, although propofol administration carries some risks, it can be safely managed in an emergency setting with appropriate precautions. Ward et al. also reported positive outcomes in their Australian study, where IV propofol achieved complete pain relief in 11 of 15 patients and reduced pain in the remaining patients, who expressed satisfaction with the treatment. [30]

In our study, we adopted the dosing protocol used by Soleimanpour et al., which included administering 10 mg of IV propofol at 10-minute intervals. Similar to Soleimanpour's findings, our results showed that pain reduction with propofol was significant within the first 20 min and slowed thereafter. VAS scores decreased to 2 or lower within 25 min in the propofol group and 23 min in the chlorpromazine group, with no statistically significant difference between the groups.

Our findings support propofol as an effective alternative to chlorpromazine for migraine management in the ED, with a more favorable side-effect profile. Although further studies are necessary to refine dosing and monitor safety, the unique mechanism of action and rapid efficacy of propofol suggest that it may play an increasingly important role in migraine management.

Our study has certain limitations that should be considered when interpreting the results. First, the sample size was relatively small and drawn from a single center, which may limit the generalizability of the findings to broader populations. Second, the study was conducted in an emergency department setting, and the findings may not fully reflect the outcomes in other clinical environments, such as primary care or specialized migraine clinics. Third, while randomization and stratification were employed to reduce potential biases, the possibility of residual confounding cannot be completely excluded. Finally, the self-reported nature of the Visual Analogue Scale (VAS) for pain assessment introduces a subjective component that might affect the reliability of pain measurements. Future studies involving larger sample sizes and multi-center designs are warranted to validate these findings and provide more robust and generalizable conclusions.

CONCLUSION

In our study, chlorpromazine maintained its current position as an effective treatment option for migraine attacks, in accordance with the literature. However, although the guidelines still do not include propofol in attack treatment, it has been found that propofol reduces headache quickly, effectively, and has a low side-effect profile, as similar studies have indicated. When compared

to chlorpromazine, the effect of propofol started statistically significantly later, but there was no significant delay in clinical and patient expectations. Propofol reaches this goal within 25 minutes. We believe that propofol can be used safely in the treatment of migraine and headache in emergency departments and pain centers

Ethics Committee Approval: This study was approved by the Scientific Research Evaluation and Support Committee of the University of Health Sciences Kartal Dr. Lütfi Kırdar Training and Research Hospital (Ethics Committee No: 89513307/1009/370, Date: 09.12.2014).
Informed Consent: Written informed consent was obtained from all participants after providing information about the study. Voluntary participation was emphasized, and patients who declined to participate were excluded from the study.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept – SSS; Design – SSS; Supervision – OG; Resources – SSS; Data Collection and/or Processing – SSS; Analysis and/or Interpretation – OG; Literature Search – SSS; Writing Manuscript – SSS; Critical Review – OG.
Conflict of Interest: The authors have no conflicts of interest to declare.
Financial Disclosure: The authors declared that this study has received no financial support.

Etik Komite Onayı: Çalışmamız Sağlık Bilimleri Üniversitesi Kartal Dr. Lütfi Kırdar Eğitim ve Araştırma Hastanesi Bilimsel Araştırma Değerlendirme ve Destekleme Kurulu tarafından onaylanmıştır (Etik Kurul No: 89513307/1009/370, Tarih: 09.12.2014).
Hasta Onamı: Written informed consent was obtained from all participants after providing information about the study. Voluntary participation was emphasized, and patients who declined to participate were excluded from the study.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir- SSS; Tasarım-SSS; Denetleme-OG; Kaynaklar-SSS; Veri Toplanması ve/veya İşlemesi-SSS; Analiz ve/ veya Yorum-OG; Literatür-SSS; Yazıyı Yazan-SSS: Eleştirel İnceleme-OG:
Çıkar Çatışması: Yazarlar, çıkar çatışması olmadığını beyan etmiştir.
Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

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ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

RESEARCH ARTICLE / *Araştırma Makalesi* DOI: 10.61745/jsmsau.1585055

Retrospective Evaluation of Central Venous Catheters Applications in Pediatric Patients in Tertiary Hospital

Üçüncü Basamak Hastanede Pediatrik Hastalarda Santral Venöz Kateter Uygulamalarının Retrospektif Değerlendirilmesi

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Received / Geliş Tarihi 14.11.2024
Revision request / Revizyon Talebi 27.11.2024
Accepted / Kabul Tarihi 18.12.2024
Publication Date / Yayın Tarihi 28.12.2024

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Cite this article: Doymus O, Bagbancı O, Orbak MS, et al. Retrospective Evaluation of Central Venous Catheters Applications in Pediatric Patients in Tertiary Hospital Atatürk *Univ Fac Med J Surg Med Sci*. 2024;3 (3): 65-70

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ABSTRACT

Objective: Central venous catheters are mainly used for safe fluid infusion, total parenteral nutrition, and evaluation of hemodynamic parameters. Complications related to central venous access can occur during insertion, after insertion or during catheter maintenance. The aim of this study was to investigate the demographic data and the presence of catheter-related complications in pediatric patients with central venous catheters in our hospital.
Methods: This study retrospectively reviewed demographic data and the presence of catheter-related complications in pediatric patients with central venous catheters in our hospital from June 1, 2019, to February 28, 2023.
Results: Patients who underwent central venous catheterisation in our hospital between June 2020 and February 2023 were included in the study. When the demographic data of the patients were evaluated, 141 (57.8%) of our patients were male and 103 (42.2%) were female, and there was no statistically significant difference between the groups. In the femoral group, catheterisation of the right femoral vein was preferred more than the left vein (72.2%-27.7%), whereas in the jugular-subclavian group, the right internal jugular vein was preferred more than other sites. The risk of infection was statistically higher in the femoral group compared to the subclavian group.
Conclusion: In clinical practice, we think that the risk of complications can be reduced in central venous catheter applications in pediatric patients by experienced personnel by complying with asepsis/antisepsis conditions and using appropriate imaging devices.

Keywords: Central venous catheter, pediatric, complication

ÖZ

Amaç: Santral venöz kateterler esas olarak güvenli sıvı infüzyonu, total parenteral beslenme ve hemodinamik parametrelerin değerlendirilmesi için kullanılır. Santral venöz erişimle ilgili komplikasyonlar yerleştirme sırasında, yerleştirmeden sonra veya kateter bakımı sırasında ortaya çıkabilir. Bu çalışmanın amacı hastanemizde santral venöz kateterli pediatrik hastalarda demografik verileri ve kateterle ilişkili komplikasyonların varlığını araştırmaktır.
Yöntemler: Bu çalışmada 1 Haziran 2019 ile 28 Şubat 2023 tarihleri arasında hastanemizde santral venöz kateterli pediatrik hastalarda demografik veriler ve kateterle ilişkili komplikasyonların varlığı retrospektif olarak incelenmiştir.
Bulgular: Haziran 2020 ile Şubat 2023 tarihleri arasında hastanemizde santral venöz kateterizasyon uygulanan hastalar çalışmaya dahil edildi. Hastaların demografik verileri değerlendirildiğinde hastalarımızın 141'i (%57,8) erkek, 103'ü (%42,2) kadındı ve gruplar arasında istatistiksel olarak anlamlı bir fark yoktu. Femoral grupta, sağ femoral ven kateterizasyonu sol venden daha fazla tercih edildi (%72,2-%27,7), juguler-subklavian grubunda ise sağ internal juguler ven diğer bölgelere göre daha fazla tercih edildi. Enfeksiyon riski femoral grupta subklavian gruba göre istatistiksel olarak daha yüksekti.
Sonuç: Klinik pratikte, deneyimli personel tarafından asepsi/antisepsi koşullarına uyularak ve uygun görüntüleme cihazları kullanılarak pediatrik hastalarda santral venöz kateter uygulamalarında komplikasyon riskinin azaltılabileceğini düşünüyoruz.

Anahtar kelimeler: Santral venöz kateter, pediatrik, komplikasyon

INTRODUCTION

Central venous catheters are mainly used for safe fluid infusion, renal replacement therapy, total parenteral nutrition, administration of potentially irritating drugs and evaluation of hemodynamic parameters. Central venous cannulation in babies poses challenges due to their diminutive size and is linked to heightened morbidity. Central venous access in children can be achieved via the internal jugular vein, subclavian vein, or femoral vein. [1,2]

Complications related to central venous access may occur during insertion, after insertion, or during catheter care. These include catheter-related infections, pneumothorax, venous air embolism, guidewire embolism or retention, vascular injury, thrombotic events, carotid artery puncture, airway obstruction by hematoma, damage to surrounding structures, retroperitoneal hematoma, azygos cannulation, catheter misposition. [3] The positioning of the catheter tip is crucial to reduce catheter-related problems. The optimal position for the catheter tip in subclavian and internal jugular vein placements is the distal third of the superior vena cava (SVC). This posture is thought to reduce the likelihood of problems during clinical use, including vascular perforation, venous thrombosis, catheter dysfunction, and cranial retrograde injection. [4]

Utilizing ultrasonography during catheter installation lowers the frequency of interventions and mechanical difficulties relative to normal procedures, and is endorsed by guidelines. Two-dimensional ultrasonography is preferred over Doppler ultrasound, and the catheter insertion site may differ based on anatomical considerations, complication concerns, the availability and usefulness of bedside ultrasound, and the expertise of the catheter inserter. [5]

The aim of this study was to investigate the demographic data and the presence of catheter-related complications in pediatric patients with central venous catheters in tertiary hospital.

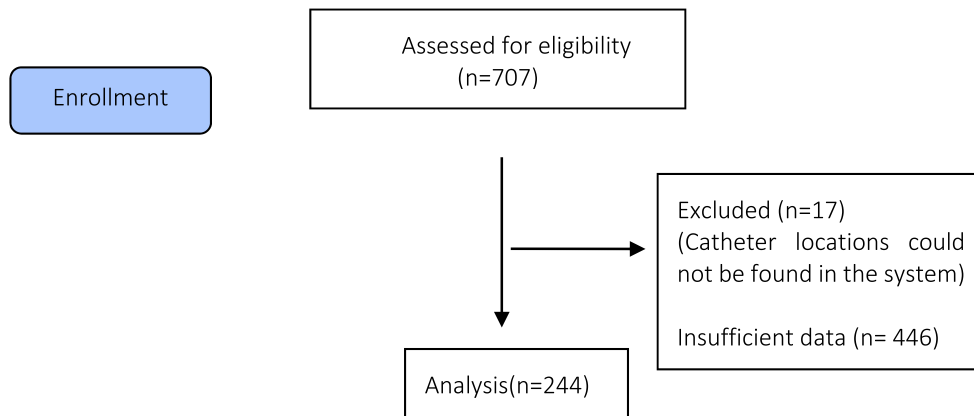

Figure 1: CONSORT Diagram.

METHODS

The ethical approval for our study was obtained in the Atatürk University Clinical Research Ethics Evaluation Committee’s Clinical Research Meeting No: Resolution No:64, dated 26.01.2023. After ethics committee approval, catheters inserted in pediatric patients treated in Erzurum City Hospital between 01.06.2019-28.02.2023 were retrospectively analyzed. A list of patients with femoral vein catheterization (F) and subclavian-jugular (SJ) vein catheterization codes was obtained from the hospital data system. Demographic data of the patients were noted from the hospital data system. During this period, catheters were inserted in 707 patients and patients with duplicate data, missing data and patients with missing data in their files were excluded from the study. In total, 244 catheters inserted in 165 patients were included in the study. Catheters were grouped as femoral vein catheterization and subclavian-jugular vein catheterization according to the hospital data system code. The catheter sites were then specified as right femoral, left femoral, right subclavian, left subclavian, right internal jugular, and left internal jugular veins according to the patients' control radiographs and consultation notes. The presence of a catheter infection was detected in the hospital data system on the basis of consultation notes and the results of culture growth. Catheter-related complications were identified and grouped from consultation notes in the hospital data system.

Statistical Analysis

For statistical analyses, SPSS.22 software package (IBM SPSS Corp. Armonk, NY, USA) was used. Numerical data

were presented as mean and standard deviation, categorical data were presented as numbers and percentages. If conditions for parametric analysis were met when analyzing numerical data and intergroup differences, Independent Samples T-test was used, if not, Mann-Whitney U test was used, and when analyzing categorical data, chi-square test was used. A *P*<.05 was considered statistically significant.

RESULTS

Patients who underwent central venous catheterisation in our hospital between May 2020 and March 2023 were included in the study. When the demographic data of the patients were evaluated, 141 (57.8%) of our patients were male and 103 (42.2%) were female, and there was no statistically significant difference between the groups (*P*>.05). When the incidence of complications between the groups was evaluated in terms of catheter infection, no statistically significant difference was observed (*P*>.05) (Table 1). In the femoral group, catheterisation of the right femoral vein was preferred more than the left vein (72.2%-27.7%), whereas in the jugular-subclavian group, the right internal jugular vein was preferred more than other sites (Table 2). The risk of infection was statistically higher in the femoral group compared to the subclavian group (*P*<.05). (Table 3).

Table 1: Demographic Data and Catheter Location

		Femoral (n=65)	Juguler-Subclavian (n=179)	*P*
Age		1.66 ± 3.75	2.65 ± 4.53	.281[a]
Gender	F	40	101	.558[b]
	M	25	78	
Catheter İnfection	Yes (n / %)	13 (20%)	22 (12.3%)	.149[b]
	No (n / %)	52 (80%)	157(87.7%)	

Values are expressed as a mean ± standard deviation (SD), number and percentage (%),
[a] Mann-Whitney U test,
[b] Pearson's chi-squared test

Table 2: Detailed Examination of Catheter Sites

	Femoral (n=65)	Juguler-Subclavian (n=179)	*P*
Right Juguler Vein	0 (0.0%)	136 (76.0%)	.000[a]
Left Juguler Vein	0 (0.0%)	36 (20.1%)	
Right Femoral Vein	47 (72.3%)	0 (0.0%)	
Left Femoral Vein	18 (27.7%)	0 (0.0%)	
Right Subclavian Vein	0 (0.0%)	2 (1.1%)	
Left Subclavian Vein	0 (0.0%)	5 (2.8%)	

Values are expressed as a percentage (%),

DISCUSSION

This study demonstrated that catheter infection rates were lower than those reported in the literature. Furthermore, the utilization of ultrasound guidance in clinical practice significantly influenced the choice of catheter insertion site.

In neonatal and paediatric patients, providing stable venous access for blood collection, fluid replacement, intravenous drug administration and parenteral nutrition in the medium to long term remains a significant challenge. Appropriate intravenous access in this patient group is a critical factor in the care and treatment management process. In this context, peripherally placed central catheters are one of the main alternatives that can be effectively implemented. [6] In a recent large-scale study conducted in our country, 885 paediatric central venous catheter (CVC) applications were performed in a study in which 6-year experiences were shared and the most common indication (28.4%) was reported as providing venous access for multiple drug infusion. [7]

It has been shown that the age of the paediatric patient affects cannulation success. Accordingly, cannulation success decreases in younger children. [8] Similarly, the mean

age of the patients in our study was 2.38±4.35 and the unsuccessful application was found in 5 patients. CVC can be performed via various routes, including the jugular, subclavian and femoral veins. Each anatomical site carries its own risks. [9] In our study, the jugular region was more frequently preferred as the anatomical region. We prefer the jugular veins in daily practice because of easy visualisation of the jugular veins by USG and anatomically easier access.

Complications during catheterisation, which we frequently use in clinical practice, may adversely affect the treatment processes of patients and therefore require a very careful approach. [10] These risks include both mechanical and infectious risks. The most common complications of CVC include arterial puncture, vessel perforation, pneumothorax, thrombosis, catheter misdirection and catheter-associated bloodstream infection. [11] In particular, the small size of paediatric vessels compared to adults increases the risk of complications and leads to repeated attempts. [12] Therefore, a careful approach is required in central catheter applications in the neonatal and paediatric age group. The experience of the practitioner is also important. [13]

Table 3: Complications of Catheters

	Femoral (n=65)	Juguler-Subclavian (n=179)	*P*
None	52 (80%)	153 (85.5%)	<.05[a]
İnfection	10 (15.4%)	20 (11.2%)	
Catheter Blockage	1 (1.5%)	0 (0.0%)	
Malposition	0 (0.0%)	5 (2.8%)	
Thrombosis	2 (3.1%)	0 (0.0%)	
Guide Knotting	0 (0.0%)	1 (0.6%)	

Values are expressed as a percentage (%),
[a] Pearson's chi-squared test

The likelihood of pneumothorax and arterial puncture is diminished with catheter insertion into the internal jugular vein compared to the subclavian vein. Research in adult patients indicates that the right internal jugular vein is broader than the left and is positioned nearer to the dermis. [14] The right internal jugular vein is favored in our hospital due to the prevalence of right-handed practitioners, its more direct connection to the superior vena cava relative to the left internal jugular vein, and its improved accessibility for right-handed individuals.

Nowadays, ultrasound-guided CVC application provides better visualisation of anatomical structures and the possibility of complications is significantly reduced. [10] One of the complications that may occur during CVC application is the development of pneumothorax. A recent study of 137 patients reported a pneumothorax rate of 1.5%. [15] In a similar study, pneumothorax was reported in 4 out of 257 USG-guided CVC applications. [16] In our study, the CVC practitioners were anaesthesiologists, paediatric intensive care unit specialists and paediatric cardiovascular surgeons, all of whom had at least 5 years of experience. No pneumothorax developed in any patient. The reason for this is that although CVC is performed by experienced practitioners, USG-guided access clearly shows the anatomical structures and reduces the complication rate. One of the acute complications of CVC is catheter-related infection. USA data show that catheter-associated infections in neonates and children are associated with increased mortality, prolonged hospitalization and higher costs. [17] An incidence rate between 16.4% and 28.8% has been reported in the literature. [18] In our study, the infection rate was found to be 14.3%. This low rate was due to the fact that asepsis and antisepsis rules were followed during the procedure and the catheter stay was kept short. In our institution, infection prevention measures mandate the review of potential infection sources, with stringent controls implemented according to established guidelines. Upon the cessation of necessity for central venous catheters, they are promptly extracted, and treatments proceed through peripheral intravenous pathways. We assert that this condition renders our infection rate compatible with the literature. An important problem in paediatric patients is catheter-related thrombosis. It has been shown that thrombosis rates associated with CVC are high. [19,20] In our study, thrombosis was observed in 2 of the applications. We think that this may be related to mechanisms such as damage to the vessels during catheter insertion and obstruction of blood flow during and after the procedure

In clinical practice, we think that the risk of complications can be reduced in central venous catheter applications in pediatric patients by experienced personnel by complying with asepsis/antisepsis conditions and using appropriate

imaging devices.

Limitations of the Study

Weight and height data for all patients were not available in the hospital data system. Therefore, these data could not be included in the study. Our investigation was a single-center, retrospective study, which constrained the patient population. A further constraint was our inability to ascertain the lumen number of the catheters from the system.

Ethics Committee Approval: The ethical approval for our study was obtained in the Atatürk University Clinical Research Ethics Evaluation Committee’s Clinical Research Meeting No: Resolution No:64, dated 26.01.2023.
Informed Consent: Approval was granted by the hospital management to access and utilize patient data for this retrospective investigation.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept – ÖD; Design- ÖD; Supervision- ÖD; Resources- ÖD,OB,MSB,AAK,FA,ZB,ST,SE,PA,İHT; Data Collection and/or Processing- ÖD,OB,MSB,AAK,FA,ZB,ST,SE,PA,İHT; Analysis and/or Interpretation- ÖD,OB,MSB,AAK,FA,ZB,ST,SE,PA,İHT; Literature Search- ÖD, PA; Writing Manuscript- ÖD,PA; Critical Review- ÖD,PA
Conflict of Interest: The authors affirm that there are no possible conflicts of interest with the research, writing, and/or publication of this paper. The final manuscript was read and approved by all writers.
Financial Disclosure: This research did not get any dedicated support from public, commercial, or not-for-profit organisations.

Etik Komite Onayı: Etik kurul onayı Atatürk Üniversitesi Tıp Faküktesi Klinik Araştırmalar Etik Kurulundan alınmıştır (Tarih: 24.06.2021, Sayı:2021/05-37)
Hasta Onamı: Hastane yönetimi tarafından bu retrospektif araştırmada hasta verilerine erişim ve kullanım izni verilmiştir.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir- ÖD ;Tasarım- ÖD; Denetleme- ÖD; Kaynaklar- ÖD,OB,MSB,AAK,FA,ZB,ST,SE,PA,İHT; Veri Toplanması ve/veya İşlemesi- ÖD,OB,MSB,AAK,FA,ZB,ST,SE,PA,İHT; Analiz ve/ veya Yorum- ÖD,OB,MSB,AAK,FA,ZB,ST,SE,PA,İHT; Literatür; ÖD, PA; Yazıyı Yazan- ÖD,PA; Eleştirel İnceleme- ÖD,PA.
Çıkar Çatışması: Yazarlar, bu makalenin araştırılması, yazılması ve/veya yayınlanmasıyla ilgili olası bir çıkar çatışması olmadığını teyit etmektedir. Metin tüm yazarlar tarafından okundu ve onaylandı
Finansal Destek: Bu araştırma kamu, ticari veya kâr amacı gütmeyen kuruluşlardan özel bir destek almamıştır.

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RESEARCH ARTICLE / *Araştırma makalesi* DOI: 10.61745/jsmsau.1540065

Challenges and Opportunities in Orthopedics: Do Experiences of Male and Female Surgeons Differ Vastly?

Ortopedide Zorluklar ve Fırsatlar: Kadın ve Erkek Cerrahların Deneyimleri Farklı mı?

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ABSTRACT

Objective: Although women comprise nearly half of medical school graduates globally, female orthopedic surgeons in many countries, including Turkey, represent less than 10% of all orthopedists. However, the number of female orthopedic residents is increasing in Turkey. The aim of this cross-sectional study was to assess and compare the experiences of female orthopedic surgeons in Turkey with their male counterparts, focusing on workplace challenges and surgical inclinations.

Methods: A survey was conducted among 110 age-matched orthopedic surgeons (54 females, 56 males). Of the 81 female orthopedic surgeons in Turkey, 54 participated in the study. The demographic data, career satisfaction, experiences of mobbing, surgical interests, and dynamics with colleagues were examined. Ethical approval was obtained.

Results: The study included residents and specialists with a mean age of 35.08±8.94 years. The largest pre-residency prejudice for women was mobbing, while for men, it was long working hours (*P* =.001). The most significant challenge for both genders halfway through residency was long working hours (*P* =.453). Women reported higher career satisfaction (67.4%) compared to men (58.9%). No significant difference was found between the genders in respect of the incidence of experiencing mobbing at least once in their professional lives (*P* = .714)

Conclusion: Mobbing is a significant issue, particularly for women in surgery, although long working hours affect both genders the most. However, the female surgeons reported experiencing more prejudice from colleagues than was reported by men, highlighting the importance of gender equity in the workplace.

Keywords: Women in orthopedics, gender-based discrimination, orthopedic residency, mobbing, minority challenges

ÖZ

Amaç: Kadınlar, dünya genelinde tıp fakültesi mezunlarının neredeyse yarısını oluştursa da Türkiye dahil birçok ülkede kadın ortopedistler, tüm ortopedistlerin %10'undan azını teşkil etmektedir. Ancak, son yıllarda Türkiye'de kadın ortopedi asistanlarının sayısında artış gözlenmektedir. Bu kesitsel çalışma, Türkiye'deki kadın ortopedistlerin deneyimlerini, iş yerinde karşılaştıkları zorlukları ve cerrahi eğilimlerini erkek meslektaşlarıyla karşılaştırmayı amaçlamaktadır.

Yöntemler: Yaşça eşleştirilmiş 110 ortopedist (54 kadın,56 erkek) üzerinde bir anket uygulandı. Türkiye'deki 81 kadın ortopedi cerrahından 54'ü çalışmaya katılmayı kabul etti. Demografik özellikler, kariyer memnuniyeti, mobbing deneyimleri, cerrahi ilgi alanları ve meslektaşlarla olan dinamikleri değerlendirildi. Çalışma için etik kurul onamı alındı.

Bulgular: Örneklem, ortalama yaşı 35.08±8.94 olan asistan ve uzmanları içermektedir. Kadınlar için asistanlık öncesindeki en büyük önyargı mobbing iken, erkekler için uzun çalışma saatleri olmuştur(*P*=.001). Asistanlık sürecinin sonunda her iki cinsiyet için en büyük zorluk uzun çalışma saatleri olmuştur (P =.453). Kadınlar, erkeklere göre daha yüksek kariyer memnuniyeti bildirmiştir (%67.4, %58.9). Mesleki yaşamlarında en az bir kez mobbinge maruz kalma oranı açısından cinsiyetler arasında anlamlı fark bulunmamıştır (*P* =.714).

Sonuç: Mobbing, özellikle kadınlar için önemli bir sorun oluşturmaktayken, uzun çalışma saatleri her iki cinsiyeti de etkilemektedir. Buna karşın kadınlar, işyerinde cinsiyet eşitliğinin önemini ortaya koyan bir biçimde, meslektaşları tarafından daha fazla önyargıya maruz kalmıştır.

Anahtar kelimeler: Ortopedide kadınlar, cinsiyet temelli ayrımcılık, ortopedi asistanlığı, mobbing, azınlıkların zorlukları

Received/ Geliş Tarihi	01.09.2024
Revision request/Revizyon Talebi	02.11.2024
Last Revision request/Son Revizyon Talebi	20.11.2024
Accepted/Kabul Tarihi	14.12.2024
Publication Date/Yayın Tarihi	28.12.2024

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Cite this article: Tufan E, Sahbat Y, Tokmak B, Demirel E. Challenges and Opportunities in Orthopedics: Do Experiences of Male and Female Surgeons Differ Vastly? *Atatürk Univ Fac Med J Surg Med Sci*. 2024;3 (3): 71-80

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INTRODUCTION

Orthopedics and Traumatology is known within the medical community as a male-dominated specialty, and the number of women in orthopedic surgery is considerably low both in Turkey and around the world. [1] Although an average of 50% of medical school graduates worldwide are women, female orthopedists in many countries account for less than 10% of all orthopedists. [2] However, it has been reported that the number of women in orthopedics has increased over the past decade, and it has also been observed that they are publishing an increasing number of studies in orthopedic journals. [3,4]

The first female orthopedist in Turkey, Zahide Şefik, completed her residency at Istanbul Faculty of Medicine in 1932. While the number of female orthopedists in Turkey was 16 in 2010, today it has reached 81 according to the data obtained from the Ministry of Health in January 2024. Considering that nearly half of these 81 female orthopedists are assistant doctors, it can be inferred that orthopedics has become more attractive to women, especially in the last five years.[3]

There are studies in the global literature that feature the experiences and challenges faced by female orthopedic surgeons. [5-8] In Turkey, although some studies involving surgical specialties throw light on the gender disparities in the workplace [8-10], despite the significant increase in the number of female orthopedic surgeons, there are no recent studies exploring their experiences in the last decade.

The aim of this case-control study was to investigate the challenges and prejudices faced by women in orthopedics in their professional lives, in comparison to their male counterparts. The prejudices and obstacles to be overcome to make orthopedic residency training more attractive to female physicians were explored, addressing concerns such as mobbing, the amount of physical strength required, long working hours, and professional difficulties both during and after residency.[10-12]

METHODS

The study was conducted between November 10, 2023, and December 20, 2023, in accordance with the Declaration of Helsinki, and ethical approval was obtained from the Ethics Committee of the University of Health Sciences Erzurum University Medical Faculty (08.11.2023/07-85).

A survey was conducted with 110 age-matched physicians (54 females and 56 males) who were working as residents, attending physicians, and academics in Orthopedics and Traumatology in Turkey. Of the 81 female orthopedic surgeons in Turkey, 79 were contacted, and 54 agreed to participate in the study. Two physicians could not be reached, and 25 physicians declined to participate in the study for personal reasons. A total of 56 age-matched male physicians were selected from five different hospitals in five different cities in Turkey (Istanbul, Ankara, Bursa Eskişehir, Erzurum). All the male physicians who were contacted agreed to participate in the study. Physicians of foreign nationality or Turkish citizen doctors working in other countries were not included in the study. The reason for this was that there were no foreign physicians among the female orthopedic surgeons, and physicians working in different countries would not accurately reflect the work environment in Turkey.

Data Collection

The 14-question survey was newly developed for this study. (Table 1) The survey was administered through digital forms via WhatsApp or e-mail. All doctors had access to the Internet, and reported no problems in the process of completing the survey. Verbal and/or written informed consent was obtained from all the study participants. Privacy and data confidentiality were maintained through the participants completing the forms anonymously, with each being assigned a number. One researcher conducted interviews with the participants, and another researcher checked the anonymous forms for accuracy and completeness.

Survey Questions

The questionnaire included six demographic questions to determine age, marital status, and years of working experience in different kinds of facilities. Questions were also asked about the specific fields of orthopedic surgery the participants were interested in and what they found the most challenging.

The concept of mobbing was initially introduced to the literature by pedagogical psychologist Heinz Leymann in the late 1980s4, defining it as “behavioral and emotional attacks in the workplace by colleagues of any rank, aiming to inflict psychological harm for various reasons.”.

Table 1: The Survey Questions

Section	Question Number	Question	Possible Answers / Notes
A	1	The hospital you work in	University/Teaching Hospital/State Hospital/Private
A	2	Are you a Resident / Specialist?	Resident / Specialist
A	2a	How many years have you been in your profession, starting from your residency?	Number of years
A	3	Age	Age in years
A	4	Marital Status	Marital status
A	5	Your area of special interest?	Pediatrics, Trauma, Spine, Tumor, Sports Surgery, Arthroplasty, Hand Surgery (Select All That Apply)
A	6	The area you find most challenging in surgery?	Pediatric, Trauma, Spine, Tumor, Sports Surgery, Arthroplasty, Hand Surgery (Select All That Apply)
B	1	What was your biggest fear or prejudice before starting your specialization?	Mobbing, Lack of physical strength, Family life, Inability to adapt, Long working hours
B	2	What was the biggest challenge during the specialization or in the first 2.5 years?	Mobbing, Lack of physical strength, Family life, Inability to adapt, Long working hours
B	3	Did you have a role model when choosing orthopedics? If yes, was it a woman/man?	Yes/No, Woman/Man if yes
B	4	How important do you think physical strength is in orthopedic surgery?	Rate from 1-5. 1 being not important, 5 being very important
B	5	Which working group did you find most challenging in your professional life?	Senior resident team, Academics, Specialists, Nurses, Hospital staff (select all that apply)
B	6	Do you think you have been subjected to mobbing at any point in your professional life?	Yes/No
B	7	What is your current level of satisfaction and regret in your professional life?	1: very regretful, 2: regretful, 3: so-so, 4: satisfied, 5: very satisfied
B	8	What is your score out of 100 regarding question 7?	0: not satisfied at all – 100: very satisfied

Mobbing impacts not only the victim's work life but also their workplace and society at large and is recognized as a widespread issue with serious consequences. The International Labor Organization identifies mobbing as one of the major challenges in the workplace. [5-12] In the assessment of mobbing in this study, the definition given by Leynmann [4-13] in 1990 was used.

Other questions were directed to find out what prejudices the participants had before working in orthopedics and how they evaluated their experience after 2.5 years or at the end of residency training. (Table 1) The 2.5-year criterion has been used for the determination of senior resident doctors as it constitutes half of the training period.

The attitudes of other surgeons, nurses, and hospital staff towards the participants were questioned, and participants also rated their overall job satisfaction. The satisfaction rate was assessed with scores ranging from 0 to 100, where 0 was labeled as not satisfied at all and 100 as very satisfied.

Statistical Analysis

For statistical analyses, IBM SPSS Statistics 26 (IBM SPSS Corp. Armonk, NY, USA) software was utilized. Descriptive statistical values such as mean, standard deviation, median, frequency, ratio, minimum, and maximum were employed when evaluating the study data. The conformity of quantitative data to normal distribution was assessed using the Kolmogorov-Smirnov test, Shapiro-Wilk test, skewness-kurtosis tests, and graphical methods.

For the comparison of quantitative data exhibiting normal distribution between two groups, such as the age of

the participants, the Independent Samples t-test was used, and the Mann-Whitney U-test was applied to data not showing normal distribution, such as marital status, the number of children and experience of mobbing. For comparisons among three or more groups showing normal distribution, the One-way ANOVA test was used, and for those not showing normal distribution such as career satisfaction levels, the Kruskal-Wallis test was applied. Qualitative data such as the workplace, working position and surgical subspecialties of interest, were analyzed using the Pearson Chi-Square test, Fisher Freeman Halton Exact test, and Fisher's Exact test. The level of statistical significance was accepted as *P* <.05.

RESULTS

The study included a total of 110 orthopedic residents and attending physicians, comprising 54 females (49.1%) and 56 males (50.9%) with an average age of 35.08±8.94 years (range 25-60 years). No statistically significant difference was found in the ages of physicians according to gender (*P* >.05). Of the whole group, 26 females (48,1%) and 28 males (50%) were undertaking residency, and the rest of the participants were specialist orthopedic surgeons. The duration of working experience in the field was mean 11.17 years for women and 7.04 years for men. The demographic information is presented in Table 2.

The largest prejudice pre-residency for female physicians was mobbing, while for male physicians, it was the long working hours (*P* =.001). (Figure 1) For both genders, the greatest difficulty experienced halfway through their residency was the long working hours (*P* =.453). (Figure 2). Before choosing the specialty of orthopedics, 55.6% of female physicians and 37.5% of male physicians had a role model (*P* =.058). Of the female physicians, 40% had female role models, while 100% of the male physicians had male role models (*P* =.001). Occupational challenges are presented in Table 3.

For both groups, the area of greatest interest was trauma, and the area that presented the greatest challenge was vertebral surgery. (Figure 3) For males, the rates of interest in arthroplasty, and for female's interest in pediatrics and hand surgery were significantly higher (*P* =.001, *P* =.005, *P* =.082, respectively). Males were determined to be more likely to identify hand surgery as a challenging field of surgery (*P* <.01). (Figure 4)

Table 2: Evaluation of Demographic Characteristics by Gender

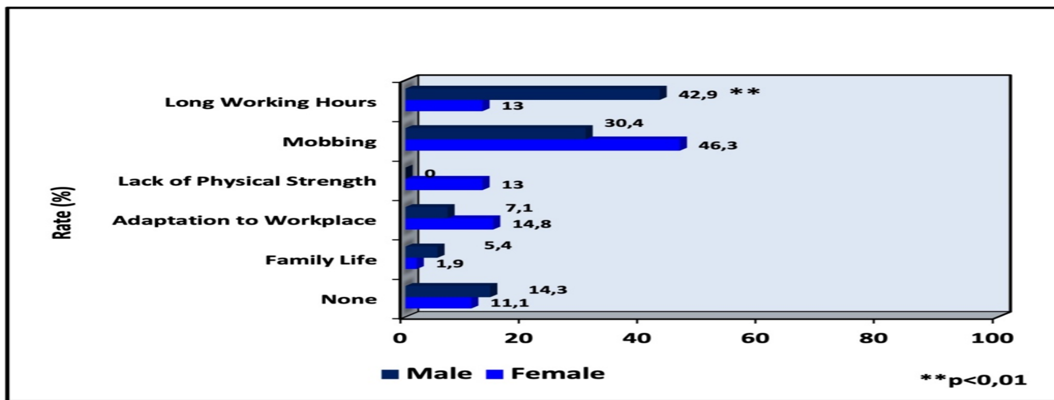
		Gender		*P*
		Female (n=54)	Male (n=56)	
		n (%)	n (%)	
Demographics				
Age (years)	Median (Min-Max)	35 (25-60)	32 (26-45)	.053 [a]
	Mean±Sd	37.00±11.24	33.23±5.42	
Marital Status	Single	31 (57.4)	19 (33.9)	.013 [b]
	Married	23 (42.6)	37 (66.1)	
Occupational Characteristics				
Workplace	State Hospital	10 (18.5)	9 (16.1)	·121 [b]
	Teaching Hospital	16 (29.6)	19 (33.9)	
	University Hospital	19 (35.2)	26 (46.4)	
	Private Clinic	9 (16.7)	2 (3.6)	
Position at the Workplace	Assistant Doctor	26 (48.1)	28 (50.0)	.846 [b]
	Specialist	28 (51.9)	28 (50.0)	
Experience in the profession (years)	Median (Min-Max)	5 (1-47)	5.5 (1-20)	.123 [c]
	Mean±SD	11.17±10.68	7.04±5.64	
	1-4 years	19 (35.2)	25 (44.6)	
	5-9 years	14 (25.9)	15 (26.8)	
	10-14 years	3 (5.6)	6 (10.7)	
	15-19 years	6 (11.1)	9 (16.1)	

[a]Independent Samples T Test
[b]Pearson Chi-Square Test, **P*<.05

Table 3: Evaluation of Occupational Characteristics by Gender

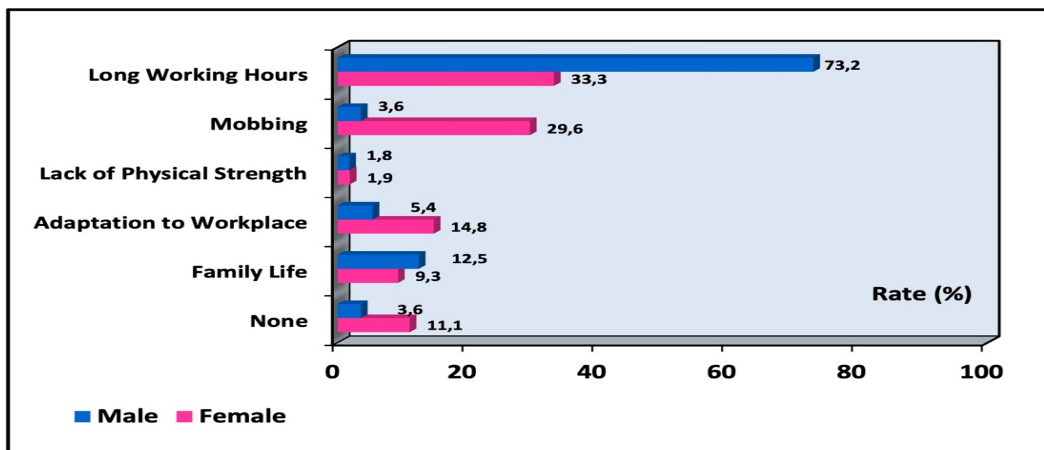
Occupational Characteristics		Gender		*P*
		Female (n=54)	Male (n=56)	
		n (%)	n (%)	
The most feared prejudice before residency	None	6 (11.1)	8 (14.3)	.001 [a]
	Family life	1 (1.9)	3 (5.4)	
	Adaptation to the workplace	8 (14.8)	4 (7.1)	
	Lack of physical strength	7 (13)	0 (0)	
	Mobbing	25 (46.3)	17 (30.4)	
	Long working hours	7 (13)	24 (42.9)	
Biggest challenge in the process after 2.5 years / after residency	None	6 (11.1)	2 (3.6)	.001 [a]
	Family life	5 (9.3)	7 (12.5)	
	Adaptation to the workplace	8 (14.8)	3 (5.4)	
	Lack of physical strength	1 (1.9)	1 (1.8)	
	Mobbing	17 (31.5)	2 (3.6)	
	Long working hours	17 (31.5)	41 (73.2)	

[a]Fisher Freeman Halton Exact Test



**Fisher Freeman Halton Exact Test, *P*<.01

Figure 1: Distribution of physicians' most feared prejudices before starting their residency according to gender

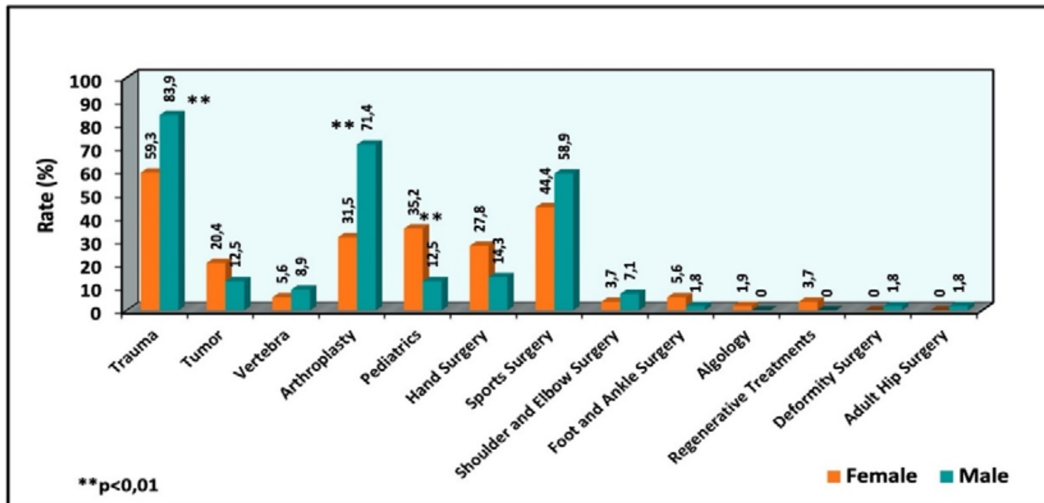


*Fisher Freeman Halton Exact Test, *P*<.05

Figure 2: Distribution of the greatest difficulties experienced at the end of residency / after the first 2.5 years according to gender

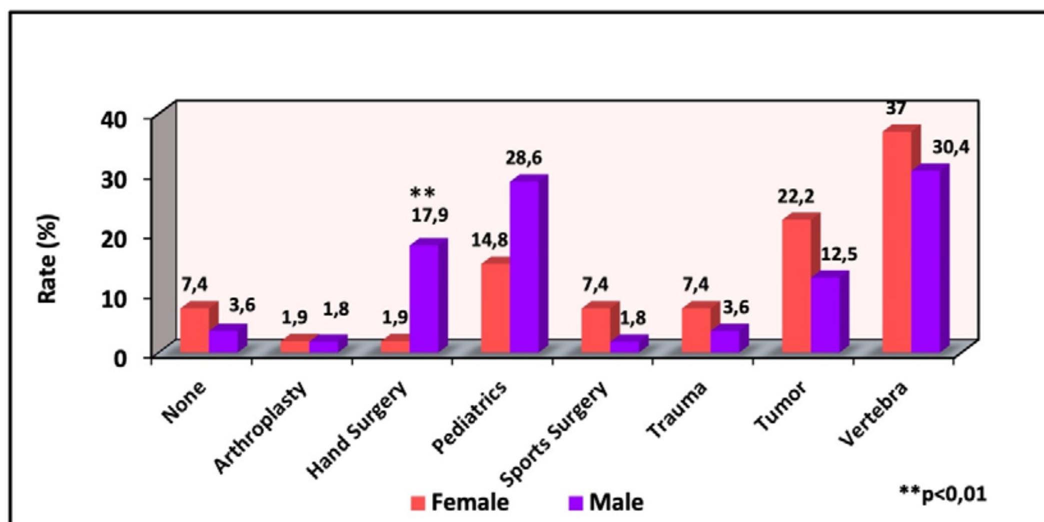
The most challenging workgroup for both female and male orthopedic surgeons of all ages in their professional life was the resident team (64.8% for females; 53.6% for males), with no significant difference found between the groups in terms of conflicts encountered at work (*P* =.231). When analyzed by age group, female orthopedic residents experienced higher levels of difficulties with nurses and staff compared to female specialists (*P* <.05) (Figure 5).

As mobbing can often be age or workplace related, the experiences of mobbing in the workplace was assessed with the question of "Do you think you have been subjected to mobbing at any point in your professional life?". The rates of experiencing mobbing at least once in the professional life of female and male orthopedic surgeons (79.6%, 73.2% respectively) did not differ significantly between the genders (*P* =.714). Satisfaction with the career was assessed with the questions "What is your current level of satisfaction and regret in your professional life?" (Likert Scale) and "What is your score out of 100 regarding question 7?" Satisfaction levels were determined to be 67.4% for female physicians and 58.9% for male physicians, with a significant difference identified between the groups (*P* =.048).



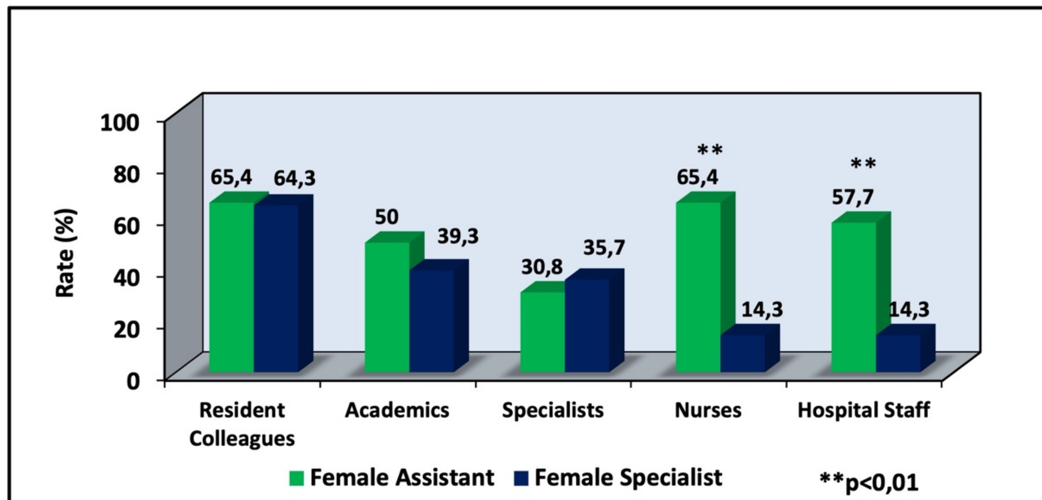
**Pearson Chi-Square Test, *P*<.01

Figure 3: Distribution of physicians' specific areas of interest according to gender



*Fisher Freeman Halton Exact Test, *P*<.01

Figure 4: Distribution of the most challenging areas in surgery according to gender



*Fisher Freeman Halton Exact Test, *P*<.05

Figure 5: Other healthcare personnel with whom female orthopedists had the most difficulties according to their position in the workplace

DISCUSSION

The findings of this study showed that 31.5% of female orthopedic surgeons indicated mobbing as the biggest challenge during their residency, compared to 3.6% of males. However, the rates of experiencing mobbing at least once during the course of their career did not statistically differ between the genders. (79.6% for females, 73.2% for males) Correspondingly, Balch et al., reported that 81% of female orthopedic surgeons were subjected to discrimination, bullying, and mobbing, compared to 35% of male surgeons.[12-14] Dikmetaş et al., also reported in their study that there was no gender difference in terms of mobbing perception amongst resident doctors in all specialties. However, the rates of mobbing were significantly higher in residents of surgery than internal medical branches.[13-15]

The current study results showed that 31.5% of women and 73.2% of men in orthopedic surgery experience long working hours as the most significant issue, necessitating the implementation of new measures at the level of the Ministry of Health. In this context, specific regulations related to on-call duties are currently being established in Turkey.[16-23] Innovations in this field may lead to changes in the parameters of satisfaction and experiences of mobbing for doctors, since stressful work environments can negatively impact physicians' overall health, putting their mental well-being in a more vulnerable position. The implementation of new regulations would be a crucial step in breaking these cycles.

No regret about having selected orthopedics was stated by 94.4% of the female participants, and 61.1% stated that they are "Satisfied" or "Very satisfied" in their career path, significantly higher than their male counterparts. Similarly, Çopuroğlu et al. reported in their study conducted in Turkey that all 11 female orthopedists responded "No" to the question, "Have you ever regretted choosing orthopedics and traumatology during your residency?"[3] It can be suggested that despite the difficulties in their professional lives, women are satisfied with their fulfillment in the field of orthopedics. However, this situation may also arise from the motivation of women to stand firm and strong in a field where they constitute the minority.

While no statistically significant difference was found in the challenges faced by female orthopedic residents compared to female specialists in their relationships with specialists and academics, it was determined that they encountered more difficulties in their relationships with nurses and other staff (*P* <.01, *P* <.01). Brown et al. highlighted the negative attitudes of nurses towards female surgeons and their contribution to professional burnout.[14-17] The rates at which female resident doctors report gender-based discrimination by nurses are statistically significant. Similarly, the current study found it statistically significant that female orthopedic residents experience the most problems with nurses and hospital staff. This may stem from the fact that younger female residents are more vulnerable to negative attitudes compared to more experienced specialists.

The current study female participants were more likely to be interested in hand surgery and pediatric orthopedics in comparison to their male counterparts. Bratescu et. al.

also reported that female surgeons were more interested in pediatric surgery, and hand and foot surgery than male surgeons.[15-18] More mentorship in these areas was stated by the participants as the reason for this. The current study findings showed that of the female surgeons who had a role model in their career, 40% identified other female surgeons as their role model. In contrast, none of the male surgeons reported having a female surgeon as a role model.

Similar to many western countries, females constitute 14% of the residents and 7% of the consultants in orthopedic surgery in the UK, and in the USA, 7.2% of practising orthopedic surgeons are women.[16,17-20] Van Heest reported that efforts were being made to ensure that 30% of orthopedic residents are women, and with the current rate of "improvement," this goal would be reached by 2072.[18-21] It has been shown that clinical experience in orthopedics, musculoskeletal system education, and mentorship promoting gender diversity are effective in attracting female medical students to orthopedic surgery.[19-24] Although the number of female orthopedists in Turkey has increased almost 5-fold in the last 13 years, we are still far from reaching Van Heest's projection. The rate of female orthopedic surgeons is approximately 2.5% in Turkey, according to the most recent information obtained from the Ministry of Health.

The presence of different genders in a community not only facilitates effective decision-making, innovation, and creativity but also leads to a better understanding of patients. Gender diversity is also a diversity of talents and through many studies has been shown to improve the working environment, patient care and accurate diagnoses.[25] However, more research is needed regarding the situation in Turkey.

Limitations

This study had some limitations, such as the Gender Inequality in the Workplace Survey in Turkish not being used, due to its long application time and potential to reduce accessibility to participants.26 Another limitation was the small sample size of female participants, with only 54 out of 81 female orthopedic surgeons participating, while 79 surgeons were able to be contacted. The most likely reasons for not wishing to participate are the intense working conditions of physicians and personal reasons. In male surgeons, evaluating a smaller group from a larger available sample might mean that the findings do not reflect the trends of the entire population.

Another limitation could be considered to be that as the collected data were based on personal statements, these can be subject to recall bias. In addition, questions related to gender may create social desirability bias among women in a field predominantly occupied by men, leading them to under or over-report the data. This study may also be subject to survivor bias, as it did not include individuals who had left orthopedic residency training.

CONCLUSION

While mobbing continues to be a problem for female orthopedic surgeons, long working hours contribute to professional burnout for both genders. Nevertheless, women in Orthopedics and Traumatology are mostly satisfied with their profession. Ensuring gender diversity is crucial for future generations so that female physicians can set goals and progess towards those without concerns of social pressures.

Recommendations that can be made in the light of the findings of this study, are to create more flexible working hours for surgeons and to promote more women into mentorship positions in male-dominated fields. This approach could encourage future generations of medical students to pursue careers in orthopedics and traumatology.

Ethics Committee Approval: This study was approved by the institutional ethics committee (SBÜ Erzurum University Medical Faculty: 11.2023-85).
Informed Consent: All participants were informed about the study and informed consent was obtained.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept – YŞ, ED, ET; Design- YŞ, ED, ET; Supervision- YŞ, ED ; Resources- YŞ,ED; Data Collection and/or Processing- ET, BT; Analysis and/or Interpretation- YŞ, ET; Literature Search- ED, ET, YŞ; Writing Manuscript- ET; Critical Review- YŞ, ED.
Conflict of Interest: The authors declare that they have no conflicts of interest.
Financial Disclosure: The authors declare that this study has received no financial support.

Etik Komite Onayı: Bu çalışma yerel etik kurul tarafından onaylandı (SBÜ Erzurum Üniversitesi Tıp Fakültesi: 11.2023-85).
Hasta Onamı: Tüm katılımcılara çalışma hakkında bilgi verildi ve aydınlatılmış onamları alındı.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir- YŞ, ED, ET; Tasarım- YŞ, ED, ET; Denetleme- YŞ, ED; Kaynaklar-YŞ,ED; Veri Toplanması ve/veya İşlemesi - ET, BT; Analiz ve/ veya Yorum- YŞ, ET; Literatür ED, ET, YŞ; Yazıyı Yazan- ET Eleştirel İnceleme- YŞ, ED.
Çıkar Çatışması: Yazarlar, çıkar çatışması olmadığını beyan etmiştir.
Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

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Değerlendirilmesi: Eskişehir Özel Sağlık Sektörü Örneği. *Anadolu Akademi Sosyal Bilimler Dergisi*, 2(1), 113-130.

ATATÜRK ÜNİVERSİTESİ YAYINLARI ATATURK UNIVERSITY PUBLICATIONS

RESEARCH ARTICLE / *Araştırma makalesi* DOI: 10.61745/jsmsau.1586965

Retrospective Analysis of Patients Presenting to Our Pain Clinic within One Year

Bir Yıl İçerinde Ağrı Kliniğimize Başvuran Hastaların Retrospektif İncelemesi

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ABSTRACT

Objective: This study aims to retrospectively examine the demographic characteristics, main causes of pain, diagnoses and applied treatment methods of patients who applied to a pain clinic. It is expected that these data will contribute to the evaluation of current clinical practices and the development of more effective pain management strategies.
Methods: The study was conducted with a retrospective design among patients who presented to our clinic between January 2023 and December 2023. During this period, the medical records of the patients who applied to the pain clinic were examined. The patients' (age, gender), reasons for application (pain localization) and treatment approaches (drug therapies, interventional procedures) were recorded.
Results: When demographic characteristics were examined, 56.8% of the 1210 patients included in the study were female, 43.2% were male, and the mean age was determined as 47.42±20.56. When the complaints of the patients were examined, the reasons for application were back pain, leg pain and widespread body pain in order of frequency. In terms of treatment methods, the most frequently performed procedure was the plan block, followed by epidural analgesia.
Conclusion: In our study, it was observed that the majority of patients applying to the pain clinic applied due to chronic pain and needed multidisciplinary treatment approaches. These data are important for the development of new strategies for pain management in clinical practices and for increasing patient satisfaction. It is recommended that more studies be conducted, especially on the effectiveness of interventional methods and the role of psychological support.

Keywords: Pain, Treatment, Acute pain, Chronic pain, Multidisciplinary pain treatment

ÖZ

Amaç: Bu çalışma, bir ağrı kliniğine başvuran hastaların demografik özelliklerini, başlıca ağrı nedenlerini, tanılarını ve uygulanan tedavi yöntemlerini retrospektif olarak incelemeyi amaçlamaktadır. Bu verilerin, mevcut klinik uygulamaların değerlendirilmesi ve daha etkili ağrı yönetim stratejilerinin geliştirilmesine katkıda bulunması beklenmektedir.
Yöntemler: Çalışma, Ocak 2023 - Aralık 2023 tarihleri arasında kliniğimize başvuran hastalar arasında retrospektif bir tasarımla gerçekleştirilmiştir. Bu süre zarfında ağrı kliniğine başvuran hastaların tıbbi kayıtları incelenmiştir. Hastaların (yaş, cinsiyet), başvuru nedenleri (ağrı lokalizasyonu) ve tedavi yaklaşımları (ilaç tedavileri, girişimsel prosedürler) kaydedilmiştir.
Bulgular: Demografik özelliklere bakıldığında çalışmaya dahil edilen toplam 1210 hastanın %56,8'i kadın, %43,2'i erkek olup, yaş ortalaması 47,42±20,56 olarak belirlenmiştir. Hastaların başvuru şikayetlerine bakıldığında başvuru nedenleri arasında sıklık sırasına göre bel ağrısı, bacak ağrısı ve yaygın vücut ağrısı yer almıştır. Tedavi yöntemleri açısından en sık yapılan işlem plan bloğu olmuştur, ikinci sırada epidural analjezi gelmektedir.
Sonuç: Çalışmamızda, ağrı kliniğine başvuran hastaların büyük çoğunluğunun kronik ağrı nedeniyle başvurduğu ve multidisipliner tedavi yaklaşımlarına ihtiyaç duyduğu gözlemlenmiştir. Bu veriler, klinik uygulamalarda ağrı yönetimine yönelik yeni stratejilerin geliştirilmesi ve hasta memnuniyetinin artırılması için önemlidir. Özellikle girişimsel yöntemlerin etkinliği ve psikolojik desteğin rolü üzerinde daha fazla çalışma yapılması önerilmektedir.

Anahtar kelimeler: Ağrı, Tedavi, Akut ağrı, Kronik ağrı, Multidisipliner ağrı tedavisi

Received/ Geliş Tarihi	17.11.2024
Revision request/Revizyon Talebi	26.11.2024
Last Revision Request/Son Revizyon Talebi	19.12.2024
Accepted/Kabul Tarihi	21.12.2024
Publication Date/Yayın Tarihi	28.12.2024

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Cite this article: Karapinar Y, Yilmaz MA, Al S, Yayik AM, Aydin ME, Ahiskalioglu A, Ahiskalioglu EO. Retrospective Analysis of Patients Presenting to Our Pain Clinic within One Year. *Atatürk Univ Fac Med J Surg Med Sci*. 2024;3 (3): 81-86

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INTRODUCTION

Managing chronic pain is a major challenge in healthcare, greatly impacting patients' quality of life and placing considerable pressure on healthcare systems globally. [1] Specialized pain management clinics, such as algology departments, play a crucial role in the comprehensive evaluation and treatment of patients with various pain syndromes. [2] Despite advancements in pharmacological and interventional approaches, understanding patient demographics, clinical characteristics, and treatment outcomes through retrospective analysis is essential for optimizing care strategies and guiding future research. [3]

Although various studies have explored chronic pain management, there is limited data on the specific patient population and treatment trends within specialized pain clinics in our region. This study aims to present a detailed analysis of data collected from the algology clinic at Atatürk University Hospital, focusing on patient characteristics, types of pain complaints, associated comorbidities, and the spectrum of treatment modalities employed over the past year. By examining these variables, we seek to identify patterns and correlations that may inform evidence-based improvements in clinical practice and patient management within the field of pain medicine.

The retrospective design of this research involves the systematic review of clinical records from January 2023 to December 2023, encompassing data on patient gender, primary pain complaints, history of prior interventions, comorbidities, and specific procedures conducted. This comprehensive data analysis offers valuable insights into the treatment trends and clinical outcomes associated with chronic pain management, contributing to the broader body of knowledge in algology and interventional pain practices.

METHODS

This study was conducted following the approval of the ethics committee of Atatürk University, Faculty of Medicine, obtained in 30.03.2023, with meeting number 2 and issue number 118. Following approval from the institutional ethics committee, the medical records of patients who presented to the Algology Polyclinic of our hospital between January 1, 2024, and October 31, 2024, were retrospectively reviewed. Demographic characteristics, presenting complaints, and treatment modalities were extracted from the hospital's electronic data system. Patients with incomplete data (e.g., missing demographic details, presenting complaints, or treatment records) were excluded from the analysis.

Statistical analysis

Statistical analyses were performed using the SPSS software package 22.0 (IBM SPSS Corp. Armonk, NY, USA). Continuous variables were reported as mean ± standard deviation, while categorical variables were expressed as frequencies and percentages.

Table 1: Demographic Characteristics of Patients

Age	45,36 ± 20,56
Gender (M/F)	43,2 / 56,8
Previous treatment (No / Yes)	90,1/ 9,9
Comorbidities (No / Yes)	63,3 / 36,7

RESULTS

A total of 1,210 patients who presented to the Pain Clinic between January 1, 2024, and October 31, 2024, were identified through the hospital information management system. After excluding 171 patients due to missing or inaccurate data, 1,039 patients were included in the study. The mean age of the patients was 47.42 ± 20.56 years. Of the patients, 43.2% were male, and 56.8% were female. A history of recurrent visits to the algology polyclinic was observed in 90.1% of the patients, while 36.7% had additional comorbidities (Table 1).

Regarding presenting complaints, the most common was low back pain (n = 484), followed by leg pain (n = 317), and generalized body pain (n = 103) (Figure 1).

In terms of treatment modalities, the most frequently applied intervention was plane blocks (n = 490), followed by epidural analgesia (n = 381). A subset of patients did not undergo interventional procedures but were prescribed medications or advised on non-pharmacological treatments. Among those receiving plane blocks, 92% underwent erector spinae plane block (Figure 2).

DISCUSSION

Acute Pain Management

Pain is one of the most common reasons for patients to apply to the hospital. [4] In a survey study with a sample size of 50 million published by Yong et al. in 2022, the most common pain localizations in adults were lower extremity pain (44.1%), low back pain (40.9%), upper extremity pain (31.7%), headache (13.6%), abdominal-pelvic pain (8.2%)

and tooth-jaw pain (6.5%). [5] When we look at the applications to our clinic, it is seen that the most common are low back pain and lower extremity pain. The age of the patients applying to our clinic is 47.42 ± 20.56 and the majority of the patients are female.

The objectives of acute pain management are to alleviate pain, enhance function, promote recovery, and ensure patient satisfaction. Additional postoperative goals are to achieve early mobilization and reduce the length of hospital stay. The most common reason for acute pain applications to our clinic is postoperative pain. Acute pain management is very important because all patients with unrelieved acute pain are candidates for chronic pain. Multimodal analgesia techniques are used in our clinic. The simplest definition of multimodal analgesia is the use of two or more methods that use different mechanisms for pain management. [6] In addition to non-pharmacological treatments, patients are treated with paracetamol, NSAIDs, single-dose analgesic plane blocks or block catheters if there is no contraindication. In our clinic, we avoid unnecessary excessive opioid use in acute pain treatment, especially in the perioperative period. In our clinic, acute perioperative pain management is mostly applied by anesthesiologists in the operating room in the preoperative or early postoperative period.

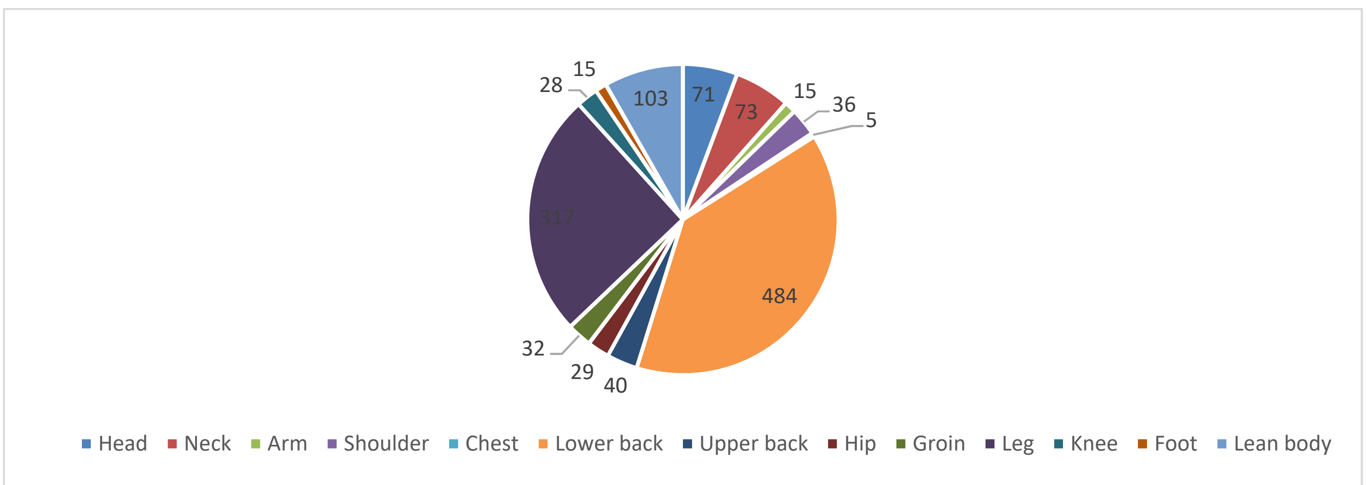

Figure 1: Number of Complaints Reported by Patients Presenting to the Pain Clinic

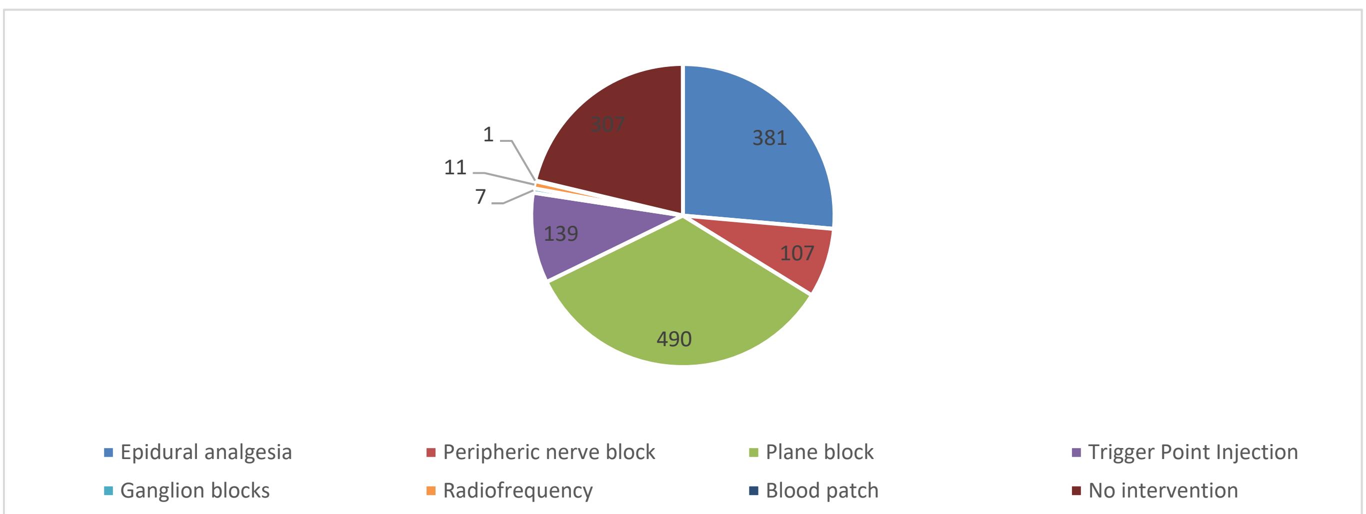

Figure 2: Number of Treatment Modalities Administered

Chronic Pain Management

Patients suffering from chronic pain are more frequently admitted to our algology clinic. Chronic pain is defined as pain that lasts longer than three months. [7] Chronic pain

management, in particular, requires a multimodal approach. [8] Successful management of chronic pain requires addressing all physical and psychological conditions that cause pain. Before each pharmacological or interventional application, patients should be reminded of nonpharmacological multimodal analgesia methods at each examination. Standard pain-reducing methods are recommended for our chronic pain patients. These are behavioral changes, staying away from pain-intensifying environments and behaviors, psychological flexibility, stress reduction due to awareness, physical activity, exercise, sleep hygiene and dietary habits changes, and continuous repetition of these suggestions will prevent unnecessary analgesia consumption in our patients or reduce the amount of analgesic consumed.

Outcomes and Evidence

The initial approach to treating chronic pain should involve accurately diagnosing the underlying cause and identifying the specific type of chronic pain syndrome. The diagnosis of neuropathic pain is particularly important on the basis of chronic pain and should be distinguished from nociceptive pain. [9] Because a nociceptive focus should be recognized, and this focus should be targeted when treating pain. This target will reduce the need for analgesic procedures and medications in the treatment of the underlying cause. [10] Cognitive behavioral therapy, combined treatment with antipsychotics or gabapentinoids should be considered for the treatment of neuropathic pain. [11] In a review published by Turk et al. in 2020, they found that correctly determining the patient's expectations and making the patient feel safe in reducing non-cancer chronic pain reduced the severity of chronic pain by 30%. [12] In a review published in 2018, Fiedels also showed that positive communication with the patient improves treatment results. [13] In addition to non-pharmacological treatments, pharmacological treatments are prescribed to patients according to the type of pain (nociceptive-neuropathic) or interventional procedures are planned depending on the location. The majority of patients presented with low back pain, and plane block procedures became the primary interventional approach, replacing other previously utilized pain management techniques. Plane blocks and epidural analgesia are most commonly applied as interventional procedures for low back pain, which is the most common reason for applying to our clinic (Figure 1-2). Interventional procedures are considered for patients describing nociceptive pain and non-steroidal anti-inflammatory drugs are primarily prescribed pharmacologically, but opioid drugs are prescribed if the patient's symptoms are severe and persistent. In patients who describe neuropathic pain, after the suitability of interventional procedures is evaluated, antidepressants or antiepileptic drugs are primarily prescribed for pharmacological treatment, but the severity and duration of the patient's symptoms are questioned and opioids are prescribed when necessary. Another important factor that affects our drug selection is the additional comorbidities of the patients. The patient's cardiovascular status, renal or hepatic function levels also affect drug selection. In addition, when prescribing treatment to patients, the drugs they use should be questioned and evaluated in terms of drug interactions. It has been shown that 36.7% of the patients applying to our clinic have additional comorbidities (Table 1).

When we look at the treatment modalities we apply in our clinic, it is seen that trigger point injection is the third most common (Figure-2). One of the basic approaches to musculoskeletal pain, which is encountered very frequently, is trigger point injection with lidocaine to the painful area and then NSAID (nonsteroidal anti-inflammatory drug) prescription. In addition, topical NSAIDs are used quite frequently in our clinic for joint pain such as wrist and ankle. Opioid use in patients with nociceptive pain should only be used in low doses and for a short time when the benefits outweigh the potential risks. Opioids are not among my primary choices in the treatment of nociceptive pain in our clinic because the meta-analysis published by Siddel et al. in 2020 found that the effects of opioids on musculoskeletal pain were similar to non-opioid alternatives. [14] Our approach to neuropathic pain in our clinic is evaluated according to the suitability of interventional procedures and interventional procedures are planned for patients who are deemed appropriate. In addition, RF (radio frequency) is applied to patients who do not respond to medical treatment and whose comfort of life is significantly impaired. In routine practice, after the patient is evaluated with a multidisciplinary approach (neurology clinic, psychiatry clinic), antidepressants or gabapentinoids are considered as the first step in pharmacological treatment. Tramadol, a synthetic opioid, is used in the second step and strong opioids are prescribed in the last step. In the study titled "From mechanism to treatment in neuropathic pain" published by Finnerup et al. in 2021, pharmacological treatment is recommended as applied in our clinic. [15] In our clinic, interventional procedures are used in patients who cannot provide adequate analgesia with first-step approaches and non-pharmacological measures due to routine pain treatment modalities. In patients where any intervention is planned, the use of anticoagulants or antiplatelet drugs should be questioned first and the appropriateness of platelet counts and coagulation parameters are checked with the examinations performed. These controls should definitely be applied especially in

central procedures. The most common procedure we apply in our clinic is epidural glucocorticoid application. We apply epidural glucocorticoid in the treatment of low back pain resistant to conservative treatment. We reach the epidural area with a translaminar, transforaminal or caudal approach and apply glucocorticoids together with local anesthetics. It is said to patients that the maximum effect will occur within 72 hours. [16] We also apply fascial plane blocks such as ESP (erector spinae plane block) block or TLIP block (thoracolumbar interfascial plane block) to our patients to relieve acute pain.

This study has several limitations that need to be recognized. Firstly, the retrospective design depends on previously collected data, which may contain inaccuracies or missing details, potentially impacting the reliability of the results. A total of 171 patients were excluded due to incomplete or inaccurate records, which might limit the representativeness of the analyzed population. Additionally, as a single-center study, the results may not be generalizable to other institutions or regions. Psychosocial factors, which play a significant role in pain perception and treatment outcomes, were not thoroughly evaluated. Furthermore, the study only covers a one-year period, limiting the ability to assess long-term treatment outcomes and patient satisfaction. Lastly, certain variables, such as genetic, lifestyle factors, and detailed comorbidity profiles, which could influence treatment response, were not included in the analysis. These limitations highlight the need for future prospective, multicenter studies with a broader scope to validate and expand upon the current findings. The management of over 1000 patients seen in our clinic has been added to the literature. We would like to share our pain management with readers in light of current information

Ethics Committee Approval: This study was conducted following the approval of the ethics committee of Atatürk University, Faculty of Medicine, obtained in 30.03.2023, with meeting number 2 and issue number 118.
Informed Consent: Approval was granted by the hospital to access and utilize patient data for the purposes of this retrospective study.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept – YEK-MAY-SA-AMY-MEA-AA; Design- YEK-MAY-SA-AMY-MEA-AA; Supervision- YEK-MAY-SA-AMY-MEA-AA; Resources- YEK-MAY-SA-AMY-MEA-AA; Data Collection and/or Processing- YEK-MAY-SA-AMY-MEA-AA; Analysis and/or Interpretation- YEK-MAY-SA-AMY-MEA-AA;; Literature Search- YEK-MAY-SA-AMY-MEA-AA; Writing Manuscript- YEK-MAY-SA-AMY-MEA-AA; Critical Review- YEK-MAY-SA-AMY-MEA-AA.
Conflict of Interest: The authors declare that they have no conflicts of interest.
Financial Disclosure: The authors declare that this study has received no financial support.

Etik Komite Onayı: Bu çalışma, 30.03.2023 tarihinde Atatürk Üniversitesi Tıp Fakültesi etik kurul biriminden 2 toplantı numarası ve 118 karar numarası ile alınan etik kurul onayı sonrasında gerçekleştirilmiştir.
Hasta Onamı: Bu retrospektif çalışma kapsamında hasta verilerine erişim ve kullanım için hastaneden onay alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir- YEK-MAY-SA-AMY-MEA-AA; Tasarım- YEK-MAY-SA-AMY-MEA-AA; Denetleme- YEK-MAY-SA-AMY-MEA-AA; Kaynaklar- YEK-MAY-SA-AMY-MEA-AA; Veri Toplanması ve/veya İşlemesi - YEK-MAY-SA-AMY-MEA-AA; Analiz ve/ veya Yorum- YEK-MAY-SA-AMY-MEA-AA; Literatür- YEK-MAY-SA-AMY-MEA-AA; Yazıyı Yazan- YEK-MAY-SA-AMY-MEA-AA Eleştirel İnceleme- YEK-MAY-SA-AMY-MEA-AA
Çıkar Çatışması: Yazarlar, çıkar çatışması olmadığını beyan etmiştir.
Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

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ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

ARAŞTIRMA MAKALESI / *Research Article* DOI: 10.61745/jsmsau.1549582

Tıp Fakültesi Üçüncü Sınıf Öğrencilerinin "Kötü Haber Verme" Deneyimleri ve Simüle Hasta Etkileşimi Geri Bildirimleri

Perception of Third Year Medical Students on "Breaking Bad News" and Feedback on Simulated Patient Interaction

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ÖZ

Amaç: Hasta ve/veya yakınlarına kötü bir haberi vermek hekimler için zor görevlerden biridir ve bu görev iletişim becerisi gerektirir. İletişim becerileri tıp fakültelerinin mezun yeterlikleri arasındadır. Bu çalışmada, tıp öğrencilerinin kötü haber verme konusundaki algıları ve simüle hasta görüşmeleri sonrası geri bildirimlerinin değerlendirilmesi amaçlanmıştır.
Yöntemler: Araştırma karma modelde olup, nicel ve nitel araştırma desenini içermektedir. 2021-2022 öğretim yılında, "kötü haber verme becerisi" dersine katılan ve simüle hasta ile görüşme yapan gönüllü üçüncü sınıf öğrencileri ile yürütülmüş, veri toplama aracı olarak, açık uçlu bir sorunun da yer aldığı yapılandırılmış bir form kullanılmıştır. Veriler SPSS 25 istatistik paket programında analiz edilmiştir.
Bulgular: Çalışmaya gönüllü olarak katılan 330 tıp öğrencisine ait veri değerlendirilmiştir. Katılımcıların yaş ortalaması 21,7±2,86 (19-50) ve %52,7'si (n=175) kadındır. Öğrencilerin %87'si (n= 289) kötü haberin hastaya söylenmesi gerektiğini ve %94,6'sı (n=314) bu konuda eğitim alınması gerektiğini düşünmektedir. Eğitim sonrası öğrencilerin %59,9'u (n=199) kötü haberi uygun şekilde verebileceğini belirtmiştir. Kötü haber verebilme ile ilgili öz yeterlilik algıları açısından cinsiyetler arasında anlamlı fark saptanmamıştır.
Sonuç: Öğrenciler kötü haber vermenin hem alıcı hem verici taraf için zor bir deneyim olduğunu, görüşmede en çok empatinin önemini fark ettiklerini belirtmişlerdir.

Anahtar Kelimeler: Kötü haber verme, tıp eğitimi, tıp öğrencisi, simüle hasta

ABSTRACT

Objective: Breaking bad news to patients and/or their relatives is one of the most difficult task for a physician and requires communication skills. Communication skills are among the graduation competencies of medical faculties. This study aimed to evaluate medical students' perceptions of giving bad news and their feedback after simulated patient interviews.
Methods: The study is a mixed research model and includes quantitative and qualitative research designs. It was conducted with volunteer third-year students who participated in the 'bad news giving skills' course and were interviewed with simulated patients in the 2021-2022 academic year. A structured form including an open-ended question was used as a data collection tool. The data were analyzed using the SPSS 25 statistical package program.
Results: The data of 330 students who volunteered to participate in the study were evaluated. The mean age of the participants was 21.7±2.86 years (19-50) and 52.7% (n=175) were female. Of the students, 87% (n=289) thought that bad news should be told to the patient, and 94.6% (n=314) thought that training should be given on this subject. After the training, 59.9% (n=199) of the students stated that they could give bad news appropriately. No significant difference was found between genders in terms of self-efficacy perceptions related to giving bad news.
Conclusion: The students stated that giving bad news is a difficult experience for both the receiver and the transmitter and that they realized the importance of empathy the most during the interview.

Keywords: Breaking bad news, medical education, medical student, simulated patient

Bu çalışma, 09-12/12/2021'de, 1. Uluslararası Tıp, Sağlık ve İletişim Bilimleri Kongresinde Sözel bildiri olarak sunulmuştur.

Geliş Tarihi/Received	16.09.2024
Revizyon Talebi/ Revision request	08.10.2024
Kabul Tarihi/Accepted	31.10.2024
Yayın Tarihi/Publication Date	28.12.2024

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Cite this article: Tanriverdi EC, Guven PG, Kockaya PD, Ozkurt Z, Cayır Y, Nas MA. Perception of third year medical students on "breaking bad news" and feedback on simulated patient interaction. *Atatürk Univ Fac Med J Surg Med Sci*. 2024; 3 (3): 87-96

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GİRİŞ

İletişim becerileri, hasta hekim ilişkisinin en önemli unsurlarındandır. Teknolojinin gelişmesi ve tıpta yaygın olarak kullanılması, iletişimin ikinci plana atıldığı bir sağlık hizmet sunumu yaklaşımına yol açmış ve bu durum hasta hekim ilişkisinde giderek artan problemleri de beraberinde getirmiştir.[1] Günümüz tıp uygulamalarında, hekimler hastaları dinlemedikleri konusunda sıkça eleştirilmektedir. İyi bir iletişimin hekim, hasta ve sağlık çıktıları açısından kanıtlanmış pek çok yararı vardır.[2] Aksine, hasta şikayetlerinin ve malpraktis iddialarının büyük bir kısmının tanı veya tedavi ile ilgili bir durumdan değil, iletişim problemlerinden kaynaklandığı bildirilmektedir.[3]

İletişim, öğrenilebilir, öğretilebilir ve değerlendirilebilir klinik becerilerden olup, rol modellik ya da deneme yanılma modeliyle öğrenilmesi beklenilmemeli, geleceğin hekimlerine tıp eğitimi sırasında öğretilmeli ve değerlendirilmelidir. [3]

Tıp fakültelerinin mezun yetkinliklerinden biri de "İletişimci" kavramıdır. İletişim becerileri Ulusal Çekirdek Eğitimi Programı'nda (UÇEP) da yer vurgulanmaktadır.[4] Hasta ve yakınları ile iyi bir iletişim kurmak mezuniyet öncesi ve mezuniyet sonrası tıp eğitimi için bir yeterlilik, aynı zamanda bir akreditasyon kriteridir.[5] Bu durum, iletişim becerilerini geliştirmeye ve güçlendirmeye yönelik eğitimlerin tıp fakülteleri müfredatlarında yer almasını sağlamıştır.[4]

Kötü haber "bireylerin geleceğe bakışını ve gelecekle ilgili planlarını olumsuz etkileyen, ümit etme duygusunu yok eden, fiziksel ve ruhsal iyilik halini bozan her türlü haber" dir.[6,7] Kötü haberler aynı zamanda alıcı taraf için yıkıcı ve hayatı değiştiren özelliktedir.[8-11] Bu haberler bireyin yaşam şeklini alt üst edip, geleceğe yönelik seçimlerini etkilemektedir.[12] Kötü haberlerin alıcı tarafa "hayatın sonu gibi" hissettirdiği ve bir "yaşam krizi" olduğu bildirilmektedir.[6,9] Kötü haberler çok çeşitli olabilir, zamana ve kişiye göre değişebilir. Hamile bir kadına bebeğinin ölü ya da sakat olduğunu söylemek, bir bireye ekstremitesinin ampüte edilmesi gerektiğini söylemek, bir aileye çocuğunun kronik bir hastalığının olduğunu iletmek, kronik dejeneratif hastalık haberleri, kanser tanısı, ölüm haberi kötü haberdir. [12]

Kötü haber verme anı, iletişim becerilerinin öneminin belki de en çok hissedildiği andır. Doktorlar hasta ve yakınlarına kötü bir haber vermek istemez, onlar da kötü bir haber almak istemez. "Kötü haber" hem alıcı hem de verici taraf için "kötü" ve "zor" dur. Uygun bir şekilde iletilmeyen kötü haberlerin alıcı taraf üzerinde ciddi yıkıcı etkiler ve olumsuz sonuçlar doğurabileceği gösterilmiştir. Tedaviye uyumunun bozulması, alıcıda öfke ve şiddete yönelik davranışlar, malpraktis iddiaları, hekim-hasta iletişiminin olumsuz etkilenmesi, hastanın uyum yeteneğinin bozulması bunlar arasındadır. [13]

Kötü haber verme doktorlar için meslek hayatları boyunca en zor görevden biri olup, bir çok kez kötü haber vermek zorunda kalacaklardır. [13] Kötü haber verirken, haberi daha kötü hale getirmeden ve alıcı taraf üzerindeki yıkıcı etkisini en aza indirgeyecek profesyonel tutum ve yaklaşımlar kullanılması önerilmektedir.[10] Bu amaçla SPIKES ve ABCDE gibi çeşitli protokoller geliştirilmiştir. Bunlar içinde en sık kullanılanı SPIKES yöntemidir. SPIKES ismi kötü haber verme için belirlenen basamakların, baş harflerinin kısaltılmasıyla oluşturulmuştur.[6] (Şekil 1). SPIKES protokolüne göre; kötü haberi vermeden önce bir hazırlık yapılmalı, hastanın algısı ve bakış açısı değerlendirilmeli, hastanın hastalık ve/veya durum ile ilgili neyi, ne kadar bilmek isteği değerlendirilmeli, bilgi verilmeli, empati yapılmalı ve sonrası için bir planlama yapılmalıdır.

ABCDE protokolünde ise bir hazırlık sonrası hastayla terapötik bir bağ oluşturulmakta, hastanın duygularını ortaya koyması sağlanmaktadır.[6] Kötü haberi vermek için geliştirilen protokoller, haberin alıcı taraf üzerindeki olumsuz etkilerini azaltmaya, tedaviye uyumunu sağlamaya ve durumu kabullenmesine yardımcı olmak üzere oluşturulmuştur. [10]

Bugünün tıp öğrencileri yarının doktorlarıdır. Meslek hayatlarına başlamadan önce iletişim konusunda eğitim almaları, olumlu ve uygun iletişim becerileri kazanmaları önemlidir.[13] İletişim becerilerinin tıp fakültesi mezun yeterliklerinden biri olarak ele alınmasıyla birlikte, tıp fakültelerinin eğitim müfredatlarında, iletişim becerileri eğitimleri kapsamında "kötü haber verme" becerisi kazandırmaya yönelik uygulamalar da yer almaktadır.[14,15]

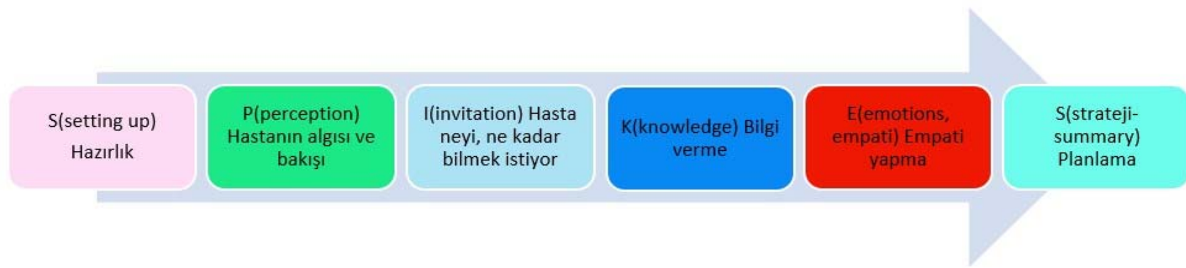
Kötü haber verme kompleks bir iletişim becerisi olup, eğitim gerektirir. Eğitim yöntemi olarak didaktik dersler, örnek olgu analizleri, tartışmalar, küçük grup etkinlikleri, refleksiyonlar, video ve film izleme, simüle ve standardize hasta görüşmeleri, rol play gibi yöntemler kullanılabilmektedir.[16] Bahsedilen yöntemlerin her birinin kendine özgü üstünlükleri ve kısıtlılıkları bulunmakla birlikte, simüle hasta (SH) görüşmeleri gibi deneyimle öğrenme etkinliklerinin daha başarılı olduğu bildirilmektedir.[16]

Simüle hastalar, belirli bir rahatsızlığı olan bir hastayı gerçekçi bir şekilde tasvir etmek üzere özel olarak eğitilen sıradan kişilerdir. Tıp eğitiminde klinik beceri ve iletişim

becerisi eğitimlerinde yaygın olarak kullanılmaktadırlar. Tıp öğrencileri SH'lar ile iletişim becerileri eğitimleri alırken, gerçek hasta ile karşılaşmadan önce, hata yapma ve hastaya zarar verme kaygısı olmadan güvenli bir ortamda becerilerini geliştirirler. Öğrencinin deneyim seviyesine uygun olarak eğitilebilirler ve öğrenci beceride ustalaşana kadar tekrar tekrar aynı rolü oynayabilirler. Bu şekilde, güvenli ve öğrenci merkezli bir ortam sağlarlar. Aynı zamanda, öğrencilerin teorik bilgileri uygulamalarını ve entegre etmelerini kolaylaştırarak eleştirel düşünme, sorun çözme, iletişim ve empati gibi becerilerin hem öğretilmesi, hem de değerlendirilmesinde kullanılabilirler.[17,18] Öğrenciye geri bildirim vermek ve öğrenci performansını değerlendirmek için de başarıyla kullanılmaktadırlar.[17,19,20]

Uluslararası literatürde kötü haber verme ile ilgili yapılan çalışmalarda çoğunlukla kötü haberi verme konusundaki eğitim ve protokol eksiklikleri ele alınmıştır.[2,21-23]

Türkiye'de ise tıp öğrencilerinin kötü haber verme konusundaki görüş ve deneyimlerini ele alan çalışmalar oldukça sınırlıdır.[16,24,25] Bu çalışmada, tıp fakültesi üçüncü sınıf öğrencilerinin simüle hastaya kötü haber verme deneyimi sonrası kötü haber verme ile ilgili algılarının ve geri bildirimlerinin değerlendirilmesi amaçlanmıştır.



Şekil 1: SPIKES protokolü

YÖNTEM

Etik izin

Çalışma için gerekli etik izin Atatürk Üniversitesi Tıp Fakültesi Klinik Araştırmalar Etik Kurulu'ndan alınmıştır (Tarih: 21.06.2021, Sayı:05/37). Çalışma Helsinki Deklerasyonu prensiplerine uygun yürütülmüş, katılımcıların onamı alınmıştır.

İletişim Becerileri Eğitim Programı

Atatürk Üniversitesi Tıp Fakültesi eğitim programında iletişim becerileri ile ilgili dersler birinci sınıfta başlamakta, basitten karmaşığa doğru yapılandırılmış bir şekilde ilerlemektedir. Birinci sınıfta film izleme ve izlenen filmdeki iletişim unsurları ile ilgili refleksiyon çalışmaları ile başlayan eğitimler, ikinci sınıfta iletişim süreci, sözlü ve sözsüz iletişim, iletişimin prensipleri, iletişim engelleri, hekim-hasta iletişimi, empati, dinleme ve geribildirim gibi kuramsal dersler ile devam etmektedir. Kuramsal dersler sonrası öğrenciler iki kez, SH ile "başvuranı/ hastayı karşılama becerisi" uygulaması yapmaktadır. Eğitim modülü üçüncü sınıfta KHV ve zor hasta yönetimi dersleri ile devam etmektedir. "Kötü Haber Verme Becerisi" eğitiminde, kötü haberin nasıl verileceğine ilişkin kuramsal dersler sonrası öğrenciler bir simüle hastaya önceden belirlenmiş bir senaryo dahilinde kötü haber vermektedir. Eğitimlerde gerçek hayatta görülen kötü haberlerden çeşitli örnek senaryolar kullanılmaktadır. Görüşme yapılandırılmış bir eğitim ve değerlendirme formu eşliğinde yapılmakta, görüşmenin bitiminde simüle hasta tarafından öğrenciye anlık geribildirim verilmektedir. Görüşme sonrası yapılan debrifing oturumunda ise görüşmelerin video kayıtları izlenmekte, eğitici ve akranlar tarafından değerlendirilmektedir.[15]

Katılımcılar

Çalışma Atatürk Üniversitesi Tıp Fakültesi üçüncü sınıf öğrencileriyle yürütülmüştür. "Kötü haber verme becerisi" teorik dersleri ve SH ile pratik uygulaması üçüncü sınıf eğitim programında yer aldığı için, araştırma grubu olarak üçüncü sınıf öğrencileri seçilmiştir. Çalışma 2022-2023 öğretim yılında, Atatürk Üniversitesi Tıp Fakültesi üçüncü sınıfta okuyan, kötü haber verme becerisi derslerine katılan ve SH ile görüşme yapmış olan 330 öğrenci ile gerçekleştirilmiştir. Katılım gönüllülük esasıyla sağlanmıştır. Derse katılan ve SH ile görüşme yapan öğrencilerin tümü çalışmaya katılımı kabul etmiştir. Veri toplama aracı olarak araştırmacıların konu ile ilgili literatürden yararlanılarak hazırladığı soruların yer aldığı kısa bir soru formu kullanılmıştır. Yaş ve cinsiyet gibi demografik özelliklerin yanında, öğrencilerin algı ve tutumlarının değerlendirilmesine yönelik dört adet kapalı

uçlu soru sorulmuştur ("Sizce kötü haber hastaya söylenmeli mi?", "Tıp öğrencileri kötü haber verme ile ilgili eğitim almalı mı?", "Kötü bir haberi hastaya uygun bir şekilde verebilir misiniz?", "Kötü haber verme becerisi ile ilgili eğitim almanızın, SH'ya kötü haber verme becerinize katkısı oldu mu?"). Kapalı uçlu sorular için evet, hayır ve kararsızım olmak üzere üç yanıt seçeneği kullanılmıştır. Çalışmaya katılan öğrencilerin simüle hastaya KHV deneyimi sonrası duygularını anlamaya yönelik "Kötü haber verme deneyimi sonrası ne hissettiniz?" şeklinde bir adet açık uçlu soru sorulmuştur. Açık uçlu soruya verilen yanıtlar araştırmanın nitel bölümünü oluşturmuştur.

İstatistiksel yöntemler

Çalışmada karma yöntem araştırma tasarımı kullanılmıştır. Bu modelde amaç nitel ve nicel araştırma verilerinin analizinden elde edilen sonuçları birleştirmektir. Bu birleştirme probleme farklı görüş ve açıdan bakılmasını sağlamaktadır.[26]

Araştırmanın nicel boyutunda kesitsel araştırma türü kullanılmıştır. Nitel boyutunda ise temel nitel araştırma türü kullanılmış, tıp öğrencilerinin simüle hastaya kötü haber verme deneyimi sonrası hissettiklerini değerlendirmeye yönelik açık uçlu bir soru sorulmuştur.

Araştırmanın Nicel bölümünün analizi

Veriler SPSS 25.0 (IBM SPSS Corp. Armonk, NY, ABD) istatistik paket programında analiz edilmiştir. Kategorik veriler sayı ve yüzde, numerik veriler ortalama±standart sapma olarak sunulmuştur. Kategorik verilerin karşılaştırılmasında ki kare testi kullanılmış, açık uçlu yanıtlar tematik olarak kategorize edilmiştir. İstatistiksel anlamlılık düzeyi $P<,05$ kabul edilmiştir.

Araştırmanın nitel bölümünün analizi

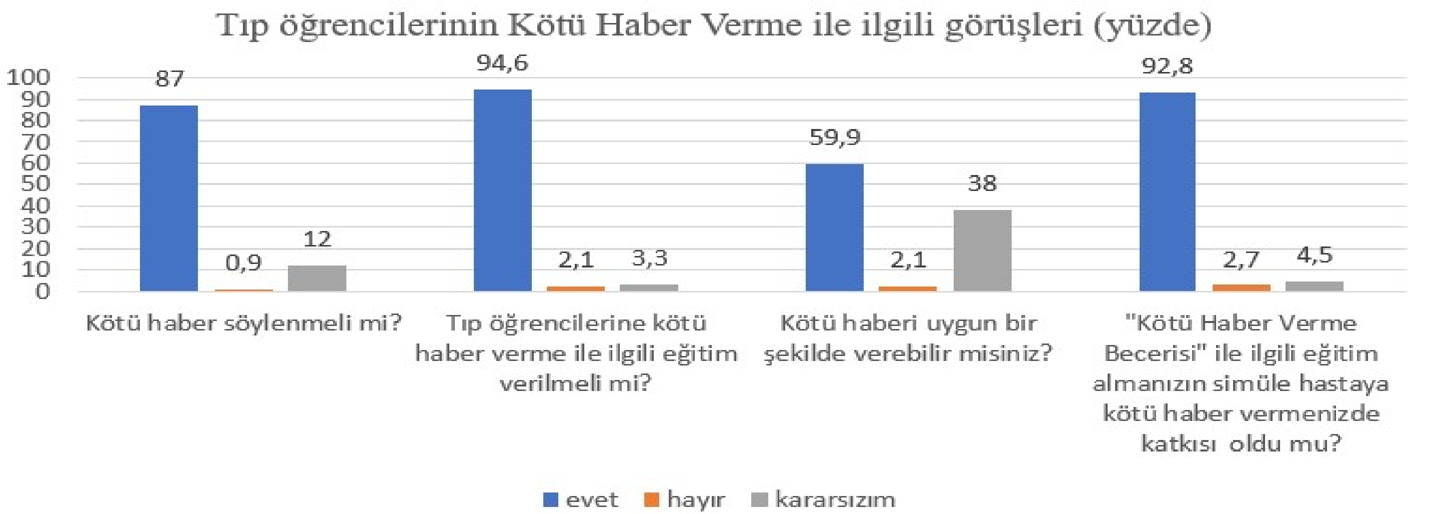
Nitel verilerin analizinde tümevarımsal içerik analizi yöntemi kullanılmıştır.[27] Öğrencilerin açık uçlu soruya verdikleri yanıtlar önce iki araştırmacı tarafından ayrı ayrı kodlamış, kodlar kategoriler altında toplanarak temalar halinde birleştirilmiştir. Her araştırmacı kendi yaptığı kodlamaları diğer araştırmacının iç kontrolüne sunmuş ve fikir birliği sağlanmıştır. dış denetim amacıyla araştırmacıların yaptığı kodlama ve temalar, araştırmada yer almayan bir uzman tarafından daha değerlendirilmiştir.[28-29]

BULGULAR

1. Nicel verilere ait bulgular

Sosyodemografik özellikler ve "Kötü haber Verme" ile ilgili sorulara verilen yanıtlar

Üçüncü sınıfta öğrenim gören ve simüle hasta görüşmesine katılan 330 öğrencinin tümü araştırmaya katılım için gönüllü olmuştur. Öğrencilerin yaş ortalaması 21,7 ± 2,86 (19-50) olup, %52,7'si (n=175) kadındır. Katılımcıların %87'si kötü haberin hastaya söylenmesi gerektiğini, %94,6'sı tıp öğrencilerinin KHV ile ilgili eğitim alması gerektiğini düşünmektedir. Öğrencilerin %59,9'u eğitim sonrası kötü haberi uygun şekilde verebileceğini, %92,8'i ise KHV becerisi ile ilgili aldığı eğitimin simüle hastaya kötü haber vermesinde katkısı olduğunu belirtmiştir. Öğrencilerinin "Kötü Haber Verme" konusundaki görüşleri Şekil 2'de gösterilmiştir.



Şekil 2: Tıp öğrencilerinin kötü haber verme ile ilgili görüşleri.

Kötü haber verme deneyimi sonrası ne hissettikleri sorulduğunda, öğrencilerin %27,8'i (n=90) kötü haber vermenin ne kadar zor olduğunu fark ettiklerini, %21,6'sı (n=70) kötü/üzgün/çaresiz/gergin hissettiğini, %15,4'ü (n=50) empatinin önemi fark ettiğini belirtmiştir (Tablo 1).

Kötü haberin söylenmesinin gerekliliği ve kötü haberi verme konusunda öz yeterlik algıları bakımından kadın ve erkek öğrenciler arasında anlamlı fark saptanmamıştır (*P*>,05). Tıp öğrencilerinin KHV ile ilgili eğitim alması konusunda ise erkek ve kadın öğrencilerin görüşleri arasında kadınlar lehine anlamlı fark saptanmıştır (*P*=,02) (Şekil 3).

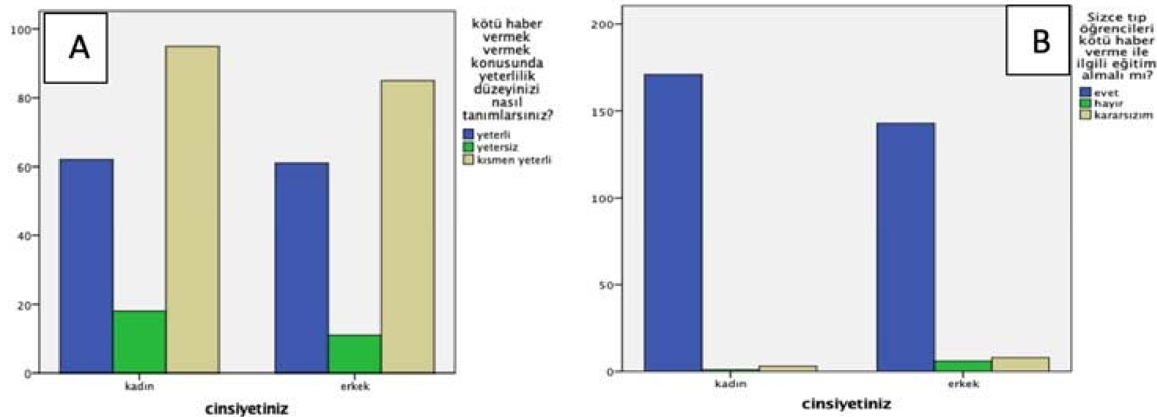
2. Nitel verilere ait bulgular

Açık uçlu soruya verilen yanıtların analizinde kötü haber vermenin zorluğu, kötü haber almanın zorluğu, kötü haber verirken empati yapmanın önemi, doktorluk mesleğinin zor olduğu ve konunun önemi temaları öne çıkmıştır (Şekil 4)

Tablo 1: Tıp öğrencilerinin simüle hastaya kötü haber verme deneyimi sonrası geri bildirimleri

Kötü haber verme deneyimi sonrası ne hissettiniz?	% (n)
Kötü haber vermenin ne kadar zor olduğunu anladım	27,8 (90)
Stresli/kötü/çaresiz/gergin/üzgün hissettim	21,6 (70)
Empati yapmanın önemini fark ettim	15,4 (50)
Kötü haber vermenin hem doktor, hem hasta için zor olduğunu farkettim	14,2 (46)
Kendimi doktor gibi hissettim	8,6 (28)
Konuya önem verilmesi gerektiğini fark ettim	4,3 (16)
Karşımdaki gerçek hasta olmadığı için gerçekçi hissetmedim	5,2 (17)
Doktorluğun ne kadar önemli bir meslek olduğunu anladım	1,8 (6)

Bu sonuçlar öğrencilerin açık uçlu sorulara verdikleri yanıtlardan kategorize edilmiştir. Öğrencilerin verdiği birden fazla yanıt değerlendirmeye alınmıştır.



Şekil 3: Kötü haber verme ile ilgili görüşlerin cinsiyete göre karşılaştırılması.

Şekil 4: Kötü haber verme sonrası öğrencilerin önemini farkettikleri durumlar.

Kötü haber vermenin ve almanın zorluğu

Öğrenciler kötü haber vermenin ve almanın zorluğunu fark ettiklerini belirtmiş, durumu şu sözlerle açıklamıştır:

“Hem haberi veren doktor hem de bunu duyan kişi için fazlasıyla zor bir durum olduğunun farkına vardım.”

“İlerde bu tarz haberleri verirken çok zorlanacağımı hissettim”

“Gerçekten böyle bir durumda kalacağım gün geldiğinde aslında ne kadar zorlanabileceğimi ve bu işin dışarıdan göründüğü kadar kolay olmadığını sonuna kadar hissettim.”

“Kötü haber vermenin tahmin ettiğimden daha zor ve komplike bir olay olduğunu kavradım”.

“Neredeyse dilim dolaşmıştı. Canlandırması bu kadar zor, gerçeğini düşünemiyorum. Umarım hiç vermek zorunda kalmam.”

“Kötü haber vermenin ne kadar zor olduğunu, karşıdaki insanların tepkilerinin ne kadar çeşitli olabileceğini gördüm”.

“Kötü hisstettim çünkü haber sadece alanı değil vereni de yaralıyor. İnsan gercekten hayal gücü yüksek bir canlı bu yüzden sanki rol değilmiş gibi hissettim.”

“Bir gece acilde kalp masajına yanıt vermeyen bir hastanın ölüm haberini yakınlarına asistan ablamızla birlikte vermiştik. Dışarısı çok kalabalık olduğu için saldıracaklar mı diye tedirgindik. Aile büyüklerinden yaşça olgun birini bulup haberi kendisine verdik. Oldukça zor ve gergin bir hava vardı. Binlerce kez bu haberi verseniz de, ilk kez veriyormuş kadar zor olduğu asistan ablanın halinden belliydi.”

“Bu durumun haberi alan insan için zor olduğu kadar bizim için de zor olduğunu anladım.”

“Haberi almak ne kadar zorsa, haberi vermek de bir o kadar zormuş.”

“Kötü haber verdikten sonra oluşan ortamı kontrol etmenin ne kadar zor olduğunu hissettim.”

“Kötü haber vermek hasta ve yakınları için zor olmasının yanında hekimler için de zor. Doğru şekilde yönetilmesi gereken üzücü bir aşama”

“Hem kendimin hem karşımdaki insanın duygularıyla aynı anda baş etmenin zor olduğunu anladım”.

“Kötü haber vermeye çalışmak gerçekten zorlayıcı bir durum ve doktorun da kötü haber verirken hazırlık yapması önemli”.

“Kötü haberin rolü bile zor ve üzüntü verici.”

“Ürperdim açıkçası, bunu rol gereği söylediğinizde bile insanın içini titreten bir durum, gerçek bir durumda bunu yapmak fazlasıyla deneyim gerektirir bence. Çünkü; beklenmedik bir tepki verdiklerinde kötü haber verdiğimiz insana karşı izleyeceğimiz davranış biçimi bizi bir saniye içerisinde iyi ya da kötü bir doktor yapmaya yetecektir. Altından kalkarsak bir sorun oluşturmaz fakat tersi bir durumda kötü izlenimi asla silemezsiniz ve sizi hayatınız boyunca takip eder.”

“İlerisi için iyi bir eğitim oldu hekim olarak duygulandım. Üzüntü ve çaresizlik ön plandaydı.”

“Gerçek bir doktor gibi hissederek bir hastanın gözlerinin içine baka baka kötü haberi vermek öyle zor ki, kelimeler ağzımdan dökülemiyor bilemiyorum buna alışılıyor mu ama sanırım alışana kadar verdiğim her kötü haber benim başıma gelmiş gibi hissedeceğim”

“Rol yaparken dahi bu kadar zorlandıysak gerçek hayatta Allah yardımcımız olsun. Sandığımdan çok daha zor ve dikkat edilmesi gerek bir şeymiş.”

“Bir kişinin hayatının bitebilecek olma fikri bile çok zor iken, bunu bilip ve bildiğini karşıya aktarmak çok zor”

Hekim olmanın zorlukları

Öğrenciler kötü haber verme deneyimiyle hekimliğin zorluğunu farkettiklerini belirtmiş durumu aşağıdaki sözlerle dile getirmişlerdir:

“Bu dersin bizden sonraki tıp öğrencilerine de kesinlikle verilmesi gerektiğini düşünüyorum.”

“Hekimliğin duygusal olarak en zor kısmı”

“Hekimlik hayatımızın ne kadar zor olacağını tekrardan anladım.”

“Haberi alan insan için zor olduğu kadar bu durumun bizim için de zor olduğunu anladım.”

“Gerçekte böyle bir haber vermeyi asla istemeyeceğimi fark ettim en az hasta kadar doktor için de zor olduğunu düşünüyorum. Hastanın üzüntüsü beni de çok üzdü. Gerçek bir olay olsa hastayla beraber ağlayabilirdim”.

“Böyle bir durumun olmamasını ve durumu açıklamak zorunda kalmamayı tercih ederdim.”

“Meslek hayatın en zor anı kötü haber vermek olabilir.”

“Hastayla konuşurken doğru kelimeleri seçmek çok zor.”

İletişim ve empatinin önemi

Kötü haber verme deneyimi sonrası öğrenciler iletişim ve empatinin önemini farkettiklerini şu sözlerle açıklamışlardır:

“Gerçekten hastanın kötü haberi aldığında neler hissedebileceğini daha iyi anladım.”

“Mesleğimin hakkıyla yapılması için yüreğimi daha çok terbiye etmem gerektiğini anladım.”

“Empati duygumun geliştiğini hissettim.”

“Gerçekten o stresi ve baskıyı, o depresifliği hissettim. Oldukça üzücü bir deneyimdi ama yapılması gerekiyordu ne yazık ki”.

“Empati yapmanın önemini gerçekten daha iyi anladığımı düşünüyorum.”

“Gerçek hayatta bu durum ile karşı karşıya kaldığımda ne yapıp ne yapmayacağımı belirlemeye çalıştım bunun yanında empati kurduğumuzda haberi verdiğimiz kişiye onu anladığımızı göstermenin zor olduğunu deneyimledim,

fiziksel olarak olmasa da psikolojik olarak zorlandım diyebilirim."

"Hasta ile iletişimin tıbbi işlemler kadar zor ve önemli olduğunu"

"Kötü haberi veren olarak ben de üzüldüm ve üzüldüğümü belirttim hastaya."

"Gerçek olmamasına rağmen gözlerim doldu."

"Kötü hissettim, kendimi gerçekten kötü haber veriyor gibi hissettim"

"Kendi ailemden birinin başına gelse nasıl hissedebileceğimi anladım. Bu yüzden empati kurma yeteneğim daha çok arttı".

"Yakınıyla ilgili bilgi bekleyen birine karşı bilgilendirme yapmanın büyük sorumluluk getirdiğini bununla beraber vereceğimiz haber kötü bir haberse bunu çok daha dikkatli bir şekilde yapmam gerektiğini hissettim. Doktorluğun sadece tıbbi bilgilerden ibaret olmadığını mesleğin böyle bir insancıl tarafı olduğunu bana hatırlattı."

"Hastanın zor durumunun farkında olup onunla aynı duyguları paylaşabildiğimi hissettim."

"Doktor olucaz zaten bunlara alışırız, yapabiliriz diye düşünüyordum ama dersteki videolar, kötü haber çeşitliliği, bize küçük-tedavi edilebilir bir durum gibi gelen çoğu hastalığın ve haberin aslında kişi ya da aile için çok yıkıcı, etkileyici sonuçlarının olduğunu, çok çok zor bir durum olduğunu uzun yıllar çalışsak dahi bu durumun yine de zor olacağını anladım ve hastanede hasta ve yakınlarının "garip" gelen davranışlarının aslında normal olduğunu anladım ve önceden farklı düşündüğüm durumlardan dolayı kendimi kötü hissettim".

"Gerçekten çok zordu. Ben kendim yaşanmış bir olaydan esinlenmiştim. Bana o haberi veren doktoru şimdi daha iyi anlıyorum. Sesim titredi, ağlamak istedim. Hiç kötü haber vermek istemem bundan sonra verecek olduklarım için de çok üzüleceğim."

"Bu bir kurgu olmasaydı bu haberi verirken boğazımın düğümlenebileceğini hissettim. Karşımdaki kişiye, işimi yaparken yetersiz kaldığımız yerlerde elimizden geleni yaptık derken yaşayacağım "neden daha fazlasını yapamıyoruz" sorusunu kendime defalarca soracağımı hissettim. Sizi anlıyorum derken aslında insanoğlunun sınırlı empati yeteneğinin günü geldiğinde ne kadar artabileceğini hissettim."

"Hastamla yakınlık kurduğumda daha iyi bir paylaşım yapabildiğimi ve hastamın daha az yıprandığını fark ettim."

"Gerçek durumda kıyaslanamayacak olsa da pratik sağladığını düşünüyorum. Sadece ders notunu okuyarak empati yapma yeteneğim daha az olurdu. Bu şekilde verilen haberlerde doktorun üslubunun aslında çok şey değiştirdiğini farkettim."

"Doktorluk sadece bilgiden ibaret degil insan olmak gerekiyor."

Kötü haber vermenin önemi

Simüle hastaya kötü haber verme deneyiminden sonra öğrenciler konunun önemini daha iyi kavradıklarını belirtmiş, durumu aşağıdaki şekilde ifade etmiştir:

"Bunun gerçekten de çok ciddi ve önemsenmesi gereken bir şey olduğunu farkettim."

"Bunun iki taraflı düşünülmesi gerektiğini düşünüyorum. Hastanın açısından bakarak onu anlayarak haber verilmeli. Kötü haberi veren olarak ben de üzüldüm ve üzüldüğümü belirttim hastaya."

"Her ne kadar eğitim alsam da ileride vereceğim kötü haberlerin çok zor olacağını hissettim."

TARTIŞMA

Tıp fakültesi üçüncü sınıf öğrencilerinin kötü haber verme ile ilgili algılarını ve SH'ya KHV deneyimi ile ilgili geri bildirimlerini araştıran bu çalışmada; öğrencilerin tamamına yakını KHV'nin zor olduğunun farkına vardıklarını belirtmiştir.

Kötü haber verme tıptaki en zor görüşmelerden olup, kompleks bir iletişim becerisi ve eğitim gerektirmektedir.[3,12,29-30] Çalışmaya katılan öğrenciler tıp öğrencilerinin KHV ile ilgili eğitim alması gerektiğini düşündüklerini bildirmişlerdir. Bilgin ve arkadaşlarının yaptıkları bir çalışmada doktorların %42'sinin KHV ile ilgili bir eğitim almadıkları[31], Dilfiruz ve arkadaşlarının 232 asistan doktorla yaptıkları çalışmada, katılımcıların %64'ünün mezunityet öncesi ve sonrasında KHV ile ilgili bir eğitim almadıkları saptanmıştır.[32] Uluslararası literatürde de sonuçlar benzerdir ve eğitim eksikliği sıklıkla vurgulanmaktadır. Kanada ve Güney Kore'de KHV konusunda hekim eğitiminin yetersiz olduğu bildirilmiştir.[2] Portekiz'de aile hekimleriyle yapılan bir çalışmada doktorlar eğitimin gerekli olduğu vurgulamıştır.23 Benzer şekilde İran [21], Hindistan [33] ve Pakistan'da [22] yapılan çalışmalarda da eğitimin gerekliliği vurgulanmıştır. İletişim becerilerinin tıp fakültesi mezunundan beklenen yeterliklerden biri olarak belirlenmesiyle birlikte, Türkiye'de iletişim becerileri eğitimleri müfredatlarda yerini almaya başlamıştır.

Öğrencilerin %93'ü SH'ya kötü haber vermelerinde, aldıkları eğitimin katkısının olduğunu belirtmişlerdir. Katılımcıların yarıdan fazlası, kötü haber verme konusunda kendisini yeterli hissettiğini söylemesine karşın, %40'ına yakını kötü haberi uygun şekilde verebileceği konusunda emin değildir. Bu sonuçlar daha fazla eğitim ve pratik uygulamaya gereksinim duymaları ile ilgili olabilir. Simüle hasta ile yapılan KHV etkileşimlerinin arttırılması öğrencilerin yeterlik algılarına katkı sağlayabilir. Öte yandan, KHV'nin doğasında zor, karmaşık ve istenmeyen bir durum olması da, öğrencilerin kötü haberi uygun bir şekilde

verebilecekleri konusunda kararsız hissetmelerine neden olmuş olabilir. Nitekim öğrenciler açık uçlu sorulara verdikleri yanıtlarda da KHV'nin ne kadar zor olduğunu fark ettiklerini sıklıkla dile getirmişlerdir.

Öğrencilerin %2'si kötü haberi uygun şekilde veremeyeceğini düşünmekteydi. Bu öğrencilerin de uygun tutumlar geliştirmeleri ve konu ile ilgili yetkinlik kazanmalarının sağlanması önemlidir. Bilgin ve ark. nın çalışmasında doktorların yarısına yakını KHV konusunda kendini yetersiz hissettiklerini bildirmişlerdir.[31] Yakın zamanda Türkiye'de yapılan bir çalışmada asistan doktorlardan sadece %38'i KHV konusunda kendini yeterli hissettiğini bildirmiştir.[32] Kötü haber verme ile ilgili daha fazla pratik yapılmasının mezuniyet öncesi ve sonrası tıp öğrencilerinin yeterlilik algıları üzerinde olumlu etkisi olabilir. Simüle hasta pratiklerinin arttırılmasının faydası gösterilmiştir. [16]

Öğrencilerin çoğunluğu kötü haberin söylenmesi gerektiğini düşündüklerini belirtmiştir. Kötü haberin hastaya iletilmesi, Lizbon Hasta Hakları Bildirgesi, Türk Deontoloji Tüzüğü ve Hasta Hakları Yönetmeliği'nde "bilgilendirme hakkı" kapsamında ele alınmaktadır. Bilgilendirme, doktorlar için hem yasal yükümlülük, hem de etik bir sorumluluktur. [34-36] Günümüzde kötü haberin hastaya verilip verilmemesi konusu değil, uygun bir şekilde nasıl verileceği tartışılmaktadır. Önemli olan bu haberin hasta üzerindeki olumsuz etkilerini en aza indirecek şekilde, insancıl bir yaklaşımla ve empati ile verilmesidir. Kötü haber verme konusunda alınacak eğitimin faydalı olduğu gösterilmiştir.[37]

Kötü haberler alıcı tarafta ağlama, suçlama, inkar, öfke ve bağırıp çağırmadan, donup kalmaya kadar değişen çok çeşitli tepkilere neden olabilir.[12] Bu çalışmada öğrenciler, kötü haberi almak kadar vermenin de zor olduğunu farkettiklerini belirtmişlerdir. Bir öğrenci bu durumu "Kötü haber vermenin alıcı ve verici taraf için ne kadar zor olduğunu fark ettim" sözleriyle belirtmiştir. Kötü haberlerin paylaşıldığı anlar her iki taraf için de yaşanması zor anlardır.[12]

Empati "kişinin kendini bir başkasının yerine koyarak, olaylara onun gözünden bakabilmesi" dir. [38] Hasta hekim iletişiminde empatinin çok önemli bir yeri vardır. Empatik bir yaklaşım kötü haber vermede iletişimi kolaylaştırıcı olup, sadece bir tutum değil, bilişsel ve duygusal boyutları olan psikolojik bir süreçtir.[39,40] Bu araştırmada öğrenciler henüz gerçek hastayla karşılaşmamış olmalarına rağmen, SH'ya kötü haber verme deneyimi sonrasında empatinin önemini fark ettiklerini belirtmişlerdir. Simüle hasta ile KHV deneyiminin, tıp öğrencilerinin empati tutumları üzerine etkisini araştıran bir çalışmada, benzer sonuçlar bildirilmiş, öğrencilerin empatinin önemini algıladıklarına dikkat çekilmiştir.[40] Kötü haber verme sırasında hasta ve/veya hasta yakını aldığı kötü haberin şoku ile baş etmeye çalışırken onunla empati kurup, anlamaya çalışmak çok değerlidir.[12] Bu nedenle tıp eğitiminde empatik tutum geliştirici uygulamaların en erken evrede başlatılması önemlidir. [40]

Çalışmaya katılan öğrencilerin yaklaşık üçte biri görüşmede kendilerini "doktor gibi" hissettiklerini söylemişlerdir. Tıp fakültesinde preklinik yıllarda öğrencilerin klinik ile temasları az olup, gerçek hastalar ile karşılaşmamaktadırlar. Bu nedenle klinik öncesi evrede simüle hastalarla yapılan uygulamalar çok değerlidir. Nitekim çalışmada SH ile uygulama yapmış olmanın öğrencilere doktor gibi hissettirdiği saptanmıştır.

Çalışmaya katılan öğrenciler simüle hastayla görüşme sonrasında, konuya önem verilmesi gerektiğini fark ettiklerini belirtmişlerdir. Simüle hasta ile yaşadıkları KHV deneyiminin, öğrencilere tıbbın insancıl boyutunu, kuramsal derslere göre daha açık bir şekilde gösterdiği söylenebilir. Bir öğrenci bu düşüncesini "Doktorluğun sadece tıbbi bilgilerden ibaret olmadığını mesleğin böyle bir insancıl tarafı olduğunu bana hatırlattı" şeklinde belirtmiştir.

Çalışmada kadın ve erkek öğrencilerin KHV konusunda öz yeterlik algıları arasında fark yokken, KHV ile ilgili eğitim alınması konusunda cinsiyetler arasında kadınlar lehine anlamlı bir fark saptanmıştır. Daha önceki bazı çalışmalarda da kadınların iletişim, empati gibi konularda erkeklerden daha yüksek puanlar aldıkları gösterilmiştir.[38,40]

Sonuç olarak "kötü haber verme" nin alıcı ve verici taraf için güçlükleri olup, haberin ağırlığından dolayı zor bir görüşme olacaktır. Kötü haber verme becerisi geleceğin doktorlarına uygun bir eğitimle kazandırılması gereken çok önemli bir beceridir. Kötü haberin hasta ve/veya yakınlarına en az yıkıcı ve yıpratıcı, aynı zamanda en insancıl ve empatik şekilde verilebilmesi için, iletişim becerileri eğitimleri kapsamında "kötü haber verme becerisi"ne önem verilmesi, bu çok önemli yeterliğin eğitim programında mutlaka yer alması, deneyimsel yöntemlerin arttırılması, eğitimlerin uygun tutum geliştirici etkinliklerle desteklenmesi gerektiğini düşünmekteyiz.

Çalışmanın Sınırlılıkları

Araştırmanın dile getirilmesi gereken bazı sınırlılıkları bulunmaktadır. Çalışma tek bir tıp fakültesinin üçüncü sınıf öğrencileriyle yapılmıştır. Genelleme yapmak ve nedensel çıkarımlarda bulunmak olanaklı değildir. Türkiye'de konu ile ilgili yapılan az sayıda çalışmadan biri olması ve tıp öğrencilerinin görüş ve tutumları ile ilgili veri sağlaması çalışmanın güçlü yönleridir.

SONUÇ

Kötü haber verme becerisinin, gerçek hasta ile

karşılaşmadan önce, tıp öğrencilerine kazandırılması gerekmektedir. Çalışma sonuçları, tıp öğrencilerinin kötü haberin hastaya söylenmesi gerektiğini, kötü haber vermenin alıcı ve verici taraf için zor bir deneyim olduğunu, görüşmede empatinin çok önemli olduğunu ve tıp öğrencilerinin konu ile ilgili eğitim alması gerektiğini düşündüklerini göstermektedir. Eğitim sonrası öğrencilerin yarısından fazlası hasta ve yakınlarına kötü haberi uygun şekilde verebileceğini düşünmektedir. Gelecek çalışmalar, eğitimin etkilerinin araştırılması ve eğitim yöntemlerinin karşılaştırılmasına odaklanmalıdır

Etik Komite Onayı: Etik kurul onayı Atatürk Üniversitesi Tıp Fakültesi Klinik Araştırmalar Etik Kurulundan alınmıştır (Tarih: 24.06.2021, Sayı:2021/05-37)
Hasta Onamı: Bu makalede, katılımcıların kişisel bilgileri amaçlanan amaç dışında herhangi bir amaçla kullanılmamıştır. Tüm katılımcılar araştırma çalışmasına katılımları hakkında bilgilendirildi ve yazılı bilgilendirilmiş onamları alındı.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir- EÇT, ZO, YÇ; Tasarım- ECT, PGG,YÇ, ZO, PDK; Denetleme- YÇ, ZO; Kaynaklar-MAN, PDK, PGG, ECT; Veri Toplanması ve/veya İşlemesi ECT, YÇ, PGG, ZO, PDK; Analiz ve/ veya Yorum- MAN, ECT, PGG, PDK, ZO,YÇ; Literatür MAN, ECT, PGG, PDK, ZO, YÇ; Yazıyı Yazan- ECT, PGG, PDK, YÇ; Eleştirel İnceleme- ZO,YÇ:
Çıkar Çatışması: Yazarlar, çıkar çatışması olmadığını beyan etmiştir.
Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

Ethics Committee Approval: Ethics committee approval was obtained from Atatürk University Medical Faculty Clinical Research Ethical Committee, Türkiye (Date: 24.06.2021, Number: 2021/05-37)
Informed Consent: In this article, the personal information of the participants has not been used for any purpose other than intended. All participants were informed about their participation in the research study and their written informed consent was obtained
Peer-review: Externally peer-reviewed.
Author Contributions: Concept – ECT, PGG,YÇ, ZO, PDK; Design- YÇ, ZO; Supervision- YÇ, ZO; Resources- MAN, PDK, PGG, ECT; Data Collection and/or Processing- MAN, ECT, PGG, PDK, ZO,YÇ; Analysis and/or Interpretation- MAN, ECT, PGG, PDK, ZO,YÇ; Literature Search- MAN, ECT, PGG, PDK, ZO, YÇ; Writing Manuscript- ECT, PGG, PDK, YÇ; Critical Review- ZO,YÇ.
Conflict of Interest: The authors have no conflicts of interest to declare.
Financial Disclosure: The authors declared that this study has received no financial support.

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ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

RESEARCH ARTICLE / *Araştırma makalesi* DOI: 10.61745/jsmsau.1578115

Comparison of the Effectiveness of LAR and CURB-65 Scores in Determining Hospitalization Decisions in Acute Pneumonia Patients

Akut Pnömoni Hastalarında LAR ve CURB-65 Skorlarının Hastaneye Yatış Kararındaki Etkinliğinin Karşılaştırılması

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ABSTRACT

Objective: This study aims to assess the efficiency of the Lactate/Albumin Ratio (LAR) and CURB-65 scoring in determining the need for hospitalization in acute pneumonia patients in the emergency department.
Methods: Our study was conducted retrospectively in the emergency department of a tertiary hospital from 1 February, 2024, to 1 August, 2024. Patients who presented with lower respiratory tract infections and were diagnosed with acute pneumonia between 01.02.2024 and 01.08.2024 were included in our study. All patient information was collected from electronic medical records.
Results: A total of 77 patients were included in the study, of which 30 were hospitalized. The mean age of the patients was 68.8 ± 12.2 years, and 46.8% (n=36) were male. When comparing patients discharged from the emergency department with those admitted to the hospital, the discharged group had lower respiratory rate, BUN, lactate, CURB-65, and LAR values, which were statistically significant ($P<.05$). LAR was negatively correlated and statistically significant with SBP, DBP and pH ($P<.05$). It was positively correlated and statistically significant with lactate and CURB-65 ($P<.001$).
Conclusion: Our study found that the LAR may be indicative of the need for hospitalization in acute pneumonia patients. However, the CURB-65 scoring system was more successful than LAR in predicting hospitalization.

Keywords: Albumin, emergency medicine, lactate, lactate/albumin ratio, pneumonia,

ÖZ

Amaç: Bu çalışmanın amacı, akut pnömoni hastalarında hastaneye yatış gereksinimini belirlemede Laktat/Albümin Oranı (LAR) ve CURB-65 skorlama sisteminin etkinliğini değerlendirmektir.
Yöntemler: Çalışmamız, 1 Şubat 2024 ile 1 Ağustos 2024 tarihleri arasında bir üçüncül hastanenin acil servisinde retrospektif olarak gerçekleştirilmiştir. Akut pnömoni tanısı konan alt solunum yolu enfeksiyonu ile başvuran hastalar çalışmaya dahil edilmiştir. Tüm hasta bilgileri elektronik tıbbi kayıtlar üzerinden toplanmıştır.
Bulgular: Toplamda 77 hasta çalışmaya dahil edilmiştir; bunlardan 30'u hastaneye yatırılmıştır. Hastaların ortalama yaşı 68,8 ± 12,2 yıl olup, %46,8'i (n=36) erkektir. Acil servisten taburcu edilen, hastalar ile hastaneye yatışı yapılan hastalar karşılaştırıldığında, taburcu edilen grubun solunum hızı, BUN, laktat, CURB-65 ve LAR değerlerinin istatistiksel olarak anlamlı bir şekilde daha düşük olduğu görülmüştür ($P<.05$). LAR'ın sistolik kan basıncı (SKB), diastolik kan basıncı (DKB) ve pH ile negatif yönde ve istatistiksel olarak anlamlı bir korelasyonu olduğu bulunmuştur ($P<.05$). LAR, laktat ve CURB-65 ile pozitif yönde ve istatistiksel olarak anlamlı bir korelasyona sahipti ($P<.001$).
Sonuç: Çalışmamız, LAR'ın akut pnömoni hastalarında hastaneye yatış gereksinimini gösteren bir belirteç olabileceğini bulmuştur. Ancak, CURB-65 skorlama sisteminin hastaneye yatışı tahmin etmede LAR'dan daha başarılı olduğu görülmüştür.

Anahtar kelimeler: Albümin, acil tıp, laktat, laktat/albümin oranı, pnömoni

Received/ Geliş Tarihi	02.11.2024
Revision request/Revizyon Talebi	08.11.2024
Last Revision request/Son Revizyon Talebi	05.12.2024
Accepted/Kabul Tarihi	06.12.2024
Publication Date/Yayın Tarihi	28.12.2024

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Cite this article: Tortum F. Comparison of the Effectiveness of LAR and CURB-65 Scores in Determining Hospitalization Decisions in Acute Pneumonia Patients. *Atatürk Univ Fac Med J Surg Med Sci.* 2024;3 (3). 97-102

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INTRODUCTION

Pneumonia is a pathological process characterized by the infection and infiltration of the alveolar, distal airways, and lung interstitial tissue. [1] Despite all advances in the medical field, respiratory diseases account for 30% of deaths each year. [2] Therefore, it is essential to rapidly identify pneumonia patients in emergency departments and determine their need for hospitalization.

Various scoring systems are employed to evaluate the severity of pneumonia and determine the necessity for hospitalization. The Pneumonia Severity Index (PSI) and CURB-65 are the primary scoring systems for evaluating pneumonia severity. PSI consists of 20 variables and can be complex to calculate in emergency services. [3] CURB-65 is another widely used scoring system; however, its performance decreases with advancing ages. [4] Consequently, there is ongoing research to define scoring systems and biomarkers that can assess the severity of pneumonia.

Lactate is considered a pleiotropic bioactive agent that can regulate immune-inflammatory responses, angiogenesis, and fibrosis. [5] Therefore, lactate levels are commonly used as a biomarker in emergency departments, as they indicate hypoxia and poor tissue perfusion and assist in determining the severity of various diseases, such as malignancy and sepsis. [6] Albumin, one of the most important proteins in the body, plays a vital role in maintaining colloidal osmotic pressure, wound healing, reducing oxidative damage, transporting drugs and endogenous substances, and coagulation. Additionally, albumin is one of the negative acute-phase reactants. [7] Due to these properties, albumin levels have been the subject of studies assessing inflammation severity, mortality, and the need for hospitalization in emergency services. [8] In light of the critical role of both albumin and lactate values in patient care, recent studies have also focused on the role of lactate/albumin ratios (LAR) in identifying critically ill patients. [9,10]

For all these reasons, this study aimed to evaluate the usability of LAR in determining the need for hospitalization of acute pneumonia patients in emergency departments and its relationship with CURB-65 scoring.

METHODS

Study Design

Our study was conducted retrospectively in the emergency department of a tertiary hospital from February 1, 2024, to August 1, 2024. This study was approved by the Atatürk University, Faculty of Medicine Clinical Research Ethics Committee. The study was carried out by the Helsinki Declaration (decision number: 7/23, date: October 25, 2024).

Study Population and Data Collection

Patients who presented with lower respiratory tract infections and were diagnosed with acute pneumonia between 01.02.2024 and 01.08.2024 were included in our study. All data of the patients were obtained from electronic patient records. The inclusion criteria were:

1. Age >18,

2. Presentation with acute lower respiratory symptoms (fever, cough, increased sputum, dyspnea, etc.),

3. No additional chronic diseases (diabetes, hypertension, chronic obstructive pulmonary disease, asthma, heart failure, coronary artery disease, chronic kidney disease, chronic liver disease, malignancy),

4. Ability to carry out daily activities independently,

5. Consultation with a pulmonologist (with at least 5 years of professional experience) confirming the diagnosis of acute pneumonia and determining the clinical outcome (discharge or hospitalization),

6. Complete availability of all data.

Patients who presented to the emergency department for a reason other than lower respiratory tract infection, or who had a chronic disease (Lactate and albumin levels may be influenced by factors such as medication use (e.g., metformin) or chronic conditions (e.g., chronic kidney disease, lung diseases associated with hypoxia, chronic liver diseases, etc.). Therefore, patients with chronic diseases have been excluded from the study.), comorbidity, or missing data, and who did not undergo chest disease consultation were excluded from the study. In our clinic, the CURB-65 and PSI scoring systems are used to determine the need for hospital admission in pneumonia patients. Patients with a CURB-65 score of 2 or higher are considered to have an indication for hospitalization and are consulted with the pulmonology department. The decision regarding the need for hospitalization for these patients is made in collaboration with the pulmonology specialist. If the PSI score is used, patients with a PSI score of class 2 or higher are also consulted with the pulmonology specialist to decide whether hospitalization is necessary. For patients falling

outside these criteria, discharge decisions are made based on the patient's individual characteristics. (Figure 1)

Age, gender, systolic-diastolic blood pressure values, pulse rate, fingertip saturation values, presence of confusion, PaO_2, $PaCO_2$, pH, and lactate values in arterial blood gas at the time of presentation to the emergency department were obtained from the electronic files of the patients and recorded in the study form. BUN (blood urea nitrogen), albumin, LAR levels in biochemical tests taken at the time of presentation to the emergency department were obtained from the patients' electronic files and recorded in the study form. The CURB-65 scores calculated by emergency medicine specialists with at least 2 years of experience were also retrieved from electronic files. For CURB-65 calculation, the presence of confusion was defined as 1 point, BUN>19 mg/dL as 1 point, respiratory rate>30 as 1 point, and systolic blood pressure (SBP) <90 mmHg or diastolic blood pressure (DBP) ≤60 mmHg as 1 point. [11] The clinical outcomes of the patients (hospitalization or discharge) were also recorded on the study forms. All data were transferred to electronic media.

Statistical Analysis

Statistical analyses were performed using SPSS version 25 (IBM SPSS Corp. Armonk, NY, USA). The Kolmogorov-Smirnov test was used to assess normal distribution. Descriptive statistics were presented as frequencies (n) and percentages (%) for categorical variables and as means and standard errors for numerical variables. Comparisons between categorical variables were made using the Chi-square test and Fisher's Exact test. For non-normally distributed variables, group comparisons were conducted using the Mann-Whitney U test. Spearman correlation analysis was used to investigate the relationship between non-normally distributed variables.

Receiver operating characteristic (ROC) analysis was performed to evaluate the predictive power of the CURB-65 score for hospitalization and discharge of patients from the emergency department. The area under the curve (AUC) for BUN, lactate, LAR, and CURB-65 scores was calculated. The Youden J index was used to estimate the best cutoff values. Sensitivity and specificity were calculated with a 95% confidence interval (CI). Statistical significance was accepted at $P<.05$.

RESULTS

A total of 77 patients were included in the study, of which 47 were hospitalized. The mean age of the patients was 68.8 ± 12.2 years, and 46.8% (n=36) were male. When comparing patients discharged from the emergency department and those admitted to the hospital, saturation, and PaO_2 values were higher in the discharged group, while respiratory rate, BUN, lactate, CURB-65, and LAR values were lower and statistically significant ($P<.05$). The baseline characteristics of the patients according to the outcome in the emergency department are shown in Table 1.

The correlation of LAR with other data is shown in Table 2. LAR was negatively correlated and statistically significant with SBP, DBP and pH ($P<.05$). It was positively correlated and statistically significant with lactate and CURB-65 ($P<.001$).

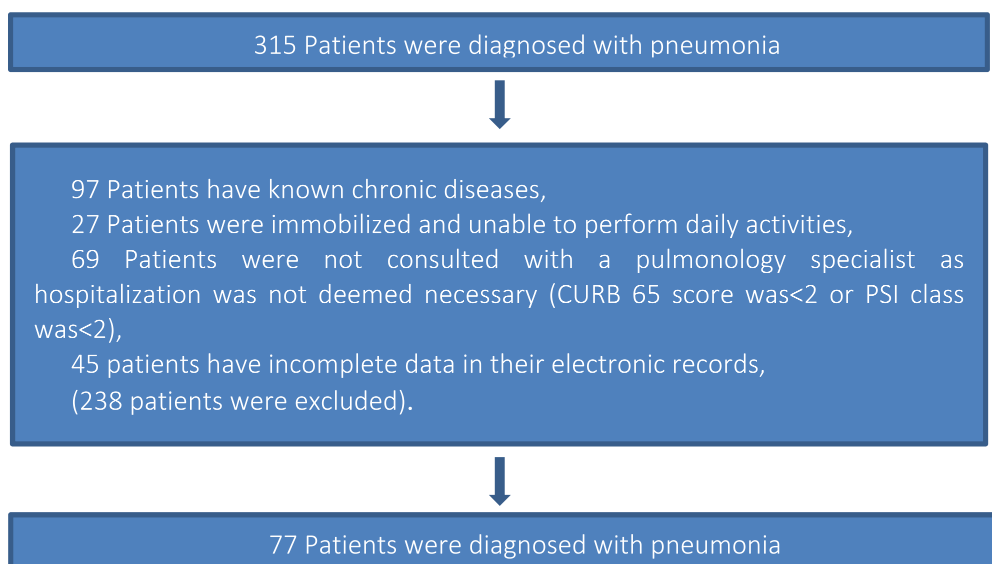

Figure 1: Flowchart for patient selection

Table 1. Baseline characteristics of the patients according to the outcome in the emergency department

Variables	Total (n=77)	Discharged (n=30)	Hospitalization (n=47)	*P*
Age, year	68.8±12.2	63.4±13.1	72.3±10.4	.540
Gender, male	36 (46.8%)	14 (46.7%)	22 (46.8%)	.990
Confusion	10 (13.0%)	1 (3.3%)	9 (19.1%)	**.045**
SBP, mmHg	120.6±26.6	126.8±16.4	116.7±30.9	.111
DBP, mmHg	73.5±16.6	77.9±9.8	70.6±19.8	.052
Heart Rate, /min	107.1±22.1	101.4±16.5	110.7±24.5	.057
Saturation, %	81.6±7.3	84.1±7.5	79.9±6.7	**.007**
Respiratory rate, /min	20.8±5.6	18.6±4.1	22.3±6.0	**.008**
Albumin, g/dL (3.5- 5.2 g/dL)	3.5±0.5	3.6±0.5	3.5±0.5	.768
BUN, mg/dL (6- 22mg/dL)	24.7±14.0	17.5±10.7	29.2±14.1	**<.001**
pH (7.35- 7.45)	7.42±0.06	7.44±0.04	7.42±0.06	.061
Lactate, mmol/L (0.5- 1 .6 mmol/L)	1,91±1.13	1.55±0.84	2.13±1.23	**.011**
PaO_2	60.28±10.35	65.07±9.51	57.23±9.78	**.001**
$PaCO_2$	34.30±6.04	33.31±5.69	34.94±6.23	.306
CURB-65	1.95±1.22	0.87±0.86	2.64±0.87	**<.001**
LAR	0.55±0.45	0.40±0.21	0.64±0.53	**.006**

SBP: Systolic blood pressure; DBP: Diastolic blood pressure; min: minutes PaO_2: Partial arterial oxygen pressure: $PaCO_2$; Partial arterial carbon dioxide pressure: LAR; Lactate/albumin ratio

Table 2. Correlation of LAR with other data

LAR	SBP	DBP	HR	Sat	RR	Alb	pH	PaO_2	$PaCO_2$	Lac	CURB-65
r	-0.378	-0.386	0.219	-0.202	0.221	-0.057	-0.359	-0.126	0.027	0.880	0.475
p	**.001**	**.001**	.055	.077	.054	.624	**.001**	.275	.819	**<.001**	**<.001**

SBP: Systolic blood pressure; DBP: Diastolic blood pressure; HR: Heart rate; Sat: Saturation; RR: Respiratory rate; Alb: Albumine: LAR: Lactate/albumin ratio; PaO_2: partial arterial oxygen pressure: $PaCO_2$; partial arterial carbon dioxide pressure: Lac; Lactate.

Table 3. Optimal cut-off points of variables for predicting patients' hospitalization in the emergency department

Variables	Cut off	AUC	SE	Sensitivity (%)	Specificity (%)	95% CI	*P*
BUN	>19.5	0.800	0.053	78.7	73.3	0.696-0.905	**<.001**
Lactate	>1.34	0.672	0.063	72.3	53.3	0.548-0.796	**.011**
LAR	>0.35	0.687	0.061	72.3	53.0	0.568-0.807	**.006**
CURB-65	>1.50	0.931	0.035	95.7	86.7	0.862-1.000	**<.001**

AUC: area under the curve; SE: Standard error; CI: Confidence interval; LAR: Lactate/albumin ratio

The AUC values of BUN, lactate, LAR, and CURB-65 score on the ROC curve were 0.800, 0.672, 0.687, and 0.931, respectively, and were statistically significant ($P<.05$). When the cut-off value of LAR was 0.35, its sensitivity and specificity were 72.3% and 53.0%, respectively (AUC=0.687, $P=.006$) (Figure 2, Table 3)

DISCUSSION

Our study found that the LAR may be indicative of the need for hospitalization in acute pneumonia patients. However, the CURB-65 scoring system was more successful than LAR in predicting hospitalization. This discrepancy may be due to our relatively small sample size. In addition, the fact that albumin levels were close to the normal range because chronic patients were excluded during our study may have affected this result.

Studies conducted with LAR generally aim to assess mortality. However, conflicting results have been encountered. [12] In a study evaluating LAR, the LAR value was found to be valuable in predicting in-hospital mortality in patients with pneumonia. [13] However, the main outcome of this study was the prediction of in-hospital mortality and the number of patients was much higher than in our study. In addition, chronic patients were not excluded in this study. Another study that evaluated CURB-65 and lactate levels

was similar to our study in terms of number of participants, but lactate levels showed better results than CURB-65 in this study. [14] In this study, the mean age was older than in our study, and patients with chronic diseases were not excluded. The fact that we both excluded patients with chronic diseases and studied a younger age group is aimed at avoiding the influence of chronic diseases on lactate and albumin values. In this respect, the results of our study are indicative for younger patients.

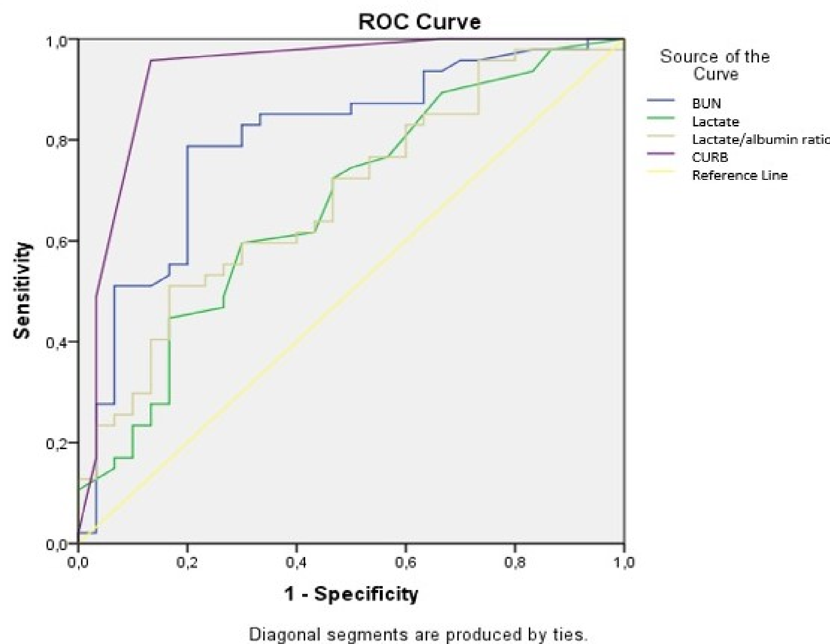

Figure 2: Receiver operating characteristic curve (ROC) for predicting hospitalization of patients in the emergency department using the lactate/albumin ratio (LAR).

One of the key parameters used to assess clinical severity in patients presenting with pneumonia is confusion. However, confusion does not always reflect the severity of the disease. In our study, even though only one patient exhibited confusion, they were ultimately discharged. This patient presented to the hospital with high fever and signs of dehydration. After receiving hydration and starting antibiotic treatment in the emergency department, the patient's confusion resolved once their fever subsided. When evaluated using the CURB-65 and PSI scoring systems, the patient was determined to be at low risk, and as their oxygen saturation remained above 92% without oxygen support, the patient was discharged.

Consistent with the literature, we observed a negative correlation between LAR and arterial pH, as well as SBP and DBP. This suggests that increased lactate levels indicate hemodynamic instability. This correlation between arterial blood pressure and lactate levels has also been observed in previous studies. [15,16] Reduced arterial blood pressure caused impaired perfusion and increased lactate levels. As a result of increased anaerobic mechanisms, arterial pH decreased. This finding is similar to other studies in the literature. [17,18]

The fact that our study included a limited number of patients and was single-center limited our study. In addition, the exclusion of chronic diseases that would affect lactate and albumin levels reduced the number of patients included in the study. This resulted in the older population being included in our study with fewer patients.

CONCLUSION

Our study indicates that in acute pneumonia patients without chronic diseases, the LAR shows lower performance than the CURB-65 scoring system in determining the need for hospitalization.

Ethics Committee Approval: This study was approved by the Atatürk University, Faculty of Medicine Clinical Research Ethics Committee (decision number: 7/23, date: October 25, 2024).
Informed Consent: Informed consent was deemed unnecessary for this retrospective study
Conflict of Interest: The author have no conflicts of interest to declare.
Financial Disclosure: The author declared that this study has received no financial support.

Etik Komite Onayı: Etik kurul onayı Atatürk Üniversitesi Tıp Fakültesi Klinik Araştırmalar Etik Kurul Başkanlığı'ndan alınmıştır (Tarih: 25.10.2024, Sayı:2024/7/23)
Hasta Onamı: Bu retrospektif çalışma için hasta onamı gerekli görülmemiştir.
Hakem Değerlendirmesi: Dış bağımsız.
Çıkar Çatışması: Yazar, çıkar çatışması olmadığını beyan etmiştir.
Finansal Destek: Yazar, bu çalışma için finansal destek almadığını beyan etmiştir.

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ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

RESEARCH ARTICLE / *Araştırma makalesi* DOI: 10.61745/jsmsau.1590179

Healing the Healers: Adressing Occupational Stress and Promoting Well-Being Among Anaesthesiology and Reanimation Physicians in Türkiye

Türkiye'de Anesteziyoloji ve Reanimasyon Hekimlerinde Meslek İlişkili Stres ve Tükenmişlik: Çok Merkezli Anket Çalışması

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Received/ Geliş Tarihi	23.11.2024
Revision request/Revizyon Talebi	04.12.2024
Last Revision request/Son Revizyon Talebi	23.12.2024
Accepted/Kabul Tarihi	25.12.2024
Publication Date/Yayın Tarihi	28.12.2024

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Cite this article: Yalın MSO, Ahiskalioglu EO. Healing the Healers: Adressing Occupational Stress and Promoting Well-Being Among Anaesthesiology and Reanimation Physicians in Türkiye. *Atatürk Univ Fac Med J Surg Med Sci.* 2024;3 (3): 103-109

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ABSTRACT

Objective: Anesthesiology and reanimation is a high-performance specialty where physicians are constantly exposed to stressors. This study primarily aims to evaluate the physical and mental health status of physicians working in anesthesiology and reanimation in Turkey, and to further identify the major occupational stress factors that could be eliminated by fatigue-management strategies.

Methods: Our study was conducted through an online 63-item questionnaire. 115 anaesthesiologists working at various institutions in Türkiye were included. The questionnaire consists of multiple-choice and open-ended questions, designed with a 4-point Likert scale. The cumulative Likert scores for the responses were statistically evaluated, and further analyses were performed through comparisons among different groups of physicians with various descriptive characteristics.

Results: 57.4% of physicians reported near-miss incidents caused by fatigue. Burnout levels were highest among trainees, followed by specialists, with faculty members experiencing the least burnout; physicians with children reported lower burnout, while female anaesthesiologists experienced more Imposter Syndrome symptoms. Hospital conditions for physician health were poorest in training and research hospitals and best in university hospitals, with a significant difference between the two (P=.004).

Conclusion: Early recognition and treatment of the negative effects of occupational stress on anesthesiologists are crucial for improving patient safety and work performance. There is a need for more research in this field in Türkiye for raising awareness of burnout and fatigue amongst anaesthesiologists and hospital managements.

Keywords: Anaesthesiology and reanimation, residency, burnout, fatigue, imposter syndrome, mental health

ÖZ

Amaç: Anesteziyoloji ve reanimasyon, hekimlerin sürekli olarak stres uyaranlarına maruz kaldığı yüksek performans gerektiren bir uzmanlık alanıdır. Bu çalışmada, ilk olarak Türkiye'de anesteziyoloji ve reanimasyon alanında görev yapan hekimlerin fiziksel ve zihinsel sağlık düzeylerini farklı açılardan değerlendirmek ve ikincil olarak ise buna etki eden meslek ilişkili stres faktörlerini ortaya koymaktır.

Yöntemler: Çalışmamız 63 soruluk bir anketin internet üzerinden Türkiye'nin çeşitli kurumlarında anestezi alanında görev yapan 115 hekime ulaştırılması yoluyla yürütülmüştür. Bu anket, farklı kategorilerde katılımcıların soru öbeği ile fikir uyumunu değerlendiren 4 aşamalı Likert ölçeği ile oluşturulmuş çoktan seçmeli ve açık uçlu soruları da içermektedir. Bu kategoriler altında cevaplanan sorulara ait kümülatif Likert skorları istatistiksel olarak değerlendirmeye alınmış ve ileri analizler yapılmıştır.

Bulgular: Hekimlerin %57,4'ü yorgunluk nedeniyle meydana gelen ramak-kala vakaları bildirmiştir. Tükenmişlik seviyeleri en yüksek asistan hekimlerde, ardından uzmanlarda görülürken, öğretim üyelerinde en düşük düzeyde olduğu tespit edilmiştir. Çocuk sahibi olan hekimler daha düşük tükenmişlik bildirmiş, kadın anesteziyologlar ise daha fazla Imposter Sendromu semptomları yaşamıştır. Hekim sağlığını destekleyen fiziksel koşullar, eğitim ve araştırma hastanelerinde en kötü, üniversite hastanelerinde ise en iyi seviyede bulunmuş ve iki grup arasında anlamlı bir fark gözlenmiştir (P=.004).

Sonuç: Mesleki stresin anesteziyologlar üzerindeki olumsuz etkilerinin erken tanınması ve tedavi edilmesi, hasta güvenliğinin artırılması ve iş performansının iyileştirilmesi açısından büyük önem taşımaktadır. Bu alanda daha fazla araştırma ve hastane yönetimlerinde tükenmişlik farkındalığını artırmayı hedefleyen somut gelişmelere ihtiyaç bulunmaktadır.

Anahtar kelimeler: Anesteziyoloji ve Reanimasyon, Asistanlık, Tükenmişlik Sendromu, Yorgunluk, Imposter Sendromu, Zihin Sağlığı

INTRODUCTION

Anesthesiology and reanimation is a demanding expertise requiring sharp skills, quick decision-making, and sustained focus. Physicians face constant high-pressure expectations and long hours, where even brief lapses can have catastrophic consequences, activating their physiological defense mechanisms. Stress is the body's nonspecific adaptation response to changes, pressures, challenges, threats, or trauma.[1] In essence, the stress response is the individual's effort to maintain balance and survive, shaped by their environment, family and friends, as well as internal behavioral patterns acquired consciously or unconsciously. However, prolonged exposure to such adverse conditions can lead to pathological changes, known as “Diseases of Adaptation” or “General Adaptation Syndrome,” emphasizing the harm of chronic stress on the body and mind.[2]

There are only a few studies conducted to assess the occupational stress of anesthesiologists in Turkiye. One of these is a study from 2015, where a survey was applied to 41 resident physicians working in the Department of Anesthesiology at Istanbul Faculty of Medicine to investigate their levels of professional satisfaction and stress.[3] In the mentioned study, 43% of physicians responded to the question "When does performing your job become difficult?" as "After a night shift", while 10% answered "Due to long working hours." In the same study, 41.5% of resident physicians described their education level as practically sufficient but theoretically inadequate. Another study of 159 trainee anesthesiologists from Türkiye found that older age correlated with lower burnout (emotional exhaustion and depersonalization) and higher personal accomplishment.[4] Moreover, having two or more children was associated with higher personal accomplishment and lower burnout.

While anaesthesiologists focus on optimizing clinical outcomes and meeting patient expectations, how often do they prioritize their own mental health and well-being? When occupational stress reaches a level that impacts ethical judgment, physical endurance, and patient safety, how well do we recognize it? And when we do, how do we ensure we seek the care and support needed to heal ourselves? The primary aim of this study is to assess the physical and mental health status of physicians working in the field of anesthesiology in Türkiye and secondly, to identify the stress factors influencing them in order to determine how far hospitals and administrations are contributing to physician health.

METHODS

This study, approved by the Ethics Committee of Atatürk University Faculty of Medicine (7/41), was conducted in November 2024. An online survey, created using an interface (Google Forms, 2024), was distributed to 115 physicians working in the field of anesthesiology at various institutions across Turkey. The survey includes a total of 63 questions, combining multiple-choice and open-ended items, designed with a 4-point Likert scale to evaluate participants' responses across different categories. These categories aim to assess the alignment of participants' opinions under specific categories, as detailed below;

1. Workload: Questions evaluating the monthly number of shifts, work schedule and working hours

2. Availability of physical conditions that support physician health in the hospital: Questions on the presence of facilities that provide healthy diet, hydration, resting areas in the hospital.

2.a. In our hospital, there is a secure and comfortable room available for resting during night shifts.
2.b. Our hospital provides a space for on-call staff to rest before heading home after their shift.
2.c. Our hospital provides nutritious meals, coffee, tea, and continuous water service for on-call physicians.
2.d. During my days at the hospital, I am able to maintain a healthy diet.

3. Presence of burnout, fatigue, and illness indicators in physicians: Questions on mood changes, ability to conserve work-life balance, and health issues

3.a. In the past week, I have felt exhausted and as though I couldn't continue due to work-related reasons.
3.b. In the past week, I found it difficult to smile at or show patience toward my patients because of fatigue or burnout.
3.c. I am unable to enjoy the time spent with my family due to work-related stress and worries.
3.d. I cannot fulfill my responsibilities at home adequately because I keep thinking about work.
3.e. I do not feel like engaging in my hobbies due to work fatigue.

4. Presence of symptoms of imposter syndrome in physicians: Questions on internalisation of success as stated in Clance Imposter Phenomenon Scale

4.a. I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task.
4.b.When people praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations of me in the future.
4.c.I sometimes think I obtained my present position or gained my present success because I happened to be in the right place at the right time or knew the right people.
4.d.'m afraid people important to me may find out that I'm not as capable as they think I am.
4.e.Sometimes I feel or believe that my success in my life or in my job has been the result of some kind of error.
4.f.I rarely do a project or task as well as I'd like to do it.

The cumulative Likert scores for the questions answered under these categories were statistically evaluated, and further analysis was conducted through comparisons between physician groups with different descriptive characteristics.

Statistical analysis

Statistical analysis was performed using the SPSS 20.0 (IBM SPSS Corp. Armonk, NY, USA) software. Data are presented as mean ± standard deviation (SD), numbers, and minimum-maximum values. The Kolmogorov-Smirnov test was used to assess the distribution of the data. For the evaluation of numerical data, Student's t-test and ANOVA were applied to variables with normal distribution. Statistical significance was considered at a level of $P < .05$.

RESULTS

Descriptive data regarding the work schedules of the 115 participants who responded to the survey are presented in Table 1. As shown, the average number of night shifts per month for participants is 5, while the average on-call shift number is 1.46. Anesthesiologists working in Türkiye have average of 2 free weekends per month, and the average longest continuous work period is 26 hours. Subgroup analysis revealed that 65 participants were trainees, 46 were specialists, and 4 were faculty members. It was observed that the average number of night shifts increases in the following order: faculty members, specialists, and residents.

In Table 2, the cumulative Likert scores on hospital conditions for physician health showed the poorest conditions in training and research hospitals, followed by private, provincial state, and district state hospitals, with the best in university hospitals. A significant difference was found only between university hospitals and training and research hospitals. (*P*=.004).

Table 1: Descriptive data on the working schedule of participants. (n:115)

	Mean±SD	[min-max]
Age	33.6±6.74	[25-60]
Night shifts (day)	5.08±2.30	[0-10]
Days being on-call (day)	1.46±4.73	[0-30]
Shift-free weekends in a month (day)	2.16±,7.24	[1-4]
Maximum continuous working time (hours)	26.1±6.07	[12-36]

Values are expressed as mean±SD and [min-max],

Table 2: Presence of healthy physical conditions in different hospital types.

	n	Mean±SD	[min-max]
University Hospital	35	10.71±3.31	[5-19]
Research And Training Hospital	54	12.70±2.90	[5-19]
Provincial state hospitals,	8	11.37±3.66	[5-17]
District state hospitals	14	11.21±2.99	[8-19]
Private Hospital	4	12.00±4.76	[5-15]

Values are expressed as mean±SD and [min-max],

In Table 3, the cumulative Likert scores related to physicians displaying burnout symptoms were analyzed according to their level of professional experience. In this analysis, where lower scores represent higher levels of burnout, it was found that trainees exhibited significantly higher burnout symptoms compared to faculty members (*P*=.001), and specialists also showed significantly higher burnout symptoms compared to faculty members (*P*=.002). Furthermore, it was observed that physicians with children exhibited significantly lower levels of burnout. It was also

displayed on Table 4 that residents and female anaesthesiologists experienced significantly more symptoms of Imposter Syndrome.

DISCUSSION

In Turkiye, physicians were granted the right to a full day off after a 24-hour night shift in 2022.[5] However, as of 2024, 13% still lack this benefit, though legislative changes over the past decade seem to have had a positive impact. In our sample, only 19.1% of physicians found their hospital's theoretical education "mostly" sufficient, compared to 53.9% for practical training. This suggests higher expectations for theoretical education, potentially reflecting deficiencies in hospital educational programs.

In 1999, Jackson identified factors contributing to operating room stress, such as noise, poor workspace design, long hours, and fatigue.[6] In our study, physicians highlighted similar challenges, including prolonged standing (79.1%), lack of natural daylight (68.7%), inadequate radiographic protection (63.5%), and excessive noise and stimuli (58.3%). Other stressors included exposure to anesthetic gases (49.6%), radiation from phone calls (47%), and wearing masks (43.5%).

Table 3: Signs of burnout in physicians with different levels of work experience.

Different Levels of Work Experience	Mean±SD	P^{α}
Trainee (n:65)	8.13±2.31 $^{\beta}$	.004
Specialist (n:46)	8.47±2.65 $^{\beta}$	
Faculty Member (n:4)	12.5±3.41	

Values are expressed as mean±SD.
$^{\alpha}$ ANOVA test
$^{\beta}$ Difference between faculty member.

Table 4: Signs of Imposter Syndrome According to Gender and Different Levels of Work Experience.

		n	Mean±SD	P
Different Levels of Work Experience.	Trainee	65	8.81±3.30	.047 $^{\alpha}$
	Specialist	46	9.60±3.21	
	Faculty Member	4	12.75±3.20$^{\gamma}$	
Gender	Female	71	8.15±2.91	<.001$^{\beta}$
	Male	44	11.06±3.19	

Values are expressed as mean±SD,
$^{\alpha}$ ANOVA test
$^{\beta}$ Student T test
$^{\gamma}$ Difference between faculty member and trainee

During residency, managing patient safety is a key concern for physicians still learning to navigate their work environment. Our study found that residents with less experience and more on-call shifts reported significantly higher burnout. Early-career anesthesiologists face the pressure of proving their competence, while experienced physicians often stress about keeping up with advancing technologies. A study measuring chronic stress through hair cortisol levels showed the highest stress at the beginning and end of careers, with the lowest levels around 10 years of experience.[7] For physicians nearing the end of their careers, chronic stress may be linked to the physical and mental strain of coping with the decline in cognitive abilities, vision, and hearing. In our study, although the average age of participants was 33.6 years, 76.5% expressed significant concern about managing night shifts as they age.

Burnout is a syndrome that depletes physical and mental energy, causing emotional exhaustion and disengagement. It can lead to irritability, forgetfulness, sleep issues, and increase the risk of depression, anxiety, chronic pain, and cardiovascular or gastrointestinal problems.[8] Burnout and poor working conditions can make anesthesiologists more vulnerable to physical and mental health issues. During emergency intubations, residents often experience tachycardia, which can lead to premature ventricular complexes or ST depression.[9] A 2019 analysis indicated that shift workers have a 20% higher risk of cardiovascular mortality[10] and hypertension[11] compared to day workers. Another study found a linear correlation between the number of shifts worked and the risk of developing Type 2 diabetes.[12] Responses to the question, "Have you been diagnosed with any health issues since starting anesthesiology residency?" revealed a range of conditions, including anxiety (4), depression (4), burnout (2), varicose veins (2), hypertension (2), diabetes (2), rheumatoid arthritis (4), and skin issues. Other reported conditions

included asthma, osteoporosis, musculoskeletal problems, arrhythmias, lumbar disc herniation, hyperlipidemia, duodenal polyps, and obesity. While factors like medical history and genetics play a role, chronic stress likely contributes significantly, often creating a domino effect where one issue exacerbates another.

Imposter syndrome, defined by Clance and Imes in 1978[13], refers to the inability to internalize success, attributing it to external factors such as luck, mistakes, or knowing the right people. In our study, it was found that physicians at the trainee level, with less professional experience, exhibit significantly more severe symptoms of imposter syndrome. The strengthening of personal feelings of success with advancing age may help explain this phenomenon. On the other hand, in line with study by Saxena et. al.[14] indicating that female anaesthesiologists experience imposter syndrome more frequently, our research revealed that female physicians in Türkiye exhibited significantly higher symptoms, too.

Humans are naturally diurnal beings, designed to be active during the day and rest at night in harmony with the cycles of nature. Disruptions to this intrinsic rhythm can cause significant changes in the physiology. As an individual remains awake for extended periods, adenosine levels in the brain rise, triggering increased receptor activity in the hypothalamus, which in turn intensifies the feeling of sleepiness. [15] After 12 hours of wakefulness, cognitive functions such as empathy, attention, and motor skills begin to decline. As it extends to 18 hours, the ability to respond effectively to rapidly changing situations significantly diminishes. Consequently, key cognitive abilities such as attention, memory, reaction time, hand-eye coordination, and the capacity for performing arithmetic tasks are all adversely impacted.[16] Traffic accidents are twice as likely after 12-hour shifts compared to 8-hour ones. Being awake for 18 hours impairs cognition as much as a blood alcohol level of 0.05%, double Norway's legal driving limit. Suicides are also more frequent during night hours when alertness is lowest.[17] Anesthesiologists face higher rates of suicide and substance abuse, with studies showing increased suicide rates among those involved in malpractice cases compared to other specialties.[18] In our study, 57.4% of physicians reported near-miss incidents caused by fatigue. Common errors included increased failures in interventional procedures (55.6%), delayed response to hemodynamic disturbances (34.7%), reviewing the wrong patient file (27.8%), and medication errors (26.4%).

Stress and fatigue experienced in the professional field can be significantly reduced by having a supportive and protective spouse, and it has been shown that satisfaction gained within the context of marriage can also predict job satisfaction.[19] While no link was found between relationship status and burnout, individuals with children experienced less burnout. This may reflect the cultural significance of family in Turkish society, where family ties enhance fulfillment and life satisfaction. Children may boost resilience and coping ability, while the positive emotions from time spent with them improve mental health. Research also suggests that not having children is associated with a higher risk of negative psychological outcomes.[20]

Accidents and errors in medicine are often seen as inherent risks, unlike fields like aviation, nuclear energy, and railways, which have formal burnout management strategies due to the critical need for risk control. Do these industries better understand human physiology, or have they simply learned from past disasters? To address burnout in anesthesiology, the European Board of Anaesthesiology (EBA) launched the Burnout Project in 2020.[21] In 2019, the diagnosis of "occupational burnout" was included under the ICD-11 code[22], and in the 2024 ESAIC sustainability report, under Scope 4, recommendations were made to increase awareness of mental health and burnout-related risks in the field of anaesthesia.[23] The European Working Time Directive (EWTD), which was defined in Ireland in 1998, became applicable to resident doctors in 2009. [24] As seen, global efforts have been underway for a long time to prevent burnout syndrome in physicians, particularly in the field of anesthesiology, and promising studies on this topic are increasingly growing.

Our study has several limitations. First, the voluntary survey may have attracted more engaged participants, possibly skewing results, as those in negative emotional states may have been less likely to participate. Additionally, the uneven distribution of professional experience in the sample suggests the need for a larger, more balanced sample for more generalizable findings.

In conclusion, our study highlights the urgent need for hospital administrators and clinical educators in Türkiye to address burnout. Significant gaps in risk management systems call for systematic reforms aligned with international standards. Recognizing and addressing burnout symptoms with tailored interventions is essential to maintaining a capable healthcare workforce. To mitigate burnout effectively, comprehensive strategies should include targeted screening programs, particularly for vulnerable residents in the early stages of their training. Anesthesiologists, who are exposed to stressors more intensely, must first develop a profound understanding of these challenges, recognise and acknowledge their issues, and then work on developing individual and institutional coping mechanisms to improve resilience and manage stress. After all, work should be a tool for an individual’s personal growth in life, and overglorifying work in an

unhealthy manner may lead to significant risks considering patient safety. Healthcare leaders and educators must not overlook the fact that proactively addressing these issues will not only safeguard the well-being of healthcare professionals but also enhance the overall quality of patient care. Further research with larger populaton is required on anaesthesiologists in Türkiye to reveal the factors that may lead to higher burnout and Imposter phenomenon amongst residents and provide solutions.

Ethics Committee Approval: This study, approved by the Ethics Committee of Atatürk University Faculty of Medicine (7/41), was conducted in November 2024.
Informed Consent: Informed consent was obtained from the participants included in this study.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept – EOA; Design- MSÖY,EOA; Supervision- EOA; Resources- MSÖY; Data Collection and/or Processing- MSÖY; Analysis and/or Interpretation- MSÖY,EOA;; Literature Search- MSÖY; Writing Manuscript- MSÖY,EOA; Critical Review- EOA.
Conflict of Interest: The authors declare that they have no conflicts of interest.
Financial Disclosure: The authors declare that this study has received no financial support.

Etik Komite Onayı: Bu çalışma, Atatürk Üniversitesi Tıp Fakültesi Etik Kurulu'nun onayıyla (7/41) Kasım 2024'te gerçekleştirilmiştir.
Hasta Onamı: Bu çalışmaya katılan katılımcılardan onam alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir- EOA; Tasarım- MSÖY,EOA ; Denetleme- EOA Kaynaklar- MSÖY; Veri Toplanması ve/veya İşlemesi - MSÖY; Analiz ve/veya Yorum- MSÖY,EOA; Literatür- MSÖY; Yazıyı Yazan- MSÖY,EOA Eleştirel İnceleme- EOA.
Çıkar Çatışması: Yazarlar, çıkar çatışması olmadığını beyan etmiştir.
Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

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ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

Case Report / *Olgu Sunumu*

DOI: 10.61745/jsmsau.1548833

Good News in Patients Undergoing Surgery for Suspected Lung Malignancy: Unicentric Castleman Disease

Akciğer Malignite Şüphesiyle Opere Olan Hastalara İyi Haber: Unisentrik Castleman Hastalığı

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ÖZ

Castleman disease (CD), also known as angiofollicular lymph node hyperplasia, is a heterogeneous lymphoproliferative disorder. These lesions can be mistaken for malignancy in terms of size and imaging characteristics, necessitating their excision. In this report, we present cases of CD that mimicked lung malignancy, underscoring the need to consider CD in the differential diagnosis of patients presenting with suspected lung cancer. This study was retrospectively designed. It included six patients who underwent surgery due to suspected lung malignancy and were subsequently diagnosed with Unicentric Castleman Disease (UCD). Of the six patients, four were male and two were female, with a mean age of 36.5 years (range: 27-50 years). Half of the patients were lifelong non-smokers. Comorbid conditions were identified in three patients, while the remaining three were asymptomatic and had no comorbidities. Histopathological examination revealed hyaline vascular type in three patients, plasma cell type in one patient, and mixed type UCD in one patient. All patients are currently alive and have not required any additional treatment. UCD represents a rare lymphoproliferative disease with diverse clinical manifestations. Surgical intervention is the established gold standard for this disease, yielding more favourable survival outcomes compared to both MCD and malignant pathologies in the lung. Therefore, in cases where malignant lung disease is suspected, the potential presence of UCD should not overlooked.

Keywords: Castleman disease, unicentric, lung malignancy, surgery

ABSTRACT

Castleman hastalığı (CH), diğer adıyla anjiofolliküler lenf nodu hiperplazisi, heterojen bir lenfoproliferatif bozukluktur. Bu lezyonlar boyut ve görüntüleme özellikleri açısından malignite ile karıştırılabilir ve bu nedenle cerrahi olarak çıkarılmaları gerekebilir. Bu raporda, akciğer malignitesi taklidi yapan CH vakalarını sunuyoruz ve akciğer kanseri şüphesiyle başvuran hastalarda Castleman hastalığının ayırıcı tanıda göz önünde bulundurulması gerektiğini vurguluyoruz. Bu çalışma retrospektif olarak tasarlanmıştır. Akciğer malignitesi şüphesiyle ameliyat edilen ve sonrasında Unisentrik Castleman Hastalığı (UCH) tanısı konulan altı hasta çalışmaya dahil edilmiştir. Altı hastanın dördü erkek, ikisi kadındı ve ortalama yaşları 36,5 yıl (aralık: 27-50 yıl) olarak saptandı. Hastaların yarısı hayatları boyunca hiç sigara içmemişti. Üç hastada ek hastalıklar (komorbidite) saptanırken, diğer üç hasta asemptomatik olup ek hastalık bulunmamaktaydı. Histopatolojik inceleme sonucunda, üç hastada hiyalin vasküler tip, bir hastada plazma hücre tipi, bir hastada ise karma tip UCH tespit edildi. Tüm hastalar hâlâ hayatta olup, ek bir tedavi gereksinimi duymamıştır. UCH, çeşitli klinik belirtilerle ortaya çıkan nadir bir lenfoproliferatif hastalıktır. Cerrahi müdahale, bu hastalığın tedavisinde altın standart olup, Multisentrik Castleman Hastalığı (MCH) ve akciğer malignitelerine kıyasla daha olumlu yaşam süresi sonuçları sağlamaktadır. Bu nedenle, akciğer malignitesi şüphesi olan vakalarda UCH varlığı göz ardı edilmemelidir.

Anahtar Kelimeler: Castleman hastalığı, unisentrik, akciğer malignitesi, cerrahi

Geliş Tarihi/Received	12.09.2024
Revizyon Talebi	31.10.2024
Kabul Tarihi/Accepted	21.11.2024
Yayın Tarihi/Publication Date	28.12.2024

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Cite this article: Agar M, Gulcek I, Kalkan M, Ulutas H, Celik MR. Good news in patients undergoing surgery for suspected lung malignancy: unicentric castleman disease. *Atatürk Univ Fac Med J Surg Med Sci*. 2024;3(3): 110-115

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INTRODUCTION

Castleman disease (CD), also referred to as giant lymph node hyperplasia or angiofollicular lymph node hyperplasia, is a highly heterogeneous clinicopathologic condition within the spectrum of lymphoproliferative disorders. The disease is stratified into unicentric Castleman disease (UCD) and multicentric Castleman disease (MCD) according to its clinical manifestations (Figure 1).

CD was first described by Benjamin Castleman, who characterised the hyaline-vascular and unicentric variants of CD.[1] While UCD is localised in a single lymph node and is typically amenable to surgical excision, MCD is a systemic, progressive disorder with involvement of multiple lymph nodes, and is often fatal.[2]

Histopathologically, presentations of CD are subdivided into hyaline-vascular, plasma cell (plasmacytic and/or plasmablastic), and mixed subtypes.[3] The hyaline-vascular subtype is observed in 74–91% of UCD cases, while the plasma subtype is present in 9–26% of UCD cases.[4,5]

CASE PRESENTATION

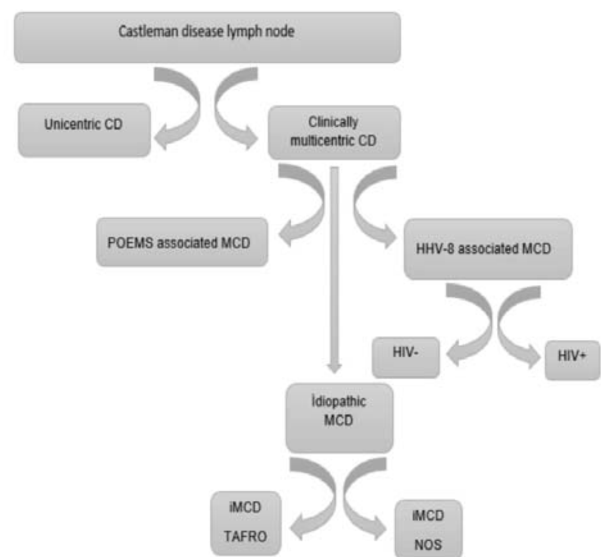
We retrospectively evaluated 6 patients who underwent surgery for suspected malignant lung disease between 2014 and 2024, all of whom were pathologically diagnosed with CD. Demographic characteristics of the patients are presented in Table 1. Preoperative thoracic computed tomography (CT) scans, preoperative and postoperative chest radiographs are illustrated in Figure 2.

Case 1

A 39-year-old woman with no significant medical history presented with complaints of chest pain, shortness of breath, cough, and sputum production for 3–4 months. No abnormal findings were detected with direct chest radiography. However, thoracic CT and magnetic resonance imaging (MRI) revealed a smoothly circumscribed space-occupying lesion of 3.5 cm in diameter adjacent to the right descending pulmonary artery. A positron emission tomography-computed tomography (PET-CT) scan showed an SUVmax of 4.5. A right posterolateral thoracotomy was performed on the patient, and the lymph node was completely excised. Postoperatively, the patient was managed in the hospital with a chest tube for 5 days and was subsequently discharged (Table 1, Figure 2).

Case 2

A 27-year-old male patient with no significant medical history or symptoms presented to the smoking cessation outpatient clinic. The thoracic CT scan revealed a 3.3 cm lesion at the level of the superior vena cava and vena azygos bifurcation. The patient initially underwent right uniportal video-assisted thoracoscopic surgery (UNI-VATS). However, due to an exposure issue, a right thoracotomy was subsequently performed, and the lymph node was completely excised. Postoperatively, the patient was managed in hospital with a chest tube for 4 days and was discharged on the 5th day (Table 1, Figure 2).



CD: Castleman disease; iMCD: idiopathic multicentric Castleman disease; MCD: multicentric Castleman disease; HIV, human immunodeficiency virus; HHV-8, human herpes virus 8; POEMS, polyneuropathy, organomegaly, endocrinopathy, monoclonal gammopathy, and skin abnormalities; TAFRO, thrombocytopenia, anasarca, fever, reticulin fibrosis, and organomegaly; NOS, Not otherwise specified

Figure 1: Castleman disease classification.

Case 3

A 41-year-old male patient with no significant medical history presented with complaints of cough and sputum production. The thoracic CT scan revealed a 3 cm lymph node in the right paratracheal area. Endobronchial ultrasonography (EBUS) was performed, and a biopsy was taken, initially diagnosing a reactive lymph node. However, a follow-up thoracic CT scan performed one year later revealed that the paratracheal lymph node had enlarged to 4.5 cm. PET-CT revealed an SUVmax value for the lymph node of 6.7. Right UNI-VATS was performed, and the lymph node was completely excised. The chest tube was removed on the 2nd day of postoperative hospitalisation, and the

Table 1: General information about the patients

Variables	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Age	39	27	41	35	27	50
Sex	Female	Male	Male	Male	Male	Female
Syptoms	Chest pain, shortness of breath, cough	None-insidental	None-insidental	None-insidental	None-insidental	None-insidental
Smoking	Non-smoker	Smoker	Ex-smoker	Non-smoker	Ex-smoker	Non-smoker
Concomitant disease	None	None	Hepatitis B carrier	None	Myastenia gravis	Bronchiectasis
Anatomical location	Right-descending pulmonary artery neighbourhood	Right-bifurcation of vena cava and vena azygos	Right-paratracheal area	Between left subclavian artery and carotid	Anterior mediastinum	Left-above the inferior pulmonary vein
Lymph Node Size	3.5 cm	3.3 cm	4.5 cm	4.4 cm	4.0 cm	3.4 cm
PET-CT SUVmax	4.5		6.77		8.0	4.4
Surgical procedure	Right thoracotomy	Right Uni-VATS + thoracotomy	Right Uni-VATS	Left Uni-VATS	Right Uni-VATS	Left Uni-VATS
Duration of operation	60 mins	100 mins	60 mins	30 mins	120 mins	40 mins
Duration of hospitalisation	6 day	5 day	3 day	3 day	4 day	4 day
Intraoperative bleeding	100 ml	300 ml	200 ml	None	50 ml	None
Histopathological subtype	Plasma cell	Hyaline vascular	Hyaline vascular	Hyaline vascular	Mix type	Unknown
Operation year	2014	2015	2021	2018	2021	2020
Survival	Alive	Alive	Alive	Alive	Alive	Alive

patient was discharged on the 3rd day (Table 1, Figure 2).

Case 4

In a 35-year-old male patient with no significant medical history, an incidental CT scan of the thorax demonstrated a lesion of approximately 4 cm between the left subclavian artery and the left carotid artery, extending from the mediastinum into the left hemithorax. Left UNI-VATS was performed and the lymph node was completely excised. The chest tube was removed on the 2nd day of postoperative hospitalisation, and the patient was discharged on the 3rd day (Table 1, Figure 2).

Case 5

A 27-year-old patient with myasthenia gravis was examined for anaemia, during which a mediastinal lesion was detected. PET-CT revealed a 4 cm lymph node in the anterior mediastinum with an SUVmax of 8. The patient underwent a thymectomy with left UNI-VATS and total excision of the lymph node. The patient was discharged on postoperative day 4 (Table 1, Figure 2).

Case 6

A 50-year-old woman followed for bronchiectasis underwent a follow-up thorax CT scan, which revealed a 3.4

cm lesion on the left inferior pulmonary vein. A PET-CT scan showed a 4 cm lymph node with an SUVmax of 4.4. Left UNI-VATS was performed and the lymph node was completely excised. The patient was discharged on postoperative day 4 (Table 1, Figure 2).

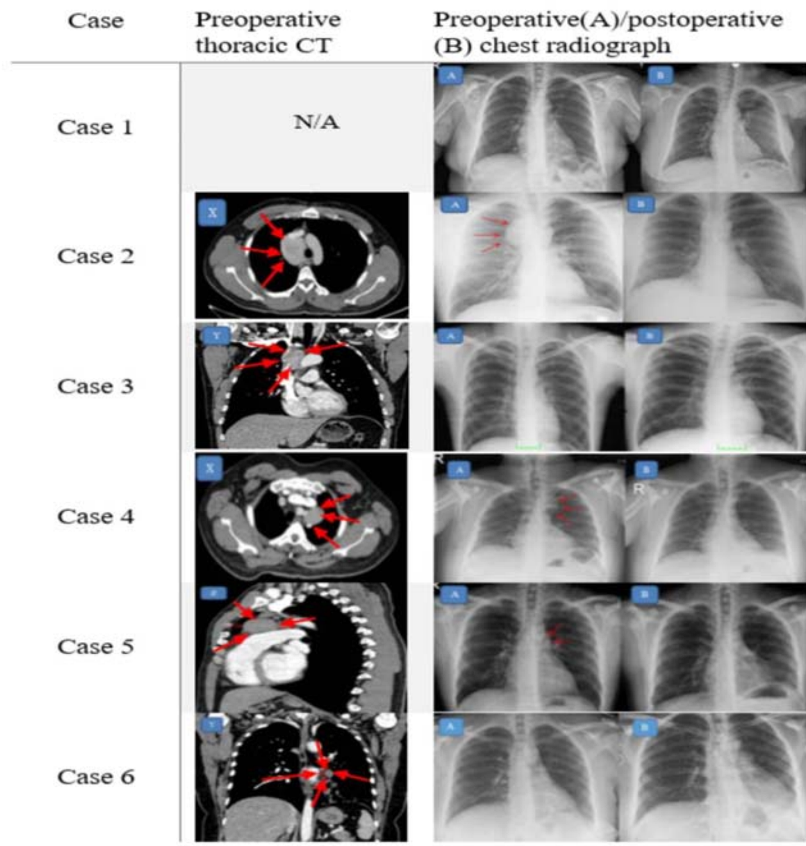


Figure 2: Preoperative and postoperative radiological images, pathological preparations and specimens of patients.

DISCUSSION

Castleman disease (CD) is a rare condition with limited cases; thus, data related to the disease have been evaluated according to guidelines, including diagnostic criteria and classification, developed by the Castleman Disease Collaborative Network (CDCN) since 2017.[6]

The incidence of UCD has been reported to be 16 per million individuals. UCD affects both sexes and can occur across all age groups, with the median onset age in the fourth decade of life.[7]

The clinical presentation of UDC typically involves an enlarged lymph node, which may cause compression-related symptoms such as local nerve compression, pain, or disruption of local structures (e.g. airways, neurovascular bundles, ureters). Laboratory abnormalities, though rare, may include hepatomegaly, splenomegaly, anaemia, signs of inflammation (elevated C-reactive protein, prolonged erythrocyte sedimentation rate), hypergammaglobulinemia, and hypoalbuminemia.[6] In our study, five patients had no primary complaints, and only one patient (Case 5) was diagnosed with UCD during a follow-up consultation for anaemia (Table 1).

Asymptomatic UCD is typically incidentally discovered during imaging procedures performed for unrelated reasons.[8] Lymph node detection and monitoring can be performed with imaging modalities including direct radiography, ultrasonography, CT, and MRI. Lymph nodes in UCD typically appear as single, well-circumscribed, and well-contrasted lesions on radiologic images (Figure 2).[9] However, the detection of a single lymph node on direct radiographs may pose challenges. In our study, three patients exhibited no abnormal findings on direct radiographs (Figure 2; Cases 1A, 3A, 6A), whereas suspicious appearances were observed on direct radiographs in the three other patients (Figure 2; Cases 2A, 4A, 5A). Thoracic CT scans confirmed the presence of enlarged lymph nodes

in all patients.

UCD can present with clinical features resembling thymoma, lymphoma, neurogenic tumour, bronchial adenoma, or lung tumour.[10,11] Therefore, the diagnosis of UCD requires complete excision of the enlarged lymph node. Consistent with existing literature, our cases initially raised suspicion of malignant lesions, leading to a diagnosis of CD post-excision.

Treatment strategies for patients with UCD vary depending on the subtype of the disease, with curative surgery being the primary approach. Recurrence following surgical intervention is rare, and the mean 5-year survival rate post-resection exceeds 90%.[12]

Asymptomatic unresectable UCD lacking compressive symptoms can be monitored without immediate intervention. However, if compressive symptoms are present, initial treatment with a monoclonal anti-CD20 antibody, with or without adjunctive steroids, is recommended. Surgical resection remains the preferred option after initial treatment, with radiotherapy recommended for cases where surgery is not viable. Patients presenting with unresectable UCD and inflammatory symptoms are managed using similar therapeutic approaches to those used for MCD (Figure 3).[13]

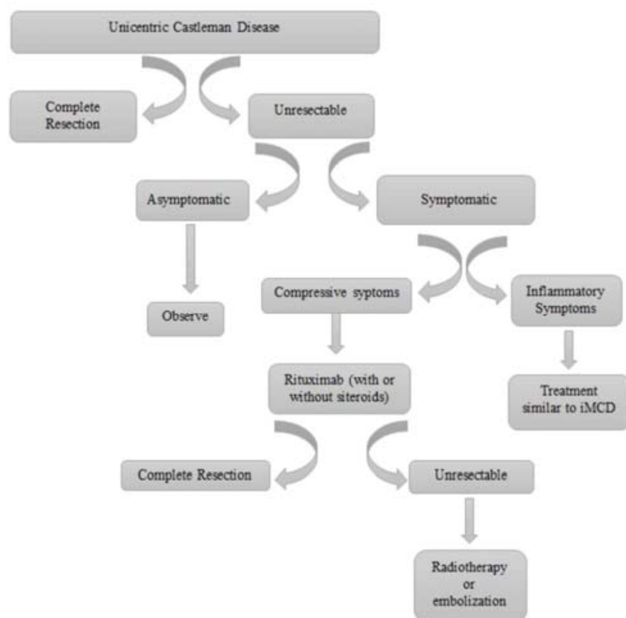


Figure 3: The treatment of Unicentric Castleman Disease. iMCD, idiopathic multicentric Castleman disease.

In conclusion, surgical intervention is the established gold standard for this disease, yielding more favourable survival outcomes compared to both MCD and malignant pathologies in the lung. Therefore, in cases where malignant lung disease is suspected, the potential presence of UCD should not overlooked.

Informed Consent: Patient informed consent was obtained.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept - MA,IG; Design- MA,MK; Supervision- MA,HK,MRC; Resources- MA,IG,MK; Data Collection and/or Processing- MA,HK; Analysis and/or Interpretation- MA; Literature Search- MA,MRC,MK; Writing Manuscript- MA; Critical Review- MA,HK,MRC.
Conflict of Interest: The authors have no conflicts of interest to declare.
Financial Disclosure: The authors declared that this study has received no financial support.

Hasta Onamı: Hasta onamları alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir: MA,IG; Tasarım: MA,MK; Denetleme: MA,HK,MRC; Kaynaklar: MA,IG,MK; Veri Toplanması ve/veya İşlemesi; MA,HK; Analiz ve/ veya Yorum: MA; Literatür Taraması MA,MRC,MK; Yazıyı Yazan: MA; Eleştirel İnceleme: MA,HK,MRC.
Çıkar Çatışması: Yazarlar, çıkar çatışması olmadığını beyan etmiştir.
Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

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ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

Olgu Sunumu / *Case Report* DOI: 10.61745/ jsmsau.1395520

Rekürrens ile Gelen Sıtma Olgusu

Case Report of Recurrent Malaria

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ÖZ

Sıtma, *Plasmodium* spp. türlerinin neden olduğu; tedavi edilmediğinde ölümcül olabilen bir enfeksiyon hastalığıdır. Plasmodium falciparum türünün en ağır ve mortal seyirli klinik tabloya sebep olması nedeniyle erken tanı konulması ve etkene yönelik tedavi verilmesi önemlidir. Bu çalışma ile, sıtmada görülebilen rekürrens kliniğine ve mortal seyirli olan falciparum sıtmasının tedavisine dikkat çekmek amaçlanmıştır. Bilinen kronik bir hastalığı olmayan 47 yaşındaki erkek hasta ateş, halsizlik, baş ağrısı ve ishal şikayetleri ile acil servise başvurdu. Bir Afrika ülkesine seyahat öyküsü olan hastanın iki hafta önce dönüş yaptığı öğrenildi. Sıtma ön tanısı ile hastadan alınan periferik kan örneğinin Giemsa boyalı kalın damla ve ince yayma incelemesinde taşlı yüzük formunda genç trofozoitler görüldü. Bunun sonucunda ise saptanan tür olarak *P. falciparum* kabul edildi. Olgunun Afrika ülkesinde bulunduğu dönemde semptomlarının başladığı ve orada sıtma tanısı konularak olguya parenteral artesunat tedavisi verildiği öğrenildi. Verilen tedavi sonrası ilk dört hafta içinde şikayetleri tekrarlayan hastaya alternatif tedavi rejimi olan kinin sülfat tablet 10 mg/kg (3x1) ve doksisiklin 100 mg tablet (2x1) kombinasyonu tercih edildi. Hasta yedi günlük tedavi sonrası şifa ile taburcu edildi. *P. falciparum* sıtmasında rekürrens ve reenfeksiyon görülebilmesi sebebi ile olgular tedavi sonrasında da yakın takip edilmelidir. Rekürrens gelişen hastalarda daha önce tercih edilenden farklı bir artemisin kombinasyon tedavisi (AKT) ya da kinin sülfat kombinasyonları gibi AKT dışı rejimler tercih edilebilir.

Anahtar Kelimeler: Sıtma, ateş, plasmodium falciparum, artemisin kombinasyon tedavisi

ABSTRACT

Malaria is caused by *Plasmodium* species; it is an infectious disease that can be fatal if left untreated. This study aimed to draw attention to the recurrence clinic that can be seen in malaria and the treatment of falciparum malaria, which has a mortal course. A 47-year-old male patient with no known chronic disease was admitted to the emergency departmant with complaints of fever, fatigue, headache and diarrhea. It was learned that the patient had a travel history to an African country, returned two weeks ago. Young trophozoites in the form of signet rings were seen in the Giemsa stained thick drop and thin smear examination of the peripheral blood sample taken from the patient. As a result, *P. falciparum* was accepted as the detected species. It was learned that the patient's symptoms started while he was in the African country, where he was diagnosed with malaria and given parenteral artesunate treatment. The alternative treatment regimen, a combination of quinine sulfate tablet 10 mg/kg (3x1) and doxycycline 100 mg tablet (2x1), was preferred for the patient whose complaints recurred within the first four weeks after the treatment. The patient was discharged with full recovery after seven days of treatment. Since recurrence and reinfection may occur in *P. falciparum malaria*, cases should be followed closely after treatment. In patients who develop recurrence, a different artemisinin combination therapy (ACT) than the one preferred first time or non-ACT regimens such as quinine sulfate combinations may be preferred.

Keywords: Malaria, fever, Plasmodium falciparum, artemisinin combination therapy

Geliş Tarihi/Received 24.11.2023
Revizyon Talebi 26.02.2024
Son Revizyon Tarihi 03.08.2024
Kabul Tarihi/Accepted 12.08.2024
Yayın Tarihi/Publication Date 28.12.2024

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Cite this article: Can FK, Vural ZS, Alay H, Albayrak A, Akgun B, Ozden K. Case report of Recurrent Malaria. *Atatürk Univ Fac Med J Surg Med Sci*. 2024;3(3): 116-119

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GİRİŞ

Sıtma, Plasmodium cinsi apikompleksan protozoaların sebep olduğu paraziter bir hastalıktır. Yaşam döngüsünün insanın konakçı olduğu aseksüel evresinde, eritrositlerde çoğalarak hastalığın patolojisine ve klinik semptomların gelişmesine sebep olur [1]. İnsanlara dişi enfekte "Anofel" cinsi sivrisinekler ile taşınır. Hayvanları enfekte edebilen yüzden fazla Plasmodium türü vardır. Bunlardan sadece beş tanesi insanda enfeksiyona yol açabilir; Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale, Plasmodium malariae ve Plasmodium knowlesi. Dünya genelinde en sıklıkla saptanan tür *P. vivax*'tır ve genellikle ağır bir klinik tablo oluşturmaz [2]. *P. falciparum* sıtması en ağır klinik seyirlidir, küçük çocuklardaki sıtma nedenli ölümlerin Afrika'daki en önemli nedenidir [3].

Dünya Sağlık Örgütü (DSÖ) verilerine göre 2021 yılı dünya genelindeki sıtmalı olgu sayısı 247 milyondur. Mortalite ile sonuçlanan vaka sayısı ise 619.000'dir (mortalite hızı 14,8). Vakaların ve ölümlerin büyük bir kısmının Afrika bölgesinde görüldüğü bildirilmiştir [4]. Sıtma vakaları endemik bölgelerde en çok gebeler ve küçük çocuklar için tehlike oluşturmakta ve ağır seyirli perinatal vakalara sebep olmaktadır [5].

İnkübasyon süresi 9-40 gün arası değişmekte olup, en kısa süre *P. falciparum*'da, en uzun P. malariae'da görülmektedir. Halsizlik, baş ağrısı, artralji, miyalji, abdominal ve göğüs ağrısı gibi 2-3 gün sürebilen non-spesifik semptomlardan oluşan prodrom dönemini takiben titremenin eşlik ettiği 40 °C'yi bulabilen ateş atakları görülmeye başlar. Buna karın ağrısı, bulantı, kusma, ishal ve sarılık eşlik eder [6]. Bu ataklar *P. falciparum* sıtmasında daha az sıklıkla görülür [7]. Ataklar üşüme hissini takiben şiddetli titremeler şeklinde başlar. Vücut sıcaklığı ise artmaktadır ve hasta taşikardiktir. Bir süre sonra hasta kendini fazla sıcak hissetmeye başlar; buna baş ağrısı, çarpıntı, takipne, bulantı ve kusma eşlik eder. Bu esnada vücut sıcaklığı 40 °C'yi bulur. Terleme 2-6 saat sonra başlar ve birkaç saatte vücut sıcaklığı normale iner. Bir atağın süresi yaklaşık 8-12 saattir [8].

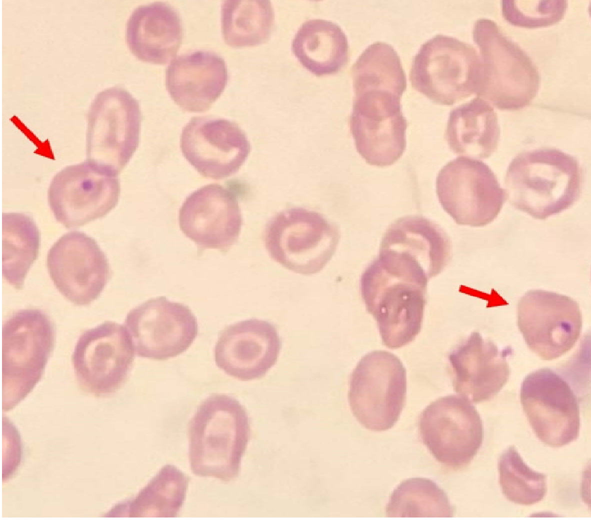
Parazitolojik tanısı ise, ışık mikroskobu ve immünkromatografi incelemesi ile konulabilir. Periferik kan örneğinin Giemsa boyalı ince yayma ve kalın damla prepratlarının ışık mikroskobunda (x100) incelenmesi ile sıtma tanısı konulabilir [9].

Sıtma tedavisi, hastanın tamamen iyileştirilmesini, ciddi hastalığa ilerlemesinin önlenmesini, hastalığın rekürrens ve relapsını önlemeyi, bulaşını durdurmayı ve ilaç direncini önlemeyi amaçlamaktadır. Mortal seyirli bir hastalık olduğundan, erken tanının ardından vakit kaybetmeden tedaviye başlanmalıdır. Üç günlük artemisin bazlı kombinasyon tedavileri (AKT) en çok kabul gören tedavi seçeneğidir. Diğer tedavi seçenekleri arasında kinin, klorokin, meflokin, amodiakin, doksisiklin, klindamisin yer almaktadır [6].

OLGU SUNUMU

Bilinen kronik bir hastalığı olmayan, 47 yaşındaki erkek hasta ateş, halsizlik, baş ağrısı ve ishal şikayetleri ile acil servise başvurdu. Baş ağrısı ve eşlik eden şikayetler nedeniyle gün içinde aldığı bir adet ağrı kesici ile rahatlarken son günlerde diğer şikayetler de eşlik etmeye başlamıştı. Hasta her gün şiddetli üşüme ve titreme ile başlayıp bol terleme ile sonlanan ateş atakları geçirdiğini ifade etti. Hasta üç gün süren, günde 5-6 kez tuvalete gitmesini gerektiren sıvı vasıfta ishali olduğunu belirtti. İki hafta önce Afrika seyahatinden döndüğü öğrenilen hastanın şikayetleri ilk olarak Afrika'dayken başlamıştı. Seyahat döneminde kemoproflaksi amaçlı ilaç kullanmamıştı. Eklem ağrısı, baş dönmesi ve ishal şikayetleri ile orada değerlendirilen hastada sıtma düşünüldüğü söylenmiş ve 2,4 mg/kg artesunate intravenöz (iv) tedavisi 3 doz (doz aralığı bilinmiyor) verilmişti. Şikayetleri tam olarak gerilemeyen hasta bu sırada Türkiye'ye dönüş yapmıştı. Hastanın orada olduğu dönemde fark ettiği bir sinek ya da böcek sokması/ısırığı öyküsü ve kuyu suyu içme öyküsü yoktu. Hastanın kliniğimize başvurusunda genel durumu orta, şuuru açık, oryantasyon ve kooperasyonu tamdı. Hastanın ateşi 39,5 °C olarak ölçülmüştü. Fizik muayenede hasta halsiz ve solgun görünümde olup hastanın skleraları ve cildi ikterik, konjonktivaları soluk, mukozaları kuru görünümde ve splenomegalisi mevcuttu. Bu bulgular dışında diğer sistemlerin fizik muayenesinde ek özellik yoktu. Olgunun laboratuvar tetkiklerinde beyaz küre sayısı (WBC) 2790 /µL (nötrofil %68,3, lenfosit %17,6, monosit %13,3), trombosit sayısı 58000 /µL, hemoglobin 7,1 g/dL, Aspartat aminotransferaz (AST) 36,3 U/L, Alanin aminotransferaz (ALT) 35,6 U/L, Laktat dehidrogenaz (LDH) 533,5 U/L, total bilirübin 2,48 mg/dL, direkt bilirübin 0,66 mg/dL, INR 1,35, C-Reaktif Protein (CRP) 119 mg/L olarak saptandı. Ateşin yükseldiği dönemde alınan periferik kan örneğinin kalın damla ve ince yaymalarının direkt Giemsa boyalı incelemesinde P.falciparum'a ait hücre içinde taşlı yüzük görünümde trofozit yapıları saptandı (Resim 1). Hasta yakın zamanda Afrika'da bulunduğu dönemde sıtma tanısı ile artesunate iv tedavisi almış ve sonraki dört hafta içinde şikayetleri tekrarlamıştı. Bu durumda artemisin bazlı tedavi verilmedi ve hastaya alternatif tedavi olarak kinin sülfat 10 mg/kg (3x1) ve doksisiklin 100 mg tablet (2x1) dozunda kombinasyon tedavisi başlanıldı. Hastanın günlük rutin takiplerinde iki gün daha ateşi yüksek olmaya devam etti,

sonrasında ise tekrarlamadı. Günlük laboratuvar değerlerinin takibi yapıldı; transfüzyon ihtiyacı olacak düzeyde anemi gelişmedi. Hastanın, tedavisinin 10. gününde genel durumu iyi ve vitalleri stabildi. Laboratuvar tetkiklerinde WBC 4630 /µL (nötrofil %57, lenfosit %32, monosit %9,3), trombosit sayısı 162000 /µL, hemoglobin 8,5 g/dL, AST 13,4 U/L, ALT 11,6 U/L, LDH 437 U/L, total bilirübin 1,02 mg/dL, direkt bilirübin 0,5 mg/dL, INR 1, CRP 9,4 mg/L olarak saptandı. Kontrol amaçlı periferik kan örneğinin direkt Giemsa boyalı incelemesinde parazit morfolojisi saptanmayan hasta poliklinik kontrolü önerisi ile taburcu edildi.



Resim 1: Eritrosit içerisinde Plasmodium falciparum trofozoitleri

TARTIŞMA

P. falciparum, özellikle Afrika'da olmak üzere, en ciddi seyirli ve mortalitesi en yüksek olan sıtma vakalarından sorumlu türdür. Hastalığın yaygın olarak görüldüğü bölgelerde en çok etkilenen ve mortalitenin en yüksek olduğu yaş grubu beş yaş altı çocuklar iken; endemik olmayan bölgelerde immünitenin gelişmemesi nedeniyle tüm yaş grupları yüksek risk altındadır [10].

Türkiye Sağlık Bakanlığı 2022 verilerine göre ülkemizde sıtma insidansı 100.000 nüfusta 0,33'tür. 2010 yılından beri yerli sıtma olgusu tespit edilmemiş olup yalnızca nüks ve importe olgular bildirilmiştir [11]. Bu olgular genellikle Afrika seyahati ile ilişkili olup, olgularda *P. falciparum* ve *P. vivax* tespit edilmiştir [12-14].

P. falciparum'un virülans faktörlerinden en fazla kabul göreni eritrositlerin yüzeyini modifiye ederek adezyona müsait bir fenotip oluşturmasıdır. Bunun sonucunda eritrositler birbirlerine, endotele ve trombositlere yapışarak birçok organın vasküler yapılarında sekestrasyonlar oluşmasına sebep olur. Mikrosirkülasyonda oluşan bu obstrüksiyonu takiben doku perfüzyonu bozulur ve uç organ hasarına kadar uzanan bir klinik tablo gelişebilir [10].

Artemisin ve türevleri (artesunate, artemeter, dihidroartemisinin) P.falciparum sıtmasının kandaki tüm aşamalarına karşı etkili ilaçlardır. Artemisin ve türevleri, tedavinin başlanmasıyla ilk 48 saat içinde parazit yoğunluğunu yaklaşık 10.000 kat azaltıp, semptomatik sekestrasyonlara sebep olmadan morbidite ve mortaliteyi azaltmada oldukça etkilidir [15].

Günümüzde komplike olmayan *P. falciparum* sıtması tedavisinde artemisin kombinasyon tedavisi (AKT) birinci basamak tedavi olarak kabul görmektedir [9]. AKT'ler, hızlı etkili ve potent bir artemisin türevi ile daha yavaş etkili ve daha az potent olan başka bir antiparaziter ilacın (meflokin, lumefantin, piperaquin) kombinasyonudur. Bu kombinasyonda artemisin türevi olan ilaç parazitlerin büyük bir çoğunluğunu günler içinde öldürürken, diğer ilaç ise geri kalan parazitleri haftalar içinde daha yavaş bir şekilde elimine eder [15]. Monoterapi kullanımı, AKT rejimlerine olan direncin artmasına sebep olacağından önerilmemektedir [9].

P. falciparum sıtması tekrarlayabilir ya da reenfeksiyon görülebilir. Bunun sebepleri ilaç direnci, hastanın uyumsuzluğu, uygun doz ve sürede kullanılmaması, kusma olabilir. Bir AKT ile tedavi sonrası 28 gün içinde görülen tedavi başarısızlığı durumunda, bölgedeki sıtma vakalarında etkili olduğu bilinen başka bir AKT rejimi tercih edilir. Buna alternatif olarak, yedi günlük artesunat ya da kinin ile doksisiklin ya da klindamisin kombinasyonları kullanılabilir [9]. Olgumuzda da 28 gün içerisinde gelişen bir rekürrens düşünülmüş olup, hastane yatışı sağlanan hastaya kinin sülfat ve doksisiklin kombinasyonu tercih edilmiş ve tedavi başarısı sağlanmıştır.

AKT rejimleri 1990'larda kullanılan güncel antimalarial rejimlere (sulfadoksin-primetamin, klorokin) direnç gelişmesi ile ilk basamak tedavi seçeneği olarak kullanılmaya başlanmıştır. Günümüzde ise P.falciparum türlerinde artemisin ve türevlerine karşı gelişen bir direnç söz konusudur. Bu konuda yapılan çalışmalarda, artemisinin dozunun arttırılmasının ya da daha uzun tedavi süresinin (altı gün) etkili olabileceği öne sürülmektedir [16]. Dirençli vakalarda kullanılabilecek yeni kombinasyon tedavileri çalışmaları devam etmektedir. Bu kombinasyon tedavi rejimleri arasında; artesunat-lumefantin ile amodiakin, dihidroartemisin-piperaquine ile meflokin bulunmaktadır [17].

SONUÇ

P. falciparum sıtması öncelikli olarak Afrika kıtasının, sahra altı endemik bölgelerine seyahat eden kişilerde olmak üzere dünya genelinde ölümcül olabilen enfeksiyon hastalığıdır. Günümüzde birinci basamak olarak kullanılan tedavilere direnç gelişmiş olması sebebiyle, hastalığın iyi tanınması ve tanı sonrası uygun rejimle uygun doz ve sürede tedavi verilmesi önemlidir. Bu şekilde tedavisi tamamlanan hastalarda nüksler önlenebilirken, yeni dirençli vakaların ortaya çıkması da azaltılabilir. İlk basamak tedavi seçenekleri arasında olmayan kinin sülfat kombinasyonlu tedaviler, olgumuzda olduğu gibi nüks durumlarında AKT'ye alternatif olarak düşünülebilir.

Hasta Onamı: Hasta onamı alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir: FKC, ZSV; Tasarım: FKC, ZSV; Denetleme: KÖ; Kaynaklar: FKC, ZSV, BA; Veri Toplanması ve/veya İşlemesi; HA, AA, BA; Analiz ve/ veya Yorum: HA, AA, KÖ; Literatür Taraması FKC, ZSV, HA, AA, BA; Yazıyı Yazan: FKC, ZSV; Eleştirel İnceleme: FKC, ZSV, KÖ
Çıkar Çatışması: Yazarlar, çıkar çatışması olmadığını beyan etmiştir.
Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

Informed Consent: Patient informed consent was obtained.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept - FKC, ZSV; Design- FKC, ZSV; Supervision- KÖ; Resources- FKC, ZSV, BA; Data Collection and/or Processing- HA, AA, BA; Analysis and/or Interpretation- HA, AA, KÖ; Literature Search- FKC, ZSV, HA, AA, BA; Writing Manuscript- FKC, ZSV; Critical Review- FKC, ZSV, KÖ;
Conflict of Interest: The authors have no conflicts of interest to declare.
Financial Disclosure: The authors declared that this study has received no financial support.

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