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Formerly Çağdaş Tıp Dergisi

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the Journal of Contemporary Medicine

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INSTRUCTIONS FOR AUTHORS

AIM AND SCOPE

The Journal will not consider manuscripts any that have been published elsewhere, or manuscripts that are being considered for another publication, or are in press. Studies previously announced in the congresses are accepted if this condition is stated. If any part of a manuscript by the same author(s) contains any information that was previously published, a reprint or a copy of the previous article should be submitted to the Editorial Office with an explanation by the authors

A technical review is performed to confirm that all of the required documentation has been submitted and to conduct a preliminary evaluation of the manuscript and supplementary files to assess suitability for the Journal. The manuscript will be returned to the Author in the event of any deficiency.

Journal of Contemporary Medicine operates a blind review process. Contributions deemed suitable are then typically sent to a minimum of two independent expert reviewers in the field of study to assess the scientific quality of the paper. (You can see at the picture below).

The Editor/Editors are responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. If necessary, author(s) may be invited to submit a revised version of the manuscript. This invitation does not imply that the manuscript will be accepted for publication. Revised manuscripts must be sent to the Editorial Office within 4 (four) weeks, otherwise they will be considered as a new application. The corresponding author will be notified of the decision to accept or reject the manuscript for publication.

Statements and suggestions published in manuscripts are the authors' responsibility and do not reflect the opinions of the Editor, Associate Editors and the Editorial Board members.

The manuscript will not be returned to the authors whether the article is accepted or not. Copyright fee is not paid for the articles published in the journal. A copy of the journal will be sent to the corresponding author.

Language of the Journal

The official languages of the Journal are Turkish and English. The manuscripts that are written in Turkish have abstracts in English, which makes the abstracts available to a broader audience.

Authorship Criteria

After accepted for publication, all the authors will be asked to sign "CoyrightTransfer Form" which states the following: " This work is not under active consideration for publication, has not been accepted for publication, nor has it been published, in full or in part (except in abstract form). I confirm that the study has been approved by the ethics committee. " All authors should agree to the conditions outlined in the form.

Journal of Contemporary Medicine has agreed to use the standards of the International Committee of Medical Journal Editors. The author(s) should meet the criteria for authorship according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication. It is available at www.icmje.org.

Ethical Responsibility

The protocol of clinical research articles must be approved by the Ethics Committee.

In all studies conducted on humans, the "Material and Method" section was approved by the relevant committee or the Helsinki Declaration of Principles (https://www.wma.net/what-we-do/medical-ethics/declaration-of-helsinki/).

It should be stated in the text that all persons included in the study signed the am Informed Consent Form ".

The articles submitted to the Journal of Contemporary Medicine will be deemed to have been conducted in accordance with the Helsinki Declaration of Principles, and have received ethical and legal permissions and will not be held responsible.

If the "Animal" item was used in the study, the authors stated that in the Material and Method section of the article, they protect the animal rights in their studies in accordance with the principles of Guide for the Care and Use of Laboratory Animals (www.nap.edu/catalog/5140.html) and that they have received approval from the ethics committees of their institutions. must specify.

In case reports, Informed Consent a should be obtained from patients regardless of the identity of the patient.

If the article includes the institution (directly or indirectly) providing financial support for the commercial connection or work, the authors; the commercial product used, the drug, the company has no commercial relationship with, or if there is any relationship (consultant, other agreements, etc.), the editor must inform the presentation page.

If Ethics Committee Approval is required in the article; the received document should be sent with the article.

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The manuscript should be submitted to the Academic Plagiarism Prevention Program by the authors.

It is the authors' responsibility to ensure that the article complies with the ethical rules.

Policy of Screening for Plagiarism

The manuscripts are scanned by the Journal using the iThenticate program for determination of plagiarism and non-ethical situations. Journal of Contemporary Medicine will immediately reject manuscripts leading to plagiarism.

TYPES OF MANUSCRIPT

Manuscripts should be submitted online via www.jcontempmed.com

Original Articles should not exceed 3000 words and should be arranged under the headings of Abstract (not more than 250 words), Introduction, Materials and Methods, Results, Discussion, Conclusion and References.

Case Reports should not exceed 1000 words and 10 references, and should be arranged as follows: Abstract, Introduction, Case Report, Discussion and References. It may be accompanied by only one figure or table.

Letter to the Editor should not exceed 500 words. Short relevant comments on medical and scientific issues, particularly controversies, having no more than five references and one table or figure are encouraged. Where letters refer to an earlier published paper, authors will be offered right of reply.

Reviews are not accepted unless written on the invitation of the Editorial Board.

PREPARATION OF MANUSCRIPTS

All articles submitted to the Journal must comply with the following instructions:

a) Submissions should be doubled-spaced and typed in Arial 10 points.

b) All pages should be numbered consecutively in the top right-hand corner, beginning with the title page.

c) The title page should not include the names and institutions of the authors.

d) The manuscript should be presented in the following order: Title page, Abstract (English, Turkish), Keywords (English, Turkish), Introduction, Materials and Methods, Results, Discussion, Conclusion, Acknowledgements (if present), References, Figure Legends, Tables (each table, complete with title and foot-notes, on a separate page) and Appendices (if present) presented each on a separate page.

Title

The title should be short, easy to understand and must define the contents of the article.

Abstract

Abstract should be in both English and Turkish and should consist "Aim, Materials and Methods, Results and Conclusion". The purpose of the study, the setting for the study, the subjects, the treatment or intervention, principal outcomes measured, the type of statistical analysis and the outcome of the study should be stated in this section (up to 250 words). Abstract should not include reference. No abstract is required for the letters to the Editor.

Keywords

Not more than five keywords in order of importance for indexing purposes should be supplied below the abstract and should be selected from Index Medicus Medical Subject Headings (MeSH), available at www.nlm.nih.gov/meshhome.html.

Text

Authors should use subheadings to divide sections regarding the type of the manuscript as described above. Statistical methods used should be specified in the Materials and Methods section.

References

In the text, references should be cited using Arabic numerals in parenthesis in the order in which they appear. If cited only in tables or figure legends, they should be numbered according to the first identification of the table or figure in the text. Names of the journals should be abbreviated in the style used in Index Medicus. The names of all authors should be cited when there are six or fewer; when seven or more, the first three should be followed by et al. The issue and volume numbers of the referenced journal should be added.

References should be listed in the following form:

Journal article

Teke Z, Kabay B, Aytekin FO et al. Pyrrolidine dithiocarbamate prevents 60 minutes of warm mesenteric ischemia/reperfusion injury in rats. Am J Surg 2007;194(6):255-62.

Supplement

Solca M. Acute pain management: Unmet needs and new advances in pain management. Eur J Anaesthesiol 2002; 19(Suppl 25): 3-10.

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Online article not yet published in an issue

Butterly SJ, Pillans P, Horn B, Miles R, Sturtevant J. Off-label use of rituximab in a tertiary Queensland hospital. Intern Med J doi: 10.1111/j.1445-5994.2009.01988.x

Book

Sample1: Murray PR, Rosenthal KS, Kobayashi GS, Pfaller MA. Medical microbiology. 4th ed. St. Louis: Mosby; 2002.

Sample 2: Sümbüloğlu K, Akdağ B. Regresyon Yöntemleri ve Korelasyon Analizi. Hatiboğlu Yayınevi: Ankara; 2007.

Chapter in a book

Meltzer PS, Kallioniemi A, Trent JM. Chromosome alterations in human solid tumors. I n: Vogelstein B, Kinzler KW, editors. The genetic basis of human cancer. New York: McGraw-Hill; 2002. p. 93113.

Journal article on the Internet

Abood S. Quality improvement initiative in nursing homes: The ANA acts in an advisory role. Am J Nurs [serial on the Internet] 2002 [cited 12 Aug 2002]; 102. Available from: www.nursingworld.org/AJN/2002/june/wawatch.htm

Website

Cancer-pain.org [homepage on the Internet]. New York: Association of Cancer Online Resources [updated 16 May 2002; cited 9 Jul 2002]. Available from: www.cancer-pain.org

An organization as an author

The Intensive Care Society of Australia and New Zealand. Mechanical ventilation strategy in ARDS: Guidelines. Int Care J Aust 1996;164:282-4.

Acknowledgements

The source of financial grants and the contribution of colleagues or institutions should be acknowledged.

Tables

Tables should be complementary, but not duplicate information contained in the text. Tables should be numbered consecutively in Arabic numbers, with a descriptive, self-explanatory title above the table. All abbreviations should be explained in a footnote. Footnotes should be designated by symbols in the following order: *,†, ‡, §, ¶.

Figures

All illustrations (including line drawings and photographs) are classified as figures. Figures must be added to the system as separate .jpg or .gif files (approximately 500x400 pixels, 8 cm in width and at least 300 dpi resolution). Figures should be numbered consecutively in Arabic numbers and should be cited in parenthesis in consecutive order in the text.

Figure Legends

Legends should be self-explanatory and positioned on a separate page. The legend should incorporate definitions of any symbols used and all abbreviations and units of measurements should be explained. A letter should be provided stating copyright authorization if figures have been reproduced from another source.

Measurements and Abbreviations

All measurements must be given in metric system (Système International d'Unités, SI). Example: mg/kg, µg/kg, mL, mL/kg, mL/kg/h, mL/kg/min, L/min, mmHg, etc. Statistics and measurements should always be given in numerals, except where the number begins a sentence. When a number does not refer to a unit of measurement, it is spelt out, except where the number is greater than nine.

Abbreviations that are used should be defined in parenthesis where the full word is first mentioned. Some common abbreviations can be used, such as iv, im, po, and sc.

Drugs should be referred to by their generic names, rather than brand names.

Editorial Correspondence

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Checklist for Manuscripts

Review guide for authors and instructions for submitting manuscripts through the electronic submission, website at

http://www.jcontempmed.com

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YAZARLARA BİLGİ

AMAÇ ve KAPSAM

Çağdaş Tıp Dergisi, üç ayda bir yayımlanır ve dört sayı ile bir cilt tamamlanır. Dergi; tüm tıp alanlarıyla ilgili nitelikli klinik ve deneysel araştırmaları, olgu sunumlarını ve editöre mektupları yayımlar.

Çağdaş Tıp Dergisi, bilimsel yayınlara açık erişim sağlar. Dergi basımından hemen sonra, makalelerin tam metinlerine ücretsiz ulaşılabilir.

Dergide yayımlanmak üzere gönderilen yazıların daha önce başka bir yerde yayımlanmamış veya yayımlanmak üzere gönderilmemiş olması gerekir. Daha önce kongrelerde sunulmuş çalışmalar, bu durum belirtilmek koşuluyla kabul edilir. Makale, yazar(lar) ın daha önce yayımlanmış bir yazısındaki konuların bir kısmını içeriyorsa bu durum belirtilmeli ve yeni yazı ile birlikte önceki makalenin bir kopyası da Yayın Bürosu'na gönderilmelidir.

Gerekli tüm belgelerin sunulduğunu teyit etmek ve dergiye uygunluğunu değerlendirmek için makale ve ek dosyaların ön değerlendirmesini yapmak üzere teknik bir inceleme yapılır. Herhangi bir eksiklik olması halinde makale yazara iade edilecektir. Journal of Contemporary Medicine kör bir inceleme süreci yürütmektedir. Uygun görülen yazılar daha sonra makalenin bilimsel kalitesini değerlendirmek için çalışma alanında en az iki bağımsız uzmana gönderilir. Editör / Editörler makalelerin kabulü veya reddi ile ilgili nihai karardan sorumludur. (Aşağıdaki akış şemasında görüldüğü gibi).

Editörün kararı kesindir. Gerekli olduğu durumlarda, yazar(lar) dan düzeltme istenebilir. Yazardan düzeltme istenmesi, yazının yayımlanacağı anlamına gelmez. Bu düzeltmelerin en geç 21 gün içinde tamamlanıp dergiye gönderilmesi gereklidir. Aksi halde yeni başvuru olarak değerlendirilir. Sorumlu yazara yazının kabul veya reddedildiğine dair bilgi verilir.

Dergide yayımlanan yazıların etik, bilimsel ve hukuki sorumluluğu yazar(lar)a ait olup Editör, Editör Yardımcısı ve Yayın Kurulu'nun görüşlerini yansıtmaz.

Dergide yayımlanması kabul edilse de edilmese de, yazı materyali yazarlara geri verilmez. Dergide yayımlanan yazılar için telif hakkı ödenmez. Bir adet dergi, sorumlu yazara gönderilir.

Derginin Yazı Dili

Derginin yazı dili Türkçe ve İngilizcedir. Dili Türkçe olan yazılar, İngilizce özetleri ile yer alır. Yazının hazırlanması sırasında, Türkçe kelimeler için Türk Dil Kurumundan (www.tdk.gov.tr), teknik terimler için Türk Tıp Terminolojisinden (www.tipterimleri.com) yararlanılabilir.

Yazarlık Kriterleri

Dergide yayınlanması uygun bulunan tüm yazıların araştırma ve yayın etiğine uygun hazırlandığı, varsa sağlanan fonun kaynağının tanımlandığı, başka yerde yayımlanmadığı veya yayımlanmak üzere gönderilmediği, çalışmaya katılan tüm yazarlar tarafından yazının son halinin onaylandığı, yayımlanacak yazı ile ilgili telif haklarının dergiye devredildiği, tüm yazarların imzaları ile "Yayın Hakkı Devir Formu"nda belirtilmesi gerekir.

Çağdaş Tıp Dergisi, Uluslararası Tıp Dergileri Editörleri Kurulu'nun (International Committee of Medical Journal Editors) "Biyomedikal Dergilere Gönderilen Makalelerin Uyması Gereken Standartlar: Biyomedikal Yayınların Yazımı ve Baskıya Hazırlanması (Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication)" standartlarını kullanmayı kabul etmektedir. Bu konudaki bilgiye www.icmje.org adresinden ulaşılabilir.

Etik Sorumluluk

Etik Sorumluluk / Kurallar: Klinik araştırma makalelerinin protokolü Etik Komitesi tarafından onaylanmış olmalıdır.

İnsanlar üzerinde yapılan tüm çalışmalarda "Gereç ve Yöntem" bölümünde çalışmanın ilgili komite tarafından onaylandığı veya çalışmanın Helsinki İlkeler Deklarasyonu'na (https://www.wma.net/what-we-do/medical-ethics/declaration-of-helsinki/) uyularak gerçekleştirildiğine dair bir cümle yer almalıdır.

Çalışmaya dahil edilen tüm kişilerin Bilgilendirilmiş Onam Formu'nu imzaladığı metin içinde belirtilmelidir.

Journal of Contemporary Medicine'e gönderilen makalelerdeki çalışmaların Helsinki İlkeler Deklarasyonu'na uygun olarak yapıldığı, kurumsal etik ve yasal izinlerin alındığı varsayılacak ve bu konuda sorumluluk kabul edilmeyecektir.

Çalışmada "Hayvan" öğesi kullanılmış ise yazarlar, makalenin Gereç ve Yöntem bölümünde hayvan haklarını Guide for the Care and Use of Laboratory Animals (www.nap.edu/catalog/5140.html) prensipleri doğrultusunda koruduklarını, çalışmalarında ve kurumlarının etik kurullarından onay aldıklarını belirtmek zorundadır.

Olgu sunumlarında hastanın kimliğinin ortaya çıkmasına bakılmaksızın hastalardan "Bilgilendirilmiş rıza" alınmalıdır.

Makalede ticari bağlantı veya çalışma için maddi destek veren kurum (doğrudan veya dolaylı) mevcut ise yazarlar; kullanılan ticari ürün, ilaç, firma ile ticari hiçbir ilişkisinin olmadığını veya varsa nasıl bir ilişkisinin olduğunu (konsültan, diğer anlaşmalar vs.), editöre sunum sayfasında bildirmek zorundadır.

Makalede Etik Kurul Onayı alınması gerekli ise; alınan belge makale ile birlikte gönderilmelidir.

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Makale yazarlar tarafından akademik intihal önleme programından geçirilmelidir.

Makalenin etik kurallara uygunluğu yazarların sorumluluğundadır.

İntihal Taraması Politikası

Makaleler, intihal ve etik olmayan durumların belirlenmesi için iThenticate programı kullanılarak Journal tarafından taranır. Journal of Contemporary Medicine intihallere yol açan makaleleri derhal reddedecektir.

YAZI TÜRLERİ

Yazılar, elektronik ortamda www.cagdastipdergisi.com adresine gönderilir.

Orijinal makaleler, 3000 sözcük sayısını aşmamalı, "Öz (250 sözcükten fazla olmamalı), Giriş, Gereç ve Yöntem, Bulgular, Tartışma, Sonuç, Kaynaklar" bölümlerinden oluşmalıdır.

Olgu Sunumu, "Öz, Giriş, Olgu Sunumu, Tartışma, Kaynaklar" şeklinde düzenlenmelidir. En fazla 1000 sözcük ve 10 kaynak ile sınırlıdır. Sadece bir tablo veya şekil ile desteklenebilir.

Editöre Mektup, yayımlanan metinlerle veya mesleki konularla ilgili olarak 500 sözcüğü aşmayan ve beş kaynak ile bir tablo veya şekil içerecek şekilde yazılabilir. Ayrıca daha önce dergide yayınlanmış metinlerle ilişkili mektuplara cevap hakkı verilir.

Yayın Kurulu'nun daveti üzerine yazılanlar dışında derleme kabul edilmez.

MAKALENİN HAZIRLANMASI

Dergide yayınlanması istenilen yazı için aşağıdaki kurallara uyulmalıdır.

a) Yazı; iki satır aralıklı olarak, Arial 10 punto ile yazılmalıdır.

b) Sayfalar başlık sayfasından başlamak üzere, sağ üst köşesinde numaralandırılmalıdır.

c) Online makale sistemine yüklenen word dosyasının başlık sayfasında (makalenin adını içeren başlık sayfası), yazarlara ait isim ve kurum bilgileri yer almamalıdır.

d) Makale, şu bölümleri içermelidir: Her biri ayrı sayfada yazılmak üzere; Türkçe ve İngilizce Başlık Sayfası, Öz, Abstract, Anahtar Sözcükler, Keywords, Giriş, Gereç ve Yöntem, Bulgular, Tartışma, Sonuç, Açıklamalar (varsa), Kaynaklar, Şekil Alt Yazıları, Tablolar (başlıkları ve açıklamalarıyla beraber), Ekler (varsa).

Yazının Başlığı

Kısa, kolay anlaşılır ve yazının içeriğini tanımlar özellikte olmalıdır.

Özetler

Türkçe (Öz) ve İngilizce (Abstract) olarak yazılmalı, Amaç, Gereç ve Yöntem, Bulgular ve Sonuç (Aim, Materials and Methods, Results, Conclusion) olmak üzere dört bölümden oluşmalı, en fazla 250 sözcük içermelidir. Araştırmanın amacı, yapılan işlemler, gözlemsel ve analitik yöntemler, temel bulgular ve ana sonuçlar belirtilmelidir. Özette kaynak kullanılmamalıdır. Editöre mektup için özet gerekmemektedir.

Anahtar Sözcükler

Türkçe Öz ve İngilizce Abstract bölümünün sonunda, Anahtar Sözcükler ve Keywords başlığı altında, bilimsel yazının ana başlıklarını yakalayan, Index Medicus Medical Subject Headings (MeSH)'e uygun olarak yazılmış en fazla beş anahtar sözcük olmalıdır. Anahtar sözcüklerin, Türkiye Bilim Terimleri'nden (www.bilimterimleri.com) seçilmesine özen gösterilmelidir.

Metin

Yazı metni, yazının türüne göre yukarıda tanımlanan bölümlerden oluşmalıdır. Uygulanan istatistiksel yöntem, Gereç ve Yöntem bölümünde belirtilmelidir.

Kaynaklar

Çağdaş Tıp Dergisi, Türkçe kaynaklardan yararlanmaya özel önem verdiğini belirtir ve yazarların bu konuda duyarlı olmasını bekler.

Kaynaklar metinde yer aldıkları sırayla, cümle içinde atıfta bulunulan ad veya özelliği belirten kelimenin hemen bittiği yerde ya da cümle bitiminde noktadan önce parantez içinde Arabik rakamlarla numaralandırılmalıdır. Metinde, tablolarda ve şekil alt yazılarında kaynaklar, parantez içinde Arabik numaralarla nitelendirilir. Sadece tablo veya şekil alt yazılarında kullanılan kaynaklar, tablo ya da şeklin metindeki ilk yer aldığı sıraya uygun olarak numaralandırılmalıdır. Dergi başlıkları, Index Medicus'ta kullanılan tarza uygun olarak kısaltılmalıdır. Kısaltılmış yazar ve dergi adlarından sonra nokta olmamalıdır. Yazar sayısı altı veya daha az olan kaynaklarda tüm yazarların adı yazılmalı, yedi veya daha fazla olan kaynaklarda ise üç yazar adından sonra et al. veya ve ark. yazılmalıdır. Kaynak gösterilen derginin sayı ve cilt numarası mutlaka yazılmalıdır.

Kaynaklar, yazının alındığı dilde ve aşağıdaki örneklerde görüldüğü şekilde düzenlenmelidir.

Dergilerdeki yazılar

Teke Z, Kabay B, Aytekin FO et al. Pyrrolidine dithiocarbamate prevents 60 minutes of warm mesenteric ischemia/reperfusion injury in rats. Am J Surg 2007;194(6):255-62.

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Henüz yayınlanmamış online makale
Butterly SJ, Pillans P, Horn B, Miles R, Sturtevant J. Off-label use of rituximab in a tertiary Queensland hospital. Intern Med J doi: 10.1111/j.1445-5994.2009.01988.x

Kitap
Örnek 1: Murray PR, Rosenthal KS, Kobayashi GS, Pfaller MA. Medical microbiology. 4th ed. St. Louis: Mosby; 2002.
Örnek 2: Sümbüloğlu K, Akdağ B. Regresyon Yöntemleri ve Korelasyon Analizi. Hatiboğlu Yayınevi: Ankara; 2007.

Kitap bölümü
Meltzer PS, Kallioniemi A, Trent JM. Chromosome alterations in human solid tumors. I n: Vogelstein B, Kinzler KW, editors. The genetic basis of human cancer. New York: McGraw-Hill; 2002. p. 93113.

İnternet makalesi
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Yazar olarak bir kuruluş
The Intensive Care Society of Australia and New Zealand. Mechanical ventilation strategy in ARDS: Guidelines. Int Care J Aust 1996;164:282-4.

Açıklamalar
Varsa finansal kaynaklar, katkı sağlayan kurum, kuruluş ve kişiler bu bölümde belirtilmelidir.

Tablolar
Tablolar metni tamamlayıcı olmalı, metin içerisinde tekrarlanan bilgiler içermemelidir. Metinde yer alma sıralarına göre Arabik sayılarla numaralandırılıp tablonun üstüne kısa ve açıklayıcı bir başlık yazılmalıdır. Tabloda yer alan kısaltmalar, tablonun hemen altında açıklanmalıdır. Dipnotlarda sırasıyla şu semboller kullanılabilir: *, †, ‡, §, ¶.

Şekiller
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Ölçümler ve Kısaltmalar
Tüm ölçümler metrik sisteme (Uluslararası Birimler Sistemi, SI) göre yazılmalıdır. Örnek: mg/kg, µg/kg, mL, mL/kg, mL/kg/h, mL/kg/min, L/min, mmHg, vb. Ölçümler ve istatistiksel veriler, cümle başında olmadıkları sürece rakamla belirtilmelidir. Herhangi bir birimi ifade etmeyen ve dokuzdan küçük sayılar yazı ile yazılmalıdır.

Metin içindeki kısaltmalar, ilk kullanıldıkları yerde parantez içinde açıklanmalıdır. Bazı sık kullanılan kısaltmalar; iv, im, po ve sc şeklinde yazılabilir.

İlaçların yazımında jenerik isimleri kullanılmalıdır.

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LETTER TO THE EDITOR

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Orjinal Araştırma / Original Article

Evaluation of Serum Nitric Oxide Level and its Relationship with Disease Activity Parameters in Patients with Rheumatoid Arthritis

Romatoid Artritli Hastalarda Serum Nitrik Oksit Seviyesinin ve Hastalık Aktivite Parametreleri ile İlişkisinin Değerlendirilmesi

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Abstract

Aim: Nitric oxide (NO) is a molecule known to play a role in many physiological and pathological events in the body. It is thought to play an active role in inflammation. Rheumatoid arthritis (RA) is the most common chronic inflammatory autoimmune disease worldwide. In this study, we aimed to evaluate the serum NO levels of RA patients and their relation with parameters that are indicators of disease activity.

Material and Method: Thirty patients with RA (7 males/ 23 females, mean age 48.80±7.88 years old) and 30 healthy control groups were included in the study. Both groups were compared with erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), rheumatoid factor (RF), anti cyclic citrullinated peptide antibody (anti CCP) and serum NO levels and clinically with Visual Analog Scale (VAS), Disease Activity Score-28 (DAS-28) and Health Assessment Questionnaire (HAQ) scales.

Results: ESR, CRP and NO levels in the patient group were significantly higher than the control group ($p<0.05$). When the patient group was classified as active and inactive group (active disease: DAS-28>3.2, inactive disease DAS-28<3.2) according to DAS-28 scores, there was no significant difference in serum NO levels between the two groups. Serum NO levels of the patient group were not correlated with clinical (VAS, DAS-28) and laboratory markers (ESR, CRP, RF, Anti CCP) of disease activity.

Conclusion: In this study, we found that serum NO levels in RA patients increased significantly compared to the healthy control group. However, increased serum NO levels in RA patients were not associated with laboratory and clinical disease activity parameters.

Keywords: Nitric oxide, rheumatoid arthritis, disease activity score-28 (DAS-28), health assessment questionnaire (HAQ)

Öz

Amaç: Nitrik oksit (NO), vücutta çok sayıda fizyolojik ve patolojik olayda rol oynadığı bilinen bir moleküldür. İnflamasyonda da etkin rolü olduğu düşünülmektedir. Romatoid artrit (RA) ise dünya genelinde en sık görülen kronik enflamatuar otoimmun hastalıktır. Bu çalışmada RA hastalarının serum NO düzeylerini ve bunun hastalık aktivite göstergesi olan parametrelerle ilişkisini değerlendirmeyi amaçladık.

Gereç ve Yöntem: Çalışmaya RA tanılı 30 hasta (7 erkek ve 23 kadın, ortalama yaş 48.80±7.88) ve 30 sağlıklı kontrol grubu alındı. Her iki grubun laboratuar olarak eritrosit sedimentasyon hızı (ESR), C-reaktif protein (CRP), romatoid faktör (RF), anti siklik sitrullin peptid antikoru (Anti CCP) ve serum NO düzeyleri ile klinik olarak Vizuel Analog Skalası (VAS), Hastalık Aktivite Skoru-28 (DAS-28) ve Sağlık Değerlendirme Anketi (HAQ) ölçekleri ile karşılaştırmaları yapıldı.

Bulgular: Hasta grubundaki ESR, CRP ve NO düzeyleri kontrol grubundan anlamlı düzeyde yüksekti ($p<0.05$). Hasta grubu DAS-28 skorlarına göre aktif ve inaktif grup (aktif hastalık:DAS-28>3.2,inaktif hastalık DAS-28<3.2) olarak sınıflandırıldığında her iki grup arasında serum NO düzeyleri açısından anlamlı fark yoktu. Hasta grubunun serum NO düzeyleri ile hastalık aktivitesinin klinik (VAS, DAS-28) ve laboratuvar belirteçleri (ESR, CRP, RF, Anti CCP) arasında korelasyon gözlenmedi.

Sonuç: Bu çalışmada RA hastalarında serum NO düzeylerinin sağlıklı kontrol grubuna göre anlamlı olarak arttığını bulduk. Bununla birlikte, RA hastalarında artmış serum NO seviyeleri, hastalık aktivitesinin klinik ve laboratuar parametreleri ile ilişkili değildi.

Anahtar Kelimeler: Nitrik oksit, romatoid artrit, DAS-28, HAQ

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INTRODUCTION

Rheumatoid arthritis (RA) is the most common chronic autoimmune inflammatory rheumatic disease worldwide, but there are still unknown points in its pathogenesis. Although the pathogenetic mechanism that initiated the disease is not clear, overproduction of nitric oxide (NO) is closely related to the development of RA.[1] Pathologically, inflammatory mediators such as NO, interleukin-6, and tumor necrosis factor-α in rheumatoid joints exacerbate inflammation.[2,3]

Nitric oxide is an intracellular and transcellular signal molecule that is synthesized from L-arginine via the nitric oxide synthase (NOS) enzyme.[4] The NO formed is an unstable molecule and quickly turns into more stable and inactive nitrite and nitrate. Since these molecules are in liquid phase, they can be used as an indicator of NO production in biological fluids. In addition, NO turns into peroxynitrite, which is a strong oxidant that causes tissue destruction.[5] The NOS enzyme has 2 isotypes, namely 'constitutive NOS' (cNOS), which are found structurally at the basal level in cells, and 'inducible NOS' (iNOS), which are activated after biochemical stimulation. cNOS also has 2 isotypes: 'endothelial NOS' (eNOS) and 'neuronal NOS' (nNOS). cNOS is constantly secreted by the vascular endothelium at the physiological level.[6] NO synthesis can be prevented by inhibition of the NOS enzyme. NO modulates a wide range of physiological and pathophysiological conditions. In physiological conditions, while it exhibits features such as vascular tone regulation, anti-inflammatory effect, anti-tumor effect and wound-healing effect, pathologically high NO levels act as proinflammatory mediators for tissue destruction and apoptosis.[7,8] Prolonged high NO levels can cause serious chronic inflammatory disorders, including RA, systemic lupus erythematosus, inflammatory bowel disease and sepsis.[8-10]

Although NO has been the subject of many studies since its definition, its role in inflammatory diseases remains uncertain. Several studies have found a notable role of NO during the development and progression of RA.[11-13] Some researchers have shown that high NO concentrations (systemic and intra articular) can contribute to arthritis in experimental animal models and patients.[14] Besides the uncertain points in the pathogenesis of RA, laboratory and clinical parameters used to monitor disease activity may be insufficient in some cases. On the other hand, despite the recent developments in treatment in the last 20 years, some of the patients are still not able to fully remission. Research on the contribution of NO to the pathogenesis, its relationship with disease activity and whether it will be a target for treatment is ongoing.[8]

In this study, we aimed to evaluate the serum NO levels in patients with RA by comparing them with the healthy control group and to investigate their relationship with disease activity.

MATERIAIL AND METHOD

This cros-sectional observational study was conducted with 30 RA patients (7 males, 23 females, mean age 48.80±7.88 years old) and 30 healthy control participants. The age and gender averages were similar in the groups. Patients between 40-60 years old who were diagnosed with RA according to ACR 2010 criteria were included in the study. Patients with inflammatory rheumatic disease other than RA, systemic diseases such as hypertension and diabetes mellitus, those with active infection and malignancy during the study, patients who used anticytokine agents (such as antitumor necrosis factor drug therapy) or more than 10 mg of prednisolone in the last six months were excluded from the study. Patients using conventional disease modifying antirheumatic drugs (DMARD) such as methotrexate, sulfasalazine were not excluded. In addition, patients with drug and food use that affect NO levels were also excluded. The healthy control group was consisted of hospital workers without systemic and chronic diseases. This research study was approved by the institutional clinical ethics committee (20-KAEK-203) and it was planned and conducted in accordance with the provisions of the Helsinki Declaration. The aims of the study were explained in detail to all participants and signed consent forms were taken.

Detailed examinations of the patients were done by the same researcher. Age, gender, duration of illness, duration of morning stiffness, drugs used were recorded. The basic demographic, clinical and laboratory features of the groups are shown in **Table 1**. Disease activity was evaluated by clinical evaluation scales Visual Analog Scale (VAS), Disease Activity Score-28 (DAS-28). Quality of life assessment was done with Health Assessment Questionnaire (HAQ), a RA-specific quality of life assessment scale. In the laboratory evaluation of the disease activity, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), rheumatoid factor (RF), anti cyclic citrullinated peptide antibody (anti CCP) were used.

Table 1. Baseline demographic, clinical and laboratory assessment scores for the rheumatoid arthritis patients and healthy controls

	Control Group	RA group	P value
N	30	30	
Age , years (mean±SD)	44.83±4.76	48.80±7.88	>0.05
Sex (male/female)	11/19	7/23	>0.05
Disease duration (year)	NA	10 (2-35)	
VAS (mean±SD)	NA	50 (0-90)	
DAS-28 (mean±SD)	NA	2.95±1.29	
HAQ	NA	0.17 (0-1.8)	
Positivity of RF, n (%)	-	20(66.66)	
Positivity of Anti CCP, n (%)	-	23(76.66)	
ESR (mm/h) [median (min.-max.)]	11 (2-22)	20 (4-79)	<0.001*
CRP (mg/dl) [median (min.-max.)]	1.10 (0.20-3.60)	5.05 (0.80-13.6)	<0.0001*
NO (µmol/L)	253.6±49.9	305.6±50.1*	<0.0001*

NA:Not applicable; VAS:Visual analog scale; DAS-28: 28-joint Disease Activity Score; HAQ: Health Assessment Questionnaire; RF: Rheumatoid factor; Anti CCP:Anticitrullinated peptide antibody; ESR: Erythrocyte sedimentation rate; CRP:C-reactive protein; NO:Nitric oxide
*Significantly different from control grup at p<0.05 level.

Visual analog scale is the most widely used and easy to use scale for assessing pain. The patient is asked to rate the pain on this line by scoring between 0 and 10 as "0 = no pain" and "10 = worst pain imaginable" on a horizontal 10 cm line. DAS-28 score is a widely used scale for evaluating disease activity. It was calculated by the number of swollen joints,the number of sensitive joints, ESR and VAS values. DAS-28<3.2 was considered low disease activity. Health Assessment Questionnaire (HAQ) has been developed to evaluate the functional status in rheumatic diseases. It contains eight items consisting of 20 questions. It has been shown to correlate with disease activity indicators.

For evaluation of serum NO level, venous blood was centrifuged at 3000 rpm for 15 minutes immediately after collection and stored at -80 degrees before use. Serum NO levels were measured after collecting the blood of all participants in the patient and control groups. The serum NO level was assessed by measuring the serum nitrite and nitrate, because the half-life of NO is very short, and it quickly breaks down in to nitrite (NO_2) and nitrate (NO_3) products. The NO_2 and NO_3 levels were measured by using the Griess reaction. [15] In this method, the blood samples were first deproteinized with Somogyi's reagent; then, the total NO_2 level was measured using a spectrophotometer at 545 nm after the conversion of NO_3 to NO_2 by copperized cadmium granules. Afterward, a standard curve was established using a set of serial dilutions (10-8–10-3 mol/l) of sodium nitrite. A linear regression was established using the peak area from the the NO_2 standards. The resulting equation was used to calculate the unknown sample concentrations, and the results were expressed in micromoles per liter of plasma (mmol/l).

Statistical Analysis

The data were presented as the mean±standard error or median (minimum-maximum). The categorical variables were compared using the chi-squared test, and the contininous variables were analyzed using an analysis of variance, Student's t-test and Mann–Whitney U test. Spearman's correlation coefficient was used to test the correlations between two variables. All of the analyses were performed using the Statistical Package for the Social Sciences version 18.0 (SPSS Inc.,Chicago, IL, USA) and Graph Pad 5 software. Differences of P< 0.05 were considered to be statistically significant.

RESULTS

The demographic, clinical and laboratory data of the groups are reported in **Table 1**. There were no significant differences with regard to the age or gender distribution (P>0.05). ESR levels in the RA group were significantly higher than the control group. [20 (4-79) and 11 (2-22), respectively] (p<0.001). Similarly, in the RA group serum CRP levels were also significantly higher than the control group [5.05 (0.80-13.6) and 1.10 (0.20-3.60), respectively] (p<0.0001). RF was positive in 66.6% and anti CCP in 76.6% of the patients in the RA group. Mean serum NO concentrations in the patient group and control group were 305.6±50.1 and 253.6±49.9 µmol / L, respectively (**Figure 1**). There was a statistically significant difference between the two groups (p<0.0001). When RA patients were divided into two groups as active and inactive (DAS 28>3.2 and DAS 28<3.2, respectively), no significant difference was found between NO levels (p>0.05).

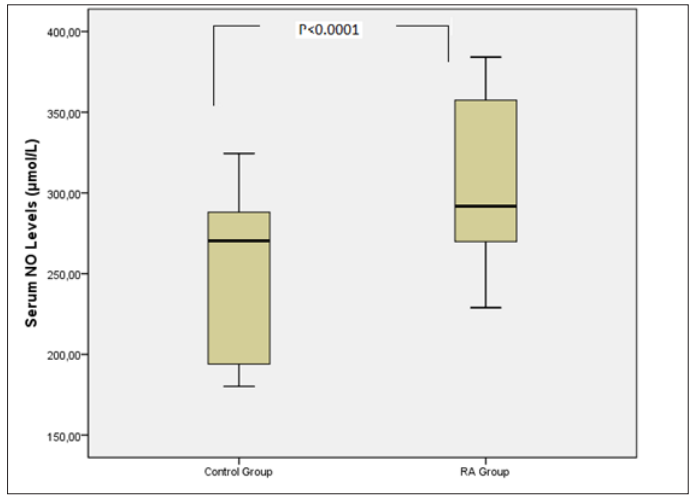

Figure 1. Mean serum nitrate concentration of patient and control groups

The median VAS score in the RA group was 50 mm (0-90), the mean DAS-28 score was 2.95±1.29, and the median HAQ score was 0.17 (0-1.8).

Serum NO levels were not correlated with clinical markers of the disease activity (VAS, DAS 28) and laboratory markers (ESR, CRP, RF, Anti CCP). In addition, serum NO levels were not correlated with RA-specific quality of life scale HAQ (**Table2**).

Table 2. Correlation between clinical, laboratory data and serum nitric oxide level in the rheumatoid arthritis group

	NO	
	R^2	P value[a]
DAS-28	-0.175	0.354
VAS	-0.224	0.252
HAQ	-0.110	0.564
ESR	-0.037	0.845
CRP	0.218	0.247
RF	0.125	0.482
Anti CCP	-0.074	0.713

NO:Nitric oxide; DAS-28: Disease Activity Score 28 joint; VAS:Visual Analog Scale; HAQ: Health Assessment Questionnaire; ESR: Erythrocyte Sedimentation Rate; CRP: C-Reactive Protein; RF: Rheumatoid factor; Anti CCP: Anti Citrullinated Peptide Antibody

DISCUSSION

In our study, in which we compared serum NO levels with healthy control group in patients with rheumatoid arthritis, the serum nitric oxide level of the patient group was significantly high. However, serum nitric oxide level was not associated with clinical and laboratory disease activity markers.

Increased endogenous NO synthesis has been demonstrated in RA, suggesting that overproduction of NO may be important in the pathogenesis of RA. In many studies, the inflamed joint in RA is the dominant NO source.[13,16] In support of this situation, in our study, serum NO levels were significantly higher in the patient group than in the healthy control group. Although NO plays a central role in many physiological processes, its increased production is pathological. The effects of NO depend on its concentration. Although NO is known to mediate many different cell functions in the area of synovial inflammation such as cytokine production, signal transduction, mitochondrial functions, and apoptosis, its basic mechanisms in inflammatory diseases remain uncertain.[17]

There is a lot of evidence that NO is involved in tissue damage in inflammatory and autoimmune diseases.[9,18] NO reacts with locally synthesized superoxide anions, leading to the formation of reactive superoxide anions, causing tissue damage.[6] The damage from NO released from activated macrophages and endothelial cells in the target cell was confirmed as invitro.[19] On the other hand, the contribution of iNOS to oxidative / nitrative stress is well documented in inflamed joints.[20] iNOS is expressed in inflamed tissue and there is a correlation between disease activity and iNOS expression.[21] Also, in animal models, inflammation can be suppressed with iNOS inhibitors.[22] Today, it is thought that with the inhibition of NOS, a new therapeutic approach can be developed in the treatment of chronic autoimmune diseases. The studies related to NO in recent years have evolved in this direction.[9] Another mechanism of NO's damage in tissues is through T cells. NO has been shown to regulate T cell functions under physiological conditions, but recent evidence suggests that overproduction of NO contributes to T cell dysfunction in RA.[9] With the data collected to date, it has been observed that the effects of NO are complex, diverse and sometimes antagonistic.[17] The basic mechanisms of NO's influence are not fully understood and remain a rich area to be investigated.

There are contradictory studies on the relationship between RA and NO in the literature. In two separate studies by Ali et al.[11] and Khallaf et al.[23] increased serum NO levels were detected in the serum of patients with RA, and it was stated that NO was significantly associated with disease activity, inflammatory markers and radiological joint status. Similarly, there are other studies in RA where serum NO levels are high and correlated with disease activity parameters.[13,24-27] In another study by Choi, similar to the results of our study, NO production was significantly increased in patients with RA, but serum NO concentration was not associated with RA's disease activity assessed by CRP, ESR and RF.[28] In our study, although serum NO levels were significantly higher in RA patients compared to the control group, it was not related to both laboratory parameters of the disease activity (ESR, CRP, RF, Anti CCP) and clinical (DAS-28) parameters. This may have been due to the low number of patients and the low average disease activity in the patient group. Similar to our study, Güzel et al.[29] did not find that serum NO levels were associated with disease activity evaluated with DAS 28 in RA patients, but found that NO levels in synovial fluid were associated with disease activity. In the in vitro experimental study of Nagy et al.[30] no relationship was found between NO production and disease activity assessed with DAS 28.

The most important limitation of our study is the small number of patients. Further studies are needed on this subject with larger patient numbers and well-homogenized patient groups. Studies on NOS inhibition in the treatment of RA, especially in recent years, are remarkable. Therefore, studies on the relationship between RA and NO are important in that they constitute a step for future studies on possible future treatment agents of RA, whose effective treatment is still a problem today.

CONCLUSION

In studies performed to date, serum NO increase in RA patients is clear. However, the results of studies on the ways in which NO effects pathogenesis and whether it is related to disease activity are contradictory. To clarify this issue, new research is needed with more patient numbers and more homogeneous patient groups.

ETHICAL DECLARATIONS

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

Ethical Issue: Ethics committee permit for the study was obtained from the Clinical Research Ethics Committee of Tokat Gaziosmanpaşa University with the decision numbered 20-KAEK-203.

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Orjinal Araştırma / Original Article

Relationship between Platelet Counts, Mean Platelet Volume, Platecrit and Beta Thalassemia Carriers

Beta Talasemi Taşıyıcılarında Platekrit, Ortalama Trombosit Volümü ve Trombosit Sayısı Arasındaki Ilişki

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Abstract

Aim: β-thalassemia carriers (BTC) is generally asymptomatic; however, in clinical practice, there is hypochromic microcytic mild anemia caused by a hereditary reduction in beta globin synthesis. In the literature, there is also some information about platelet indices in BTC. The aim of this study was to evaluate platelet indices in children with BTC. In addition, we compared platelet indices between anemia (Hb<11 g/dl) and non-anemia BTC (Hb ≥11 g/dl).

Material and Method: A cross sectional study included a total of 153 subjects aged 1-16 years were recruited from Gaziantep University Hospital outpatient clinics electronic database.

Results: Platelet counts were normal in 90 patients with BTC. Thrombocytosis and thrombocytopenia were detected in 59 (38.5%) and four (2.6%) patients, respectively. This study group was divided into two groups as group 1, cases<11 g/dl (n=86), and group 2, cases≥11g/dl (n=67) according to the hemoglobin levels. The children with the group 1 had significantly higher mean levels of platelet counts and platecrit than those with group 2 (p<0.05). In the logistic regression test, linear correlation between platelet counts and platecrit (r=0.94, p<0.01) was observed, whereas there were inverse correlations between platelet counts and age (r=-0.32, p<0.01), mean platelet volume (r=-0.18, p<0.05), hemoglobin (r =-0.18, p<0.05).

Conclusion: We found that both thrombocytosis and thrombocytopenia may occur in BTC. Herein we also found significantly elevated platelet counts in BTC with anemia.

Keywords: Thalassemia, carriers, child, platelet indices

Öz

Giriş: β-talasemi taşıyıcılığı genellikle asemptomatiktir, bununla beraber beta globin zincirinde kalıtsal azalmadan dolayı hafif hipokromik mikrositer anemi gelişebilmektedir. Literatürde, talasemi taşıyıcılarında trombosit parametrelerini değerlendiren az sayıda çalışma bulunmaktadır. Bu çalışmada amacımız talasemi taşıyıcılarında trombosit parametrelerini değerlendirmektir. Ayrıca çalışmamızda anemili ve anemisiz talasemi taşıyıcılarında platelet parametrelerini değerlendirdik.

Gereç ve Yöntem: Kesitsel çalışmamızda Gaziantep Üniversitesi Tıp Fakültesi ayaktan hasta polikliniklerine başvuran 1-16 yaş arası 153 talasemi taşıyıcısı çocuk çalışmaya alındı.

Bulgular: Doksan çocuğun trombosit sayıları normaldi. 59 (%38.5) çocukta trombositoz, dört (%2.6) çocukta trombositopeni saptandı. Hemoglobin seviyelerine göre iki gruba ayrıldı. Grup 1, hemoglobin<11 g/dl (n=86), ve grup 2, hemoglobin≥11g/dl (n=67)'den oluşmaktaydı. Grup 1 olgularda trombosit sayısı ve platekrit, grup 2 olgularından anlamlı olarak yüksekti. (p<0.05) Logistik regresyon testinde trombosit sayısı ve platekrit arasında lineer bir korelasyon görüldü (r=0.94, p<0.01), ancak trombosit sayısı ile yaş (r=-0.32, p<0.01), ortalama trombosit volumü (r=-0.18, p<0.05), hemoglobin (r =-0.18, p<0.05) arasında negatif bir korelasyon görüldü.

Sonuç: Talasemi taşıyıcılarında hem trombositoz hemde trombositopeni olabileceğini bulduk. Ayrıca anemi gelişen talasemi taşıyıcılarında trombosit sayısı anlamlı olarak yüksekti.

Anahtar Kelimeler: Talasemi, taşıyıcılık, çocuk, trombosit parametreleri

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INTRODUCTION

Anemia is one of the most common public health problems in the world. It is classified in to microcytic, normocytic and macrocytic anemia based on mean corpuscular volume (MCV) of red blood cells (RBC). Microcytic anemia, which is characterized by low MCV is the most common subtype of anemia among children.[1] Although microcytic anemia in children has numerous of etiologies, iron deficiency (ID) is the most well recognized cause across the world. The next most common cause of microcytic anemia is thalassemia carriers.[2] Two major forms of thalassemia are described; α- and β-thalassemia carriers (BTC). Turkey, which is located in the Mediterranean area, has a very high incidence of BTC, with the country's incidence of BTC at 2.3%.[3]

BTC is generally asymptomatic; however, in clinical practice, there is hypochromic microcytic mild anemia caused by a hereditary reduction in beta globin synthesis and the peripheral smear resembles iron deficiency anemia (IDA), these two disorders must be distinguished from each other.[4] BTC is usually diagnosed by measuring concentration of HbA2, and complete blood count.[5] The classical phenotype of BTC includes an increased HbA2 level (>3.5%), a relatively high RBC, a markedly reduced MCV and reduced mean corpuscular hemoglobin levels.[6]

IDA is characterized by a defect in hemoglobin synthesis that results in microcytic RBC and decreased amount of hemoglobin (Hb). In addition to anemia, abnormal platelet counts also have been reported in both adults and children with IDA. IDA may cause reactive thrombocytosis and it is mostly mild to moderate. However, thrombocytopenia has also been reported in some patients with IDA.[7-9] Several studies reported an inverse relationship between mean platelet volume (MPV) and platelet counts in patients with BTC.[10-12] This may be related to morphological features of platelets. In the literature, there are also some informations about platelet indices in BTC.[4, 13] The aim of this study was to evaluate platelet indices in children with BTC. In addition, we compared platelet indices between BTC with anemia (Hb<11 g/dl) and without anemia (Hb ≥11 g/dl).

MATERIAL AND METHOD

The data gathered from Gaziantep University Hospital outpatient clinics electronic database. The period of this cross-sectional retrospective study was from 2019 to 2020. One hundred and fifty three children were evaluated: 70 females (45.7%) and 83 (54.3%) males. Age of the patients was from 1 to 16 years old. The inclusion criteria were child patients more than 3.5 % HbA2 levels. The hematological parameters were measured using a Sysmex XN1000 analyzer. Serum HbA2 level was done by Interlab Automatic Agarose Gel Electrophoresis System.The study protocol was approved by the Medical Ethics Committee of Gaziantep University.

World Health Organization differentiated cut-off criteria for Hb by age, sex, and physiological status, it established a single and universal cut-off point of less than 11 g/dl when using Hb for women, infant and children.[14] Diagnosis was performed in all patients quantitative identification of HbA2 (>3.5%) for BTC by gel electrophoresis system. Thrombocytopenia was defined as thrombocyte counts less than 150.000 mm3/dl, however thrombocytosis was defined as thrombocyte counts more than 400.000 mm3/dl for children in our study.[15] Their platelet indices, thrombocyte count, MPV and platecrit were noted. To calculate the platecrit, the formula, platelet count x MPV/103, was used (e.g. a platelet count of 200 x 109/l and MPV of 9 fl yields a platelet mass of 1800 fl/nl)

Statistical analysis

Data were analyzed using SPSS 23.0 software (SPSS, Inc.,Chicago, IL, USA). Demographic data were shown as means and SD or percentages. Categorical variables were compared by using chi-square test. Spearman's correlation analysis was performed to examine the correlations between HbA2 and age, platelet indices and hematological measures. Two-tailed significance values are reported throughout. A probability level of $p<.05$ was used to indicate statistical significance.

RESULTS

The sample consisted of 153 children with BTC (83 males, 70 females) with the ages of 1 to 16 (mean±SD=7.1±4.3) years. The male-female ratio was 1.1. Platelet counts were normal in 90 patients with BTC. Thrombocytosis and thrombocytopenia were detected in 59 (38.5%) and four (2.6%) patients, respectively. This study group was divided into two groups as group 1, cases<11 g/dl (n=86), and group 2, cases≥11g/dl (n=67) according to hemoglobin levels, and **Table 1** shows demographic characteristics of the subjects. The mean±SD of laboratory measures, including HbA2 levels, and platelet indices are summarized in **Table 2**.

Table 1. Demographic characteristics

	Total n=153	group 1, hemoglobin levels < 11 g/dl (n=86)	group 2, hemoglobin levels ≥ 11g/dl (n= 67)
Age, years Mean±SD	7.1±4,3	8±4	9±4
Gender, n (%)			
Male	83 (45.2%)	45 (52.3%)	38 (56.7%)
Female	70(54.8%)	41(43.3%)	29 (43.3%)

The children with the group 1 had significantly higher mean levels of platelet counts and platecrit than those with group 2 ($p<0.05$). On the other hand, the children with group 1 had lower mean levels of HbA2 and MPV than those with group 2, however there were no statistical differences in HbA2 and MPV ($p>0.05$). (**Table 2**) On the other hand, there were no statistical significant difference between males and females in all measures.

Table 2. Erythrocyte indices and the hematological values.

	Total n=153	group 1, hemoglobin levels < 11 g/dl (n=86)	group 2, hemoglobin levels ≥ 11g/dl (n= 67)	p Value
HbA2 (%)	5.1±3.2	5±0.8	4.8±1	p >0.05
Hemoglobin (g/dl)	10.8±1.4	9.9±0.9	12.1±0.9	p < 0.0001
Platelet counts (/mm³)	389.000±129.000	409.000±151.000	366.000±93.000	p < 0.05
MPV (/fl)	9.3±0.7	9.3±0.7	9.4±0.7	P >0.05
Platecrit (fl/nl)	3632±1155	3798±1338	3419±830	p < 0.05

Notes; HbA2, hemoglobin A2;Hb, hemoglobin; MPV, mean platelet volume.
p<0.05 was accepted to be statistically significant.

Table 3. The relationship between platelet counts and other parameters

	Platelet counts (/mm³)	MPV (/fl)	Platecrit (fl/nl)	Hemoglobin (g/dl)	HbA2 (%)
Platelet counts (/mm³)	-	-0.180*	0.947**	-0.186*	0.256**
MPV (/fl)	-0.180*	-	0.097	0.022	-0.019
Platecrit (fl/nl)	0.947**	0.097	-	-0.197*	0.250**
Hemoglobin (g/dl)	0.186*	0.022	-0.197*	-	-0.122
HbA2 (%)	0.256**	-0.019	0.250**	-0.122	-

Notes; HbA2, hemoglobin A2; Hb, hemoglobin; MPV, mean platelet volume.
*p<0.05 and **p<0.01

In the logistic regression test, linear correlations between HbA2 and platecrit (r=0.25, p<0.01) and platelet counts (r=0.25, p<0.01) were observed, whereas there were no correlations between HbA2 levels and, age (r=0.14, p>0.05), MPV (r=0.01, p >0.05), and Hb levels (r=0.12, p >0.05). There were linear correlations between platelet counts and platecrit (r=0.94, p<0.01), also there were inverse correlations between platelet counts and age (r=0.32, p<0.01), MPV (r=0.18, p<0.05), Hb (r=0.18, p<0.05). There were linear correlations MPV levels between age (r=0.25, p<0.05). There were inverse correlations between platecrit and Hb levels (r=0.19, p<0.05), age (r=0.27, p<0.01) (**Table 3**).

DISCUSSION

BTC is a hereditary disease that causes a decrease in beta globin synthesis and is frequently asymptomatic. Since it can cause mild microcytic hypochromic anemia it is frequently identified after blood count is performed for other reasons.[16] It is possible to detect carriers using hematologic findings rather than DNA analysis. Considering that BTC does not need treatment, but the diagnosis of a patient with BTC may cause risk of birth of beta thalassemia major child in the pre-marriage genetic counseling.[17] Our evaluation of platelet indices in BTC yielded noteworthy results.

In the present study, we examined clinical records of 153 consecutive child with BTC, and found 59 (38.5%) who had thrombocytosis at the time of their first evaluation. Thrombocytosis is observed in many disorders and pathologic states. It may be caused by a reactive mechanism or neoplastic over production. The causes of reactive thrombocytosis include infections, inflammatory situations, malignancies, acute bleeding, and IDA.[18] In IDA, alterations of thrombocyte have been reported. It may cause reactive thrombocytosis and thrombocytosis usually occurs in a mild to moderate degree.[8,9] The mechanism of thrombocytosis in IDA is not yet clear. Several studies have reported a relationship between iron and platelet parameters.[8,19] However, Kadikoylu et al.[7] found no correlation between platelet counts and serum ferritin in stepwise logistic regression test and Kuku et al.[20] also found no significant relationships between platelet counts and serum ferritin. In another study, Mettananda et al.[10] suggested that platelet count was lower in BTC (385.000±126.000/mm³) compared to IDA (406.000±107.000/mm³) however, was not significantly different between IDA and BTC. They also observed a weak but statistically significant inverse correlation (r=-0.25, p<0.01) between hemoglobin levels and platelet counts among all patients with microcytic anemia. On the other hand, Holbro et al.[21] found that the platelet counts did not show significant association to the cause of anemia. However, correlation analysis revealed that platelet counts had significantly be it weak correlation to the degree of anemia irrespective of the etiology. This is likely due to the thrombopoietic activity of erythropoietin which is secreted in response to anemia.[22] In relation to these studies, we found that the group 1 (with anemia) had significantly higher mean levels of platelet counts than those with group 2 (without anemia) (p<0.05), however, there were inverse correlation between platelet counts and Hb levels (r=-0.18, p<0.05).

Thrombocytopenia has also been reported in some children and adults with IDA at the time of diagnosis. Iron deficiency-associated thrombocytopenia generally has been documented as case reports, and there are only a few published series.[23,24] Gross et al.[25] described the platelet counts in 60 iron-deficient infants and children ages 8 to 24 months and reported that 17 (28%) had platelet counts of less than 175×109/L (range 50–175×109/L). The mean hemoglobin was 4 g/dL in the thrombocytopenic group versus 6 g/dL in the 43 other patients, suggesting that the development of thrombocytopenia correlates with more severe iron deficiency. Kuku et al.[20] in the study, thrombocytopenia was found in 13 (2.1%) patients with IDA at diagnosis. The present study, thrombocytopenia was found in 4 (2.6%) patients with BTC.

In a previous study, it was shown that MPV was significantly correlated with life span of platelets and was related to platelet morphologic change and activation.[26,27] An increase in MPV is also known to be a dependable marker of platelet activation in vivo.[28] Chandra et al.[29] found an interesting point that has to be highlighted in the study is that apart from red cell parameter, platelet parameters including platelet counts, platecrit, and MPV also showed statistical significant difference between IDA and BTC. In another study, Labib et al.[11] found no significant difference as regard platelet counts but a significant higher MPV was found in BTC subjects compared with controls. On the other hand, Cikrikcioglu et al.[12] found in the study that, the MPV levels were unexpectedly higher in patients in the BTC group than in the control group. In our study, the children with group 1 lower mean levels of MPV than those with group 2, however there were no statistical differences in MPV ($p>0.05$), moreover, there were inverse correlations between thrombocyte counts and MPV levels ($r=0.18$, $p<0.05$). The higher MPV observed in BTC may be related to the fact that hyperactive bone marrow in BTC may lead to release of immature platelets in circulation leading to higher MPV.

Platecrit is a measurement derived from the platelet count and the mean platelet volume. It is physiologically the most pertinent parameter and is superior to the platelet count to estimate the platelet status.[30] Kuku et al.[20] retrospectively examined the clinical records of a larger number of IDA to assess abnormal platelet counts, they suggested that platelet counts inversely correlated with platecrit. However, Park et al.[18] studied the relationship between iron and platelet parameters in IDA and thrombocytosis and they found that platelet counts showed linear correlation with platecrit ($p< 0.001$), moreover, in their study, there was no relationship between platelet counts and Hb. In another study, Kadikoylu et al.[7] evaluated the platelet parameters in IDA they found a linear correlation between platecrit and platelet counts. Also, Bessman et al.[4] were confirmed a linear relationship between platelet counts and platecrit ($p<0.001$) in the logistic regression test. Our study there were positive correlations between platelet counts and platecrit ($r=0.94$, $p<0.01$), also there were inverse correlations between platecrit and Hb levels ($r=0.19$, $p<0.05$).

The limitations of the present study were small sample size, and all platelet indices were not analyzed. We do not know about patients whom on iron levels and iron treatment which could affect the level of HBA2 and the platelet indices. Nevertheless, in these patients we assume that quantitative platelet abnormalities were secondary to anemia rather than to other causes. The other limitations were experience of a single center and lack of a control population.

CONCLUSION

BTC is one of the most common genetic diseases in children in Turkey. This study demonstrates that thrombocytosis is more frequently seen among BTC with anemia than in without anemia also there were linear correlations between platelet counts and, platecrit however there were inverse correlations between age, MPV, Hb levels, moreover there were linear correlations between platecrit and Hb.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study protocol was approved by the Medical Ethics Committee of Gaziantep University (Permission granted: 2.4.2020, Decision no: 2020/140).

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Orjinal Araştırma / Original Article

Evaluation of Serum Zinc and Copper Levels in Superficial Fungal Infections

Yüzeyel Mantar Enfeksiyonlarında Serum Çinko ve Bakır Düzeylerinin Değerlendirilmesi

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Abstract

Objective: Superficial fungal infections are one of the common skin diseases. Zinc and copper are essential elements for humans, and concentrations of these trace elements may vary in various inflammatory conditions. Our aim in this study is to measure serum zinc and copper levels in patients with superficial fungal infection and to evaluate its relationship with clinical types of the disease.

Material and Method: This study included 81 patients diagnosed with superficial fungal infection (tinea capitis, faciei, pedis, unguim, corporis, and versicolor) who applied to the Department of Skin and Venereal Diseases, Faculty of Medicine, Selcuk University. Serum zinc and copper levels were measured in all patients.

Results: The mean age of the patients was 36.68±17.12, and 54 (66.6%) of patients were male and 27 (33.3%) were female. There were tinea versicolor in 32 (39.5%) of the patients and other dermatophytosis infections (tinea capitis, faciei, pedis, unguium and corporis) in 49 (60.5%) of the patients. The mean serum zinc levels of the patients were determined close to the lower limit of the normal reference range with 11.41±2.07 µmol/L, but zinc and copper levels were within the normal reference range (normal reference values of zinc and copper; 11-19.5 µmol/L, 80-155 µg/dL, respectively). There was no statistically significant difference in zinc and copper levels between patients with tinea versicolor and patients with other dermatophyte infections (p=0.348, p=0.173, respectively). In addition, there was a negative correlation between serum zinc levels and age, serum copper levels showed a statistically significant negative relationship with male sex and smoking (r=-0.359, p=0.001; r=-0.343, p=0.002, r=-0.283, p=0.033, respectively).

Discussion: In our study, the majority of patients with superficial fungal infections were men. It was determined that the frequency of dermatophyte infections increased as the mean age of the patients increased. Although serum zinc and copper levels measured in patients were within the normal reference range, especially zinc levels were close to the lower limit of reference values. In addition, it was observed that various factors such as age, gender and smoking affect zinc and copper levels. As a result of these data, we think that irregularities in serum zinc and copper levels may predispose to the development of fungal infections.

Keywords: Copper, dermatophytosis, superficial fungal infections, trace elements, zinc

Öz

Amaç: Yüzeyel mantar hastalıkları sık karşılaşılan deri hastalıklarından biridir. Çinko ve bakır insanlar için esansiyel elementlerdir ve çeşitli inflamatuvar durumlarda bu eser elementlerin konsantrasyonları değişebilir. Bu çalışmada amacımız yüzeyel mantar enfeksiyonu olan hastalarda serum çinko ve bakır düzeyinin ölçmek ve bunun hastalığın klinik tipleri ile ilişkisini değerlendirmektir.

Gereç ve Yöntem: Selçuk Üniversitesi Tıp Fakültesi Deri ve Zührevi Hastalıklar bölümüne başvuran yüzeyel mantar enfeksiyonu tanısı alan (tinea capitis, fascie, pedis, unguim, corporis ve versicolor) 81 hasta dahil edildi. Tüm hastalarda serum çinko ve bakır düzeyleri ölçüldü.

Bulgular: Çalışmada hastaların yaş ortalaması 36,68±17,12 olup, 54'ü (%66,6) erkek ve 27'si (%33,3) kadındı. Hastaların 32'sinde (%39,5) tinea versikolor, 49'unda (%60,5) diğer dermatofitoz enfeksiyonları (tinea capitis, fascie, pedis, unguim ve corporis) mevcuttu. Hastaların ortalama serum çinko düzeyleri 11,41±2,07 µmol/L ile normal referans aralığının alt sınırına yakın saptandı ancak çinko ve bakır düzeyleri normal referans aralığında (çinko ve bakırın normal referans değerleri; sırasıyla 11-19,5 µmol/L, 80-155 µg/dL) idi. Tinea versikoloru olan ve diğer dermatofit enfeksiyonu olan hastalar arasında çinko ve bakır düzeyi açısından istatistiksel olarak anlamlı bir farklılık izlenmedi (sırasıyla p=0,348, p=0,173). Ayrıca serum çinko düzeyleri ile yaş arasında negatif korelasyon, serum bakır düzeyleri erkek cinsiyette ve sigara kullanımı ile istatistiksel olarak anlamlı negatif ilişki saptandı (sırasıyla r=-0,359, p=0,001; r=-0,343, p=0,002; r=-0,238, p=0,033).

Tartışma: Çalışmamızda yüzeyel mantar enfeksiyonu olan hastaların çoğunluğunu erkekler oluşturmaktaydı. Hastaların yaş ortalaması arttıkça dermatofit enfeksiyonlarının görülme sıklığında artış olduğu tesbit edildi. Her ne kadar hastalarda ölçülen serum çinko ve bakır düzeyleri normal referans aralığında olsa da özellikle çinko düzeyleri referans değerlerinin alt sınırına yakındı. Ayrıca yaş, cinsiyet ve sigara gibi çeşitli faktörlerin çinko ve bakır düzeylerini etkilediği gözlendi. Bu veriler sonucunda serum çinko ve bakır düzeylerindeki düzensizliklerin mantar enfeksiyonlarına yatkınlık oluşturabileceğini düşünmekteyiz.

Anahtar Kelimeler: Bakır, çinko, dermatofitozis, eser element, yüzeyel mantar enfeksiyonları

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INTRODUCTION

Superficial fungal infections are common worldwide. It can affect skin, hair and nails in humans and animals. The most common form of superficial fungal infections of the skin is dermatophyte infection caused by trichophyton, microsporum and epidermophyton. Less frequently yeasts (eg malassezia furfur, candida) may be cause.[1,2] Diabetes mellitus (DM), immunodeficiency or the use of immunosuppressive drugs, humidity and contact to the infected materials increase the susceptibility to this disease. Although some dermatophyte infections are widespread all over the world, they are observed frequently or infrequently, depending on the climate, life and economic conditions of the region.[3,4] Trace elements such as copper (Cu), zinc (Zn) are components and/or cofactors of many proteins and enzymes required for normal body functions. Various inflammatory and immunological conditions may also change the concentrations of Zn and Cu elements.[5,6]

Although there have been previous studies showing the relationship between dermatophyte infections and trace elements in humans and animals, studies on this subject are limited.[7,8] In line with this information, it is aimed to evaluate the level of Zn and Cu in patients who applied to the dermatology clinic and diagnosed with superficial fungal infection.

MATERIAL AND METHOD

This study included superficial fungal infection patients (tinea capitis, faciei, pedis, unguim, corporis, and versicolor) who applied to the Department of Skin and Venereal Diseases, Faculty of Medicine, Selcuk University. The diagnosis of superficial fungal infections was made with clinical appearance, auxiliary diagnostic methods (direct microscopy and wood lamp), and fungal culture where necessary. Age, gender, disease duration, clinical type of superficial fungal infection were recorded in all patients. Patients with active superficial fungal infection, who had not received systemic treatment for the past three months and topical antifungal treatment for the past 1 month were included in the study. Patients who received Zn, Cu and vitamin supplements, had known immunodeficiency, received immunosuppressive therapy, who had malignancy, and were in pregnancy and lactation period were not included in the study. Plasma samples were taken from the brachial vein via vacutainer to the BDR trace element tubes containing clot activator. After the samples were centrifuged at 4000 g for 10 minutes, their plasma was separated. Cu and Zn elements from the separated plasma samples were studied in VARIAN (AA240FS, Australia) flammable atomic absorption spectrometry (AAS). During the study, plasma samples were analyzed by diluting 1/5 with 0.1% HNO_3. While analyzing with AAS, gas flow was provided with acetylene gas. The value of analytes was calculated using the instrument's own software, using five-point calibrators. The reference range values for Cu are 80-155 µg/dL, and for Zn 11-19.5 µmol/L. The study was approved by the Local Ethics Committee of Selcuk University (approval number: 2019/62).

Statistical analysis

The data were evaluated with IBM SPPS statistics 21 package program. The examined variables are indicated with mean±standard deviation values. After looking at whether the parameters were normally distributed or not, the evaluation was made. In the analysis of the data, Student's T test was used for group comparisons, and in the absence of a normal distribution, Mann Whitney-U test was used. The relationship between the two variables was evaluated using the Pearson correlation test in parametric tests and the Spearman correlation test in non-parametric tests. The effect of gender on the incidence of diseases was evaluated by x2 test. For the significance level of the tests, $p<0.05$ and $p<0.01$ value were accepted.

RESULT

Eighty-one patients diagnosed with superficial fungal infection were included in the study. The mean age of the patients was 36.68±17.12, and 54 (66.6%) of patients were male and 27 (33.3%) were female. There were tinea versicolor in 32 (39.5%) of the patients and other dermatophytosis infections (tinea capitis, faciei, pedis, unguium and corporis) in 49 (60.5%) of the patients. The mean age was 30.59±10.98 in patients with tinea versicolor, whereas it was 40.65±19.23 in patients with other dermatophyte infections. The average age of patients with dermatophyte infection was higher than those with tinea versicolor (p=0.009). When the average age of both groups was compared by gender, the mean age of males with dermatophyte infection was found to be significantly higher than that of males with tinea versicolor, whereas there was no significant difference in females (p=0.003, p=0.966, respectively). The mean body mass index (BMI) of the patients was 25.78±5.41. There was no statistically significant difference between the groups in terms of gender and BMI (p=0.305, p=0.09, respectively). The most obvious symptom of the patients was itching. While the average Cu levels of all patients were 108.88±21.02 µg/dL, the Zn levels were 11.41±2.07 µmol/L. Cu levels were 104,92±21,11 µg/dL in patients with tinea versicolor, whereas 111,46±20,77 µg/dL in other dermotophyte infections. Zn levels were 11.68±2.03 µmol/L in patients with tinea versicolor, whereas 11.24±2.10 µmol/L in other dermotophyte infections. There was no statistically significant difference between the groups in terms of Zn and Cu levels (p=0.348, p=0.173, respectively) (**Table 1**).

Table 1. Comparison of tinea versicolor and other dermatophyte infections groups

	Tinea versicolor			Other dermatophyte infections			p
	n	Mean	SD	n	Mean	SD	
Age	32	30.59	10.98	49	40.65	19.23	0.009**
BMI	32	24.52	4.85	49	26.61	5.64	0.090
Cu	32	104.92	21.11	49	111.46	20.77	0.173
Zn	32	11.68	2.03	49	11.24	2.10	0.348
Cu/Zn	32	9.30	2.58	49	10.40	3.41	0.123

**p<0.01

Age, BMI, serum Zn and Cu levels and Cu/Zn ratios between groups according to gender are shown in **Table 2**. No statistically significant difference was observed between male and female patients with superficial fungal infections in terms of serum Zn levels (p=0.4). Cu levels and Cu/Zn ratio in males were significantly lower than females (p=0.002, 0.009, respectively).

Table 2. Age, BMI, serum Zn and Cu levels and Cu / Zn ratios between groups according to gender

	Male			Female			p
	n	Mean	SD	n	Mean	SD	
Age	54	38.70	17.91	27	32.63	14.91	0.133
BMI	54	26.13	5.01	27	25.08	6.17	0.412
Cu	54	103.81	19.20	27	119.02	21.16	0.002**
Zn	54	11.55	2.07	27	11.13	2.08	0.400
Cu/Zn	54	9.32	2.60	27	11.23	3.74	0.009**

**p<0.01

In addition, Cu levels were lower in smokers than non-smokers and this was statistically significant (p=0.033). There was a negative correlation between the patients' age and Zn levels and was statistically significant (r=-0.359, p=0.001). In addition, there was a statistically significant negative correlation with serum Cu levels and male sex and smoking (r=-0.343, p=0.002; r=-0.283, p=0.033, respectively). There was a negative correlation between disease duration and Cu/Zn, but there was no statistically significant difference (**Table 3**).

DISCUSSION

Dermatophytoses are infections caused by dermatophytes and are named according to the affected area (tinea pedis, fascie, manum, capitis, corporis and ungium). Pityriasis versicolor is a common, benign, recurrent, chronic skin infection caused by malassezia yeasts. It is generally asymptomatic and not contagious. In dermatological examination, small, round or oval, thin scaly, hypo/hyperpigmented (yellow-brown) lesions are seen.[3,9] Superficial fungal infections common in the world affect 20% of the population. It is more common in men than in women. 90% of adult men have had a superficial fungal infection at least once in their lifetime.[10] In our study, the majority of patients were male (male 66.6%, female 33.3%), similar to the literature.

The severity and prevalence of the fungal infection depends on the pathogen and the host's immune system. In addition, various factors such as age, geographic region, climatic conditions and socioeconomic status also affect the frequency of dermatophytosis.[4,11] In our study, the incidence of dermatophyte infections increased as the age increased. Compared to tinea versicolor, dermatophyte infections were seen at a later age in males, but there was no significant difference in females.

Table 3. Correlation table of parameters

		Age	BMI	Gender	Smoking	Alcohol	Cu	Zn	Cu/Zn	Duration of disease
Age	r		0.678	0.168	-0.069	-0.083	0.026	-0.359	0.205	0.216
	p		0.001***	0.133	0.542	0.463	0.818	0.001**	0.066	0.053
BMI	r	0.678		0.092	-0.075	-0.031	0.128	-0.07	0.105	0.152
	p	0.001***		0.412	0.508	0.781	0.254	0.532	0.353	0.176
Gender	r	0.168	0.092		0.287	0.181	-0.343	0.095	-0.289	0.053
	p	0.133	0.412		0.009**	0.105	0.002**	0.400	0.009**	0.638
Smoking	r	-0.069	-0.075	0.287		0.283	-0.238	0.016	-0.178	-0.139
	p	0.542	0.508	0.009**		0.012*	0.033*	0.889	0.113	0.214
Alcohol	r	-0.083	-0.031	0.181	0.283		0.024	0.025	-0.025	0.108
	p	0.463	0.781	0.105	0.011*		0.834	0.828	0.822	0.336
Cu	r	0.026	0.128	-0.343	-0.238	0.024		-0.246	0.764	0.086
	p	0.818	0.254	0.002**	0.033*	0.834		0.027*	0.001***	0.444
Zn	r	-0.359	-0.07	0.095	0.016	0.025	-0.246		-0.746	0.068
	p	0.001**	0.532	0.400	0.889	0.828	0.027*		0.001***	0.548
Cu/Zn	r	0.205	0.105	-0.289	-0.178	-0.025	0.764	-0.746		-0.015
	p	0.066	0.353	0.009**	0.113	0.822	0.001***	0.001***		0.891
Duration of disease	r	0.216	0.152	0.053	-0.139	0.108	0.086	0.068	-0.015	
	p	0.053	0.176	0.638	0.214	0.336	0.444	0.548	0.891	

***p<0.001, **p<0.01, *p<0.05

Zn is an essential element for the organism. Besides playing role in differentiation of epidermal keratinocytes, Zn has anti-inflammatory properties and also plays a role in wound healing. It has multiple effects on the immune system such as the proliferation and activation of T and B lymphocytes, the regulation of Th1 and Th2 immune responses by cytokine production, and the phagocytic and lytic effects of natural killer cells, neutrophils and macrophages.[12,13] The tendency for viral, bacterial, parasitic and fungal infections increases with Zn deficiency. In addition, Zn is an antioxidant and provides membrane stabilization.[14,15] Approximately 17% of the world's population has Zn deficiency. Especially preterm babies, pregnant women and elderly individuals are risky papulations for acquired Zn deficiency.[12] Zn deficiency has been reported in many inflammatory and autoimmune dermatological diseases such as alopecies, psoriasis, atopic dermatitis, Behçet's disease and bullous diseases.[16] In our study, there was a significant decrease in Zn levels with increasing age. Also, the mean age of those with dermatophyte infection was higher than those of tinea versicolor. These data suggested that a decrease in the level of Zn, which develops in the older ages, may predispose to dermatophyte infections. Cu plays a role as a cofactor in the structure of protein and DNA synthesis, antioxidant system, and many enzymes involved in the immune system. Therefore, even in minimal deficiencies, there may be changes in the immune response.[17] The balance in Zn/Cu ratios is necessary for normal biochemical and physiological changes and protects from various chronic diseases. Various factors such as aging, smoking, alcohol, stress and socioeconomic factors can cause changes in Zn and Cu concentrations. In a study investigating the relationship of Zn and Cu levels to various factors such as age, gender, smoking and socioeconomic status in healthy individuals living in Jinan city, serum Zn and Zn/Cu levels were higher and Cu levels were lower in men. In addition, while serum Cu levels were low in smokers, no significant difference was found in Zn and Zn/Cu levels.[18] In our study, similar to this study, Cu levels were lower in male patients and smokers. While Cu/Zn ratios were lower in males, there was no significant difference in Zn levels. In smokers, we did not find any difference in terms of Zn values and Cu/Zn ratios.

Various studies have been conducted investigating the relationship of dermatophyte infections and elements. In the literature, there are studies evaluating the activity of trace elements and various antioxidant enzymes in animals with dermatophytosis. Zn and Cu levels were significantly low in dogs and cows with dermatophyte infection. The authors emphasized that the activities of antioxidant enzymes are related to the concentration of these trace elements and that these findings should be considered in the therapeutic approaches of dermatophytosis.[7,19] Zn and Cu levels in humans have been studied in many diseases, but the number of studies evaluating the relationship between fungal infections and Zn and Cu is limited. Serum Zn levels were found lower than healthy controls in a study in which Spacek et al evaluated serum magnesium, calcium, Zn and iron in patients with recurrent vulvovaginal candidiasis. They also reported that Zn supplementation may be beneficial in these patients.[20] In our study, the mean serum Zn levels in those with superficial fungal infections were close to the lower limit of the reference range of Zn. However, when the tinea versicolor and dermatophyte infections were compared, no significant difference was found in terms of Zn values. We also think that low Zn may predispose to fungal infection. However, it may be more useful to conduct studies comparing the sufficient number of patients with subgroups of superficial fungal infections and Zn levels of healthy controls.

Miraloğlu et al. found that Cu levels were high and Zn and selenium levels were low in lesional areas compared to non-lesional areas in their studies evaluating local concentrations of oxidative stress and trace elements in patients with tinea pedis. They reported that high concentrations of Cu in the lesional area may be due to Cu released during inflammatory tissue damage. In addition, they found Cu/Zn and Cu/Se ratios significantly higher in the lesional area compared to the nonlesional area. It has been reported that low Zn in the lesional area may be associated with increased intestinal Cu absorption secondary to Zn deficiency in patients with tinea pedis.[8] In our study, serum Zn and Cu levels were evaluated in patients with superficial fungal infection. In superficial fungal infections, in order to clearly understand the importance of the balance between Zn and Cu, studies where local and systemic levels of these elements are evaluated together are needed.

CONCLUSION

Superficial dermatophyte infections are more common in men. Dermatophyte infections are seen in older ages especially in men compared to tinea versicolor. Various factors such as age and smoking may affect serum Cu and Zn levels. Irregularities in the serum levels of these elements may cause to fungal infections. We think that serum Zn and Cu levels can be evaluated in superficial fungal infections and adjusted doses of these elements can be used as a supplement to treatment when necessary. There are many studies evaluating the serum levels of trace elements and their relationship with diseases in dermatological diseases. However, the study evaluating the serum levels of trace elements such as Cu and Zn in superficial fungal infections is limited. Our study may be a guide for further studies in which Zn and Cu levels are evaluated locally and systemically, involving more patient populations covering subgroups of superficial fungal infections.

The limitations of the study are the absence of a control group and the limited number of patients.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was carried out with the permission of Local Ethics Committee of Selcuk University (approval number: 2019/62).

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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Orjinal Araştırma / Original Article

Effects of Coronavirus (COVID-19) Pandemic on Health Anxiety Levels of Healthcare Professionals

Coronavirüs (COVİD-19) Salgınının Sağlık Çalışanlarının Sağlık Kaygıları Düzeylerine Etkileri

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Abstract

Objective: We aimed to determine the effects of the COVID-19 outbreak on health workers' health concerns and life.

Methods: The study included 293 healthcare professionals reached via e-mail. A questionnaire created by researchers and health anxiety inventory were applied online to all participants. The questionnaire questions investigated the sociodemographic characteristics of the participant, whether he received psychological support during the COVID-19 outbreak, whether he had a chronic disease, whether he had problems with the care of his children, whether he was actively involved in the COVID clinic / service, and how his social and work life was affected.

Results: Participants consisted of 73 doctors, 145 nurses and 75 other healthcare professionals (OHP). It was determined that the COVID-19 test was performed to the healthcare personnel in the risk group at a very low rate (1.4%). The number of people receiving psychiatric support during the COVID-19 outbreak was 59 (20.1%). It was determined that the COVID-19 outbreak affected business life of the healthcare and social life of healthcare professionals very much and significantly ($p<0.05$). During the COVID-19 outbreak, it was determined that the desire to work in 142 (48.5%) workers decreased. Due to news about COVID-19 outbreak on social media, 226 (77.1%) people were found to have increased health anxiety. The total score of the health anxiety inventory was found to be statistically significantly higher in the nurse and other healthcare professionals (OHP) group compared to the doctor group ($p=0.013$ and $p=0.005$, respectively).

Conclusion: Our study is the first study in our country to evaluate the health concerns of COVID-19 outbreak and their effects on life. In addition to the physical health of healthcare professionals, necessary protective and supportive spiritual-social measures should be taken in order to protect their mental health in terms of providing a functional service.

Keywords: COVID-19, health anxiety, pandemic

Öz

Amaç: Bu araştırma ile COVID-19 salgınının sağlık çalışanlarının sağlık kaygıları ve yaşamları üzerine etkilerini belirlemeyi amaçladık.

Yöntem: Araştırmaya, e-mail yoluyla ulaşılan 293 sağlık çalışanı dahil edildi. Tüm katılımcılara araştırmacılar tarafından oluşturulmuş bir anket ve devamında sağlık kaygısı envanteri online olarak uygulandı. Anket soruları ile katılımcının sosyodemografik özellikleri, COVID-19 salgını süresince ruhsal destek alıp almadığı, kronik hastalığı olup olmadığı, çocuklarının bakımıyla ilgili sorun yaşayıp yaşamadığı, COVID polikliniğinde/servisinde aktif görev alıp olmadığı, sosyal ve iş yaşantısının nasıl etkilendiği araştırıldı.

Bulgular: Katılımcıların 73'ü (%24.9) doktor, 145'i hemşire ve 75'i (%25.6) diğer sağlık personelinden oluşmaktadır. Katılımcıların yaş ortalaması 35.22±8.51 ve çalışma süresi ortancası 10 (0.0-43.0) yıldır. Risk grubunda yer alan sağlık personeline covid-19 testinin çok az oranda (%1.4) yapıldığı saptanmıştır. COVID-19 salgını sürecinde psikiyatrik destek alanların sayısı 59 (%20.1)'dur. Katılımcılardan 99'u (%33.9) COVID-19 salgını sürecinde çocuk bakımında problem yaşadığını belirtmiştir. COVID-19'un sağlık profesyonellerinin iş ve sosyal yaşamını önemli ölçüde etkilediği saptanmıştır ($p<0.05$). COVID-19 salgını süresince katılımcılardan 142 (%48.5) kişide çalışma isteğinin azaldığı saptanmıştır. Sosyal medyada COVID-19 salgını hakkında yapılan haberlerden dolayı 226 (%77.1) kişide sağlık kaygısının arttığı saptanmıştır. Sağlık anksiyete envanteri toplam puanının doktor grubuna kıyasla hemşire ve Diğer Sağlık Personeli (DSP) grubunda istatistiksel olarak anlamlı şekilde yüksek çıktığı saptanmıştır ($p=0.013$ ve $p=0.005$, sırasıyla).

Sonuç: Çalışmamız ülkemizde COVID-19 salgınının sağlık çalışanlarının sağlık kaygıları ve onların yaşamları üzerine etkilerinin değerlendirildiği ilk çalışmadır. Sağlık çalışanlarının fiziksel sağlıklarının yanı sıra, işlevsel bir hizmet verebilmeleri açısından ruhsal sağlıklarının da korunabilmesi için gerekli koruyucu ve destekleyici ruhsal-toplumsal önlemlerin alınması gerekmektedir.

Anahtar Kelimeler: COVID-19, sağlık kaygısı, salgın

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INTRODUCTION

At the beginning of 2020, the 2019 coronavirus disease (COVID-19) first began to spread throughout Wuhan, China.[1] COVID-19 is an RNA virus from the coronavirus family that infects animals and humans, causing respiratory, gastrointestinal, hepatic and neurological diseases.[2] On January 30, 2020, the World Health Organization announced that COVID-19 is an internationally concerned public health emergency.[3] COVID-19 clinic can range from unspecified clinical course to severe respiratory failure and death. Common symptoms include fever, cough, muscle pain, fatigue, headache, diarrhea and hemoptysis.[4]

A rapidly increasing number of cases and deaths have started to bring psychiatric problems with healthcare professionals.1 Anxiety and depression are the most common psychiatric conditions.[1,5] COVID-19, the very high definition of infectiousness, led to increased feelings of uncertainty among healthcare professionals. In the early stage of the Severe acute respiratory syndrome (SARS) epidemic, a number of psychiatric disorders including persistent depression, anxiety, panic attacks, psychomotor excitement, psychotic symptoms have been reported.[6] Additionally, in epidemics that cause deaths affecting the world, such as pandemic, the health system is among the hardest working institutions. In pandemics that affect society, socio-economic and spiritual aspects, the mental health of healthcare teams, whose social and business life of the healthcare responsibility is largely undertaken, is affected by this situation.

Health anxiety is the occurrence of excessive interpretation of the usual physical sensations in the person, although there is no physical illness.[7] Health anxiety is also involved in the occurrence of anxiety disorders and shapes its clinical appearance as one of its components.[8] Health anxiety has a special role especially in panic disorder and is effective in creating complications of panic disorder. In addition, physical symptoms and sensations that are involved in social phobia and obsessive-compulsive disorder also develop as a result of health anxiety.[8]

In this study, we aimed to determine the effects of the COVID-19 outbreak on health workers' health concerns and life.

METHODS

After the approval of Sakarya University Faculty of Medicine Clinical Research Ethics Committee, the study started. Health workers to be reached by e-mail were included in the research after the online questionnaire was created. An online questionnaire structured by researchers and health anxiety inventory were applied to all participants (**Table 1** and **2**). The participants were divided into three groups: doctors, nurses and the other health care workers (eg. psychologist, midwives, radiology technician ...)

Health Anxiety Inventory: It is a self-report scale developed by Salkovskis et al.[9] and contains 18 items. The first 14 items with four options include questionnaires and side-by-side answers. In the remaining 4 items, it makes inquiries about the mental state of the patients with the assumption that they may have a serious illness. Scoring is between 0-3 for each item. A high score indicates a high level of health anxiety. The validity and reliability of the test was carried out by Aydemir et al.[7] for the Turkish society.

Statistical Analysis

The data were analyzed with SPSS v25 software (SPSS Inc., USA). Kolmogorov-Smirnov test was used to check the compliance of the continuous variables to a normal distribution. Descriptive statistics were used to summarize the data on sociodemographic. Differences between groups were tested using chisquared tests, Mann–Whitney U tests, Kruskal–Wallis tests, or univariate analysis of variance, as appropriate. Pearson and Spearman correlation analysis were used to evaluating the relationships between quantitative variables. Statistical significance was accepted as $p<0.05$.

RESULTS

The socio-demographic characteristics of the participants are shown in **Table 1**. A total of 293 healthcare professionals were included in our study. Participants consisted of 73 doctors, 145 nurses and 75 other healthcare professionals (OHP). The average age of the participants is 35.22±8.51 years and the median of working time is 10 years (0.0-43.0). The number of men surveyed is 81 (27.6%) and the number of women is 212 (72.4%). It was determined that 209 (71.3%) of the participants were married and 183 (62.3%) had children (**Table 1**).

Table 1. The socio-demographic characteristics of the participants

	Participants (n=293) Mean±Ss or Median (min-max) / N (%)
Age (year)	35.22±8.51
Gender	
male	81 (27.6)
female	212 (72.4)
Marital status	
single	84 (28.7)
married	209 (71.3)
Child status	
yes	183 (62.3)
no	110 (37.5)
Profession	
doctor	73 (24.9)
nurse	145 (49.5)
other health professionals	75 (25.6)
Working time (years)	10 (0.0-43.0)

The responses of the participants to the questions about the COVID-19 outbreak are shown in **Table 2**. It was determined that the COVID-19 pandemic affected the business life of the healthcare personnel too much in 113 (38.6%) people, and evidently affected 100 (34.1%) people (p<0.05). It was determined that the COVID-19 pandemic affected the social life of the healthcare personnel too much in 82 (28.0%) people, and evidently affected 134 (45.7%) people (p<0.05). During the Covid-19 outbreak, it was determined that the desire to work in 142 (48.5%) workers decreased (p<0.05). According to the news about the COVID-19 outbreak in social media, 226 (77.1%) people were found to have increased health anxiety. It was determined that the total score of the health anxiety inventory of the participants was 16.00 (1-44), the negative results sub-score of the disease was 3.00 (0-12) and the physical symptoms sub-score was 13.00 (1-36) (**Table 2**).

Table 3 shows the comparisons of the participants according to working status in COVID-19 service. The number of healthcare workers having problems in childcare was significantly higher in COVID-19 service workers compared to non-COVID-19 service workers (p=0.008). The effects of COVID-19 outbreak news on anxiety levels were significantly lower in COVID-19 service workers compared to non-COVID-19 service workers (p=0.046). In addition there was no statistically difference in health anxiety inventory between the COVID-19 service workers and non-COVID-19 service workers (**Table 3**).

Correlation analysis between the participants' health anxiety inventory total score and inventory sub-scores, work and social life effects are shown in **Table 4**. There was found statistically significant positive correlation between the health anxiety inventory total score and the parameters of receiving psychiatric support in COVID-19 outbreak, hand washing habit during COVID-19, and shopping for excessive food and cleaning materials (P<0.001, r:0.386; P=0.003, r:0.186; P<0.001, r:0.206 and P<0.001, r:0.243, respectively). There was found statistically significant negative correlation between the health anxiety inventory total score and the effect of COVID-19 outbreak on work life and social life (P<0.001, r: -0.389 and P<0.001, r: -0.340, respectively). As the social media readings about COVID-19 outbreak increased, the total score of the health anxiety inventory was found to be statistically significant (P<0.001, r:0.341). There was a strong positive correlation between the health anxiety inventory total score and the physical symptoms sub-score and the negative results of the disease sub-score (P<0.001, r:0.951 and P<0.001, r:0.692, respectively) (**Table 4**).

Comparison of the participants by profession groups is shown in **Table 5**. Compared to other health personnel (OHP) groups, the rate of exchanging excessive food materials was significantly higher in doctor and nurse groups (p=0.005 and

Table 2. The responses of the participants to the questions about the COVID-19 outbreak

	Participants (n=293) N (%)
COVID-19 test status	
yes	4 (1.4)
no	289 (98.6)
Psychiatric illness before COVID-19	
yes	33 (11.3)
no	260 (88.7)
Psychiatric support status in COVID-19 outbreak	
yes	59 (20.1)
no	234 (79.9)
Active working status in COVID-19 service	
yes	83 (28.3)
no	210 (71.7)
Problems in childcare in COVID-19 outbreak (N=182)	
yes	99 (54.3)
no	83 (45.7)
The person at home who is in the risk group COVID-19	
yes	110 (37.5)
no	183 (62.5)
Chronic disease status	
yes	52 (17.7)
no	241 (82.3)
Hand washing habit during COVID-19	
more often	269 (91.8)
no change	24 (8.2)
Excessive food shopping during COVID-19	
yes	154 (52.6)
no	139 (47.4)
Shopping excessive cleaning supplies during COVID-19	
yes	186 (63.5)
no	107 (36.5)
The effect of COVID-19 outbreak on business life of the healthcare	
too much	113 (38.6)
evident	100 (34.1)
some	50 (17.1)
very little	14 (4.8)
does not affect at all	16 (5.5)
The effect of COVID-19 outbreak on social life	
too much	82 (28.0)
evident	134 (45.7)
some	46 (15.7)
very little	20 (6.8)
does not affect at all	10 (3.4)
The effect of COVID-19 outbreak on working desire	
decreased	142 (48.5)
increased	24 (8.2)
not changed	127 (43.3)
The effects of COVID-19 outbreak news on anxiety	
increased	226 (77.1)
decreased	3 (1.0)
not changed	64 (21.8)
Physical symptoms sub-score	13.00 (1-36)
Negative results of the disease sub-score	3.00 (0-12)
Health anxiety inventory total score	16.00 (1-44)

Table 3. Comparison of participants according to working status in COVID-19 service

	COVID-19 service (n=83) N (%)	Not in COVID-19 service (n=210) N (%)	P value
COVID-19 test status			0.882
yes	1 (1.2)	3 (1.4)	
no	82 (98.8)	218 (98.6)	
Psychiatric illness before COVID-19			0.887
yes	9 (10.8)	24 (11.4)	
no	74 (89.2)	186 (88.6)	
Psychiatric support status in COVID-19 outbreak			0.289
yes	20 (24.1)	39 (18.6)	
no	63 (75.9)	171 (81.4)	
Problems in childcare in COVID-19 outbreak	n=44 (100)	n= 141 (100)	0.008
yes	28 (63.6)	71 (50.3)	
no	16 (36.4)	70 (49.7)	
The person who is in the COVID-19 risk group at home			0.226
yes	27 (32.5)	83 (39.5)	
no	56 (67.5)	127 (60.5)	
Chronic disease status			0.206
yes	11 (13.3)	41 (19.5)	
no	72 (86.7)	169 (80.5)	
Hand washing habit during COVID-19			0.131
more often	73 (88.0)	196 (93.3)	
no change	10 (12.0)	14 (6.7)	
Excessive food shopping during COVID-19			0.086
yes	37 (44.6)	117 (55.7)	
no	46 (55.4)	93 (44.3)	
Shopping excessive cleaning supplies during COVID-19			0.650
yes	51 (61.4)	135 (64.3)	
no	32 (38.6)	75 (35.7)	
The effect of COVID-19 outbreak on business life			0.846
too much	35 (42.2)	78 (37.1)	
evident	23 (27.7)	77 (36.7)	
some	16 (19.3)	34 (16.2)	
very little	4 (4.8)	10 (4.8)	
does not affect at all	5 (6.0)	11 (5.2)	
The effect of COVID-19 outbreak on social life			0.802
too much	24 (28.9)	58 (27.8)	
evident	39 (47.0)	95 (45.5)	
some	10 (12.0)	36 (17.2)	
very little	6 (7.2)	14 (6.7)	
does not affect at all	4 (4.8)	7 (2.9)	
The effect of COVID-19 outbreak on working desire			0.218
decreased	37 (44.6)	105 (50.0)	
increased	4 (4.8)	20 (9.5)	
not changed	42 (50.6)	85 (40.5)	
The effects of COVID-19 outbreak news on anxiety			0.046
increased	59 (71.1)	167 (79.5)	
decreased	0 (0.0)	3 (1.4)	
not changed	24 (28.9)	40 (19.0)	
Physical symptoms sub-score	14.00 (3-33)	13.00 (1-36)	0.448
Negative results of the disease sub-score	4.00 (0-9)	3.00 (0-12)	0.212
Health anxiety inventory total score	17.00 (3-37)	16.00 (1-44)	0.276

p=0.010, respectively). Compared to the doctor group, the rate of receiving psychiatric support in COVID-19 outbreak was statistically significantly higher in the nurse and OHP group (p=0.007 and p=0.013, respectively). Compared to the doctor and OHP group, the rate of active employees in the COVID-19 outpatient clinic / service was found to be statistically significantly higher in the nurse group (p<0.001 and p<0.001, respectively). Compared to the doctor group, it was found that the COVID-19 pandemic affected the work life statistically significantly more in the nurse group (p=0.043). Compared to the doctor group, the effect of COVID-19 pandemic on social life was found to be statistically significant in the nurse and OHP group (p=0.007 and p<0.003, respectively). Compared to the doctor group, the physical symptoms sub-score was found to be statistically significantly higher in the OHP group (p=0.006 and p=0.001, respectively). However, the total score of the health anxiety inventory was found to be statistically significantly higher in the nurse and OHP group compared to the doctor group (p=0.013 and p=0.005, respectively) (**Table 5**).

Table 4. Correlation analysis between the participants' health anxiety inventory total score and inventory sub-scores, business and social life effects

	Health anxiety inventory total score
Psychiatric support status in COVID-19 outbreak	P<0.001 r:0.386**
Hand washing habit during COVID-19	P=0.003 r:0.186**
Excessive food shopping during COVID-19	P<0.001 r:0.206**
Shopping excessive cleaning supplies during COVID-19	P<0.001 r:0.243**
The effect of COVID-19 outbreak on business life	P<0.001 r:- 0.389**
The effect of COVID-19 outbreak on social life	P<0.001 r:- 0.340**
The effect of COVID-19 outbreak on working will	P<0.001 r:- 0.344**
The effects of COVID-19 outbreak news on anxiety	P<0.001 r:0.341**
Physical symptoms sub-score	P<0.001 r:0.951**
Negative results of the disease sub-score	P<0.001 r:0.692**
Chronic disease status	p>0.05
COVID-19 test status	p>0.05
Problems in childcare in COVID-19 outbreak	p>0.05
Psychiatric illness before COVID-19	p>0.05
Active working status in COVID-19 service	p>0.05
The person at home who is in the risk group COVID-19	p>0.05

Table 5. Comparison of the participants by profession groups

	Doctor (n=73) N (%)	Nurse (n=145) N (%)	OHP (n=75) N (%)	P value
COVID-19 test status				0.457
yes	1 (1.4)	1 (2.1)	0 (0)	
no	72 (98.6)	142 (97.9)	75 (100)	
Psychiatric illness before COVID-19				0.061
yes	7 (9.6)	12 (8.3)	14 (18.7)	
no	66 (90.4)	133 (91.7)	61 (81.3)	
Psychiatric support status in COVID-19 outbreak				0.005
yes	5 (6.8)	35 (24.1)	19 (25.3)	
no	68 (93.2)	110 (75.9)	56 (74.7)	
Active working status in COVID-19 service				<0.001
yes	11 (15.1)	61 (42.1)	11 (14.7)	
no	62 (84.9)	84 (57.9)	64 (85.3)	
Problems in childcare in COVID-19 outbreak				0.167
yes	24 (47.0)	47 (55.2)	28 (57.2)	
no	27 (53.0)	38 (44.8)	21 (42.8)	
The person at home who is in the risk group COVID-19				0.942
yes	28 (38.4)	53 (36.6)	29 (38.7)	
no	45 (61.6)	92 (63.4)	46 (61.3)	
Chronic disease status				0.421
yes	11 (15.1)	24 (16.6)	17 (22.7)	
no	62 (84.9)	121 (83.4)	58 (77.3)	
Hand washing habit during COVID-19				0.393
more often	68 (93.2)	130 (89.7)	71 (94.7)	
no change	5 (6.8)	15 (10.3)	4 (5.3)	
Excessive food shopping during COVID-19				0.003
yes	45 (61.6)	82 (56.6)	27 (36.0)	
no	28 (38.4)	63 (43.4)	48 (64.0)	
Shopping excessive cleaning supplies during COVID-19				0.439
yes	50 (68.5)	87 (60.0)	49 (65.3)	
no	23 (31.5)	58 (40.0)	26 (34.7)	
The effect of COVID-19 outbreak on business life				0.045
too much	22 (30.1)	61 (42.1)	30 (40.0)	
evident	22 (30.1)	49 (33.8)	29 (38.7)	
some	19 (26.0)	24 (16.6)	7 (9.3)	
very little	4 (5.5)	6 (4.1)	4 (5.3)	
does not affect at all	6 (8.2)	5 (3.4)	5 (6.7)	
The effect of COVID-19 outbreak on social life				0.002
too much	11 (15.1)	43 (29.7)	28 (37.3)	
evident	33 (45.2)	69 (47.6)	32 (42.7)	
some	16 (21.9)	22 (15.2)	8 (10.7)	
very little	10 (13.7)	7 (4.8)	3 (4.0)	
does not affect at all	3 (4.1)	4 (2.8)	3 (4.0)	
The effect of COVID-19 outbreak on working desire				0.900
decreased	36 (49.3)	71 (49.0)	35 (46.7)	
increased	8 (11.0)	8 (5.5)	8 (10.7)	
not changed	29 (39.7)	66 (45.5)	32 (42.7)	
The effects of COVID-19 outbreak news on anxiety				0.773
increased	60 (82.2)	110 (75.9)	56 (74.7)	
decreased	0 (0.0)	2 (1.4)	1 (1.3)	
not changed	13 (17.8)	33 (22.8)	18 (24.0)	
Physical symptoms sub-score	11.0 (2-21)	14.0 (1-29)	14.0 (1-36)	<0.001
Negative results of the disease sub-score	3.0 (0-8)	3.0 (0-12)	3.0 (0-9)	0.419
Health anxiety inventory total score	15.0 (4-25)	17.0 (2-35)	18.0 (1-44)	0.003

OHP: Other healthcare professionals

DISCUSSION

Our study is the first study in our country to evaluate the health concerns of COVID-19 outbreak and their effects on life in healthcare workers. In our study, it was determined that the COVID-19 test was performed to the healthcare personnel in the risk group at a very low rate (1.4%), had a low level of psychiatric support (54.3%), had a low level of desire to work (48.5%), and increased health anxiety. Accordingly, it has been determined that health workers have increased habit of hand washing (91.8%) and they have purchased excessive food and cleaning materials. These increases are probably due to increased excessive health anxiety. As the social media readings about COVID-19 outbreak increased, the total score of the health anxiety inventory was found to be statistically significant. In addition, it was determined that the COVID-19 pandemic negatively affected the business and social life of healthcare workers.

In the first study conducted in Wuhan with the outbreak of COVID-19, it was found that 71.3% of healthcare workers had mild psychiatric disorders in 22.4% and severe in 6.2%.10 It was emphasized that accessing mental health services is important for healthcare professionals working in the pandemic, improving their physical health perceptions and alleviating their acute mental distress.[10] To reduce COVID-19's mental damage among healthcare professionals, mental health professionals in Wuhan have provided a range of spiritual services, including providing intervention teams, providing brochures, counseling and psychotherapy.[11] In our study, it was found that healthcare workers' health anxiety increased, their work and social life affected negatively at a very high level, and they felt the need to receive support from psychiatry professionals. It was determined that as the readings on social media about COVID-19 outbreak increased, health anxiety increased. Therefore, healthcare workers with a tendency to anxiety should stay away from COVID-19 outbreak news on social media. Compared to the not in COVID-19 service, it was determined that the employees working in the Covid-19 service received more support from the psychiatrist in the COVID-19 outbreak.

Various efforts have been made, such as providing more medical staff, adopting strict infection control, providing personal protective equipment and providing practical guidance to reduce pressure and work intensity on healthcare staff in China.[12] Similarly, video interview programs, stress management programs, group programs aiming to communicate, talk, share experiences and express fear and hopes at the end of a working day have been launched to provide individual spiritual support for employees in COVID-19 units.[13] In France, where casualties are frequent, psychiatric tele-consultation helplines have been set up to help mental and medical hospital staff who are exposed to overwork, stress, difficult ethical decisions, and multiple deaths to cope with the fear of contamination and contamination for themselves and their families.[14] Compared to the rate of

tests performed healthcare personnel in countries such as France and China; it was thought that the rate of COVID-19 test performed in the healthcare personnel working in the service where COVID is examined is quite low in terms of infection control in our country. In our study, group programs aiming to communicate, talk, share experiences and express fears and hopes should be expanded in the institutions, since the increase in health anxiety of health personnel (especially nurses and other health personnel) decreases the desire to work, negatively affects their business and social life.

In the study of Hyunsuk et al.[15] on the epidemic of the Middle East Respiratory Syndrome (MERS), it was reported that most of the people in the risk group increased their spending on food and cleaning materials, experienced financial losses and psychiatric diseases due to their negative effects on their social lives. In our study, it was found that hand washing habit was more common in 269 (91.8%) people, 154 (52.6%) people purchased excessive food and 186 (63.5%) people purchased excessive cleaning materials during the COVID-19 outbreak. These increases are probably due to increased excessive health anxiety. However, it was determined that the COVID-19 pandemic affected the business life of the healthcare personel very much in 113 (38.6%) people, and significantly affected 100 (34.1%) people ($p<0.05$). It was determined that the COVID-19 pandemic affected the social life of the healthcare personnel very much in 82 (28.0%) people, and significantly affected 134 (45.7%) people ($p<0.05$). In addition, it was found that COVID-19 pandemic affected the business life of the healthcare statistically significantly more in the nurse group compared to the doctor group. Compared to the doctor group, the effect of COVID-19 pandemic on social life was found to be statistically significant in the nurse and OHP group.

In a study conducted by Huang et al.[16] with 230 health workers about the COVID-19 outbreak, it was reported that the health anxiety increased and the nurse staff's anxiety score was higher than that of the doctors. In our study, it was found that the physical symptoms sub-score and the health anxiety inventory total score were statistically significantly higher in the nurse and OHP group compared to the doctor group. We think that the reason why the nurse and OHP health anxiety is higher than the doctors is because the treatment and nursing operations may have been carried out by the nurse and OHP, because they worked longer in the isolation services than the doctors and had closer contact with the patients.

Several strengths and limitations of the study need to be mentioned. In the current study, our data consisted of a large sample size. Additionally, our study was carried on a community sample of health workers, which may limit the occurrence of confounding factors that result from comorbid psychopathologies when clinical samples are used. This is also the first study in our country to evaluate the health concerns of COVID-19 outbreak and their effects on life. Yet, the present study has also some limitations. First, in this study, self-report measures were used by online method and conducted in a single center. As known, self-report instruments are subject to social desirability, which can push responders to deny certain problems. Second, our study was cross-sectional, and a prospective study may be needed to confirm the causal relationships. Third, we had little information about baseline anxiety and depression levels of the study participants.

CONCLUSION

Current findings of our study enhance our understanding of the effects of COVID-19 outbreak on health workers' health concerns and life. Determining these negative effects of the outbreak on frontline health teams has an important role in giving an early and protective social, vocational and also psychiatric support. For future outbreaks like COVID-19, one of the issues that countries should be prepared for is to increase the online mental health services, to protect the mental health of the frontline health teams in order to provide a functional service, to protect the mental health, necessary protective and supportive spiritual, social measures need to be taken. Also carrying out some other new studies like this, in which a comprehensive assessment of different affected areas was used, might help have a better understanding and diversify supports.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was carried out with the permission of Sakarya University Faculty of Medicine Non-Invasive Trial Ethics Committee (Permission granted: 13.03.2020/114, Decision no: 71522473/050.01.04).

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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Orjinal Araştırma / Original Article

Evaluation of 3 Year Surveillance of Device Associated Infections in a Neonatal Intensive Care Unit

Yenidoğan Yoğun Bakım Ünitesinde Alet İlişkili Enfeksiyonların 3 Yıllık Surveyans Değerlendirmesi

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Abstract

Aim: The aim of this study was to determine the rates of healthcare associated infections (HAIs) and device associated healthcare associated infections (DA-HAIs) as well as the rates of invasive device utilization in a neonatal intensive care unit (NICU); and to compare findings with national and international reports.

Material and Method: A total of 1984 patients who admitted to NICU between January 2016 and December 2018 were enrolled. We retrospectively analysed patient's characteristics, etiologic pathogens and antibiotic susceptibility, mortality from medical charts and infection control committee surveillance reports. Infections were defined using the standart Centers for Disease Control and Prevention criteria.

Results: During the 3-year period, total 98 HAI cases 69 of which were DA-HAI were detected. The overall incidence of HAIs was 4.9% and rate was 3.7 per 1000 patient days. The most common HAI was blood stream infection (BSI) (n=64, 65.3%) of those 52 were central line-associated (CLA). The CLA-BSI rate was 8.6 per 1000 central line days with central line utilization ratio of 0.22. Ventilator associated pneumonia (VAP) rate was 5.1 per 1000 ventilator days with ventilator utilization ratio of 0.12. The most common pathogens were Klebsiella pneumonia. (38.9%), Staphylococcus epidermidis (22.1%) and Candida spp. (11.6%). The overall mortality rate was 3%. The HAI-related mortality rate was 9.2%.

Conclusion: Our findings highlight the importance of an surveillance approach in the NICU setting. HAI rates were lower than the rates reported from developing countries. However, with device utilization rates similar to those in developed countries our HAI rates were higher than that of the developed countries. Continous monitoring and implementation of necessary precautions are essential to decrease the rates of HAIs.

Keywords: Healthcare-associated infection, device-associated infection, neonatal intensive care unit, surveillance

Öz

Amaç: Hastanemiz yenidoğan yoğun bakım ünitesinde (YYBU) sağlık bakımı ilişkili enfeksiyon (SBİE), alet kullanımı ilişkili enfeksiyon hızlarını ve alet kullanım oranlarını belirlemek; bu sonuçları ulusal ve uluslararası verilerle karşılaştırmak.

Gereç ve Yöntem: Ünitemizde Ocak 2016 ile Aralık 2018 yılları arasında yatan 1984 hasta değerlendirildi. Hastaların demografik ve klinik özellikleri, etyolojik patojenler ve antibiyotik duyarlılıkları, mortalite verileri hastane kayıtlarından ve enfeksiyon kontrol komitesi surveyans dosyalarından kaydedilerek retrospektif olarak analiz edildi. Enfeksiyonlar, CDC (Centers for Disease Control) standartları esas alınarak tanımlandı.

Bulgular: 3 yıllık çalışma süresinde, 98 SBİE olgusu saptandı ve bunların 69 (%70.4)' u alet ilişkili enfeksiyon idi. SBİE insidansı %4.9 ve hızı her 1000 hasta-yatış günü için 3.7 olarak saptandı. En sık SBİE kan dolaşımı enfeksiyonu (KDE) idi (n=64, %65) ve bunların 52'si santral kateter ilişkili enfeksiyon olarak saptandı. SKİ-KDE hızı her 1000 kateter günü için 8.6 ve kateter kullanım oranı 0.22 idi. Ventilatiör ilişkili pnömoni (VİP) hızı her 1000 ventilatör günü için 5.1 ve ventilatör kullanım oranı 0.12 idi. En sık izole edilen patojenler Klebsiella pneumonia. (%38.9), Staphylococcus epidermidis (%22.1) ve Candida spp. (%11.6) idi. Toplam mortalite oranı %3 idi. HKE ilişkili mortalite oranı %9.2 oranında saptandı.

Sonuç: Bulgularımız YYBU'nde surveyans çalışmasının önemini vurgulamaktadır. Ünitemiz HKE hızları gelişmekte olan ülkelerden düşük olmakla birlikte benzer alet kullanım oranına sahip gelişmiş ülkelerden daha yüksek saptanmıştır. Sürekli monitorizasyon ve gerekli önlemlerin alınması hastane kaynaklı enfeksiyonları azaltacaktır.

Anahtar Kelimeler: Hastane enfeksiyonları, alet ilişkili enfeksiyonlar, yenidoğan yoğun bakım, surveyans

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INTRODUCTION

Healthcare-associated infections (HAIs) are significant cause of morbidity and mortality as well as increased cost all over the world. The HAI incidence in neonatal intensive care units (NICUs) has been observed in the range of 1.8% to 57.7% in several reports.[1-3] Prematurity, low birth weight, invasive procedures including catheterisation and mechanical ventilation, prolonged hospitalisation, use of wide spectrum antibiotics are important factors related to HAIs in neonates.[4,5] The majority of HAIs are device-associated healthcare-associated infections (DA-HAIs) because of insufficient immune system, mechanical barriers and protective flora of newborn infants.[6]

Active surveillance is well established method to determine the HAI rates, identify risks and problems and evaluate the necessary precautions to reduce frequency of HAIs.[7,8] Surveillance of DA-HAIs and device utilization are important to assess the infection rate according to with device utilization. The characteristics and rates of HAIs, and device utilization has been shown to be different between developing and developed countries.[9]

The aim of this study was to determine incidence of HAI; evaluate DA-HAIs rates and device utilization ratiosin in a NICU. In addition, we compared our results with the current national and international data.

MATERIALS AND METHODS

Our NICU is a tertiary care NICU with 35 incubators and 20 ventilators. The NICU staff consist of 2 neonatology specialists, 5 pediatric residents, one nurse per 3 level III infants and one nurse per 5-6 level I-II infants. Our unit admits inborn neonates from the Obstetric Department (approximately 2500 births per year) and outborns tranported from different hospitals.

This study was a retrospective analyses of neonates admitted to our NICU between January 1, 2016 and December 30, 2018. Infants who were discharged or died 48 hours after admission were excluded. This study was approved by Medeniyet University, Goztepe Training and Research Hospital, Ethics Committee on Nowember 20, 2019 with decision number: 2019/0332.

Active surveillance of HAIs was carried out by infection control committee including an infectious disease specialist and trained nurses. During the hospitalization period, infection control nurses recorded patient information on daily basis. The diagnosis of HAI was made based on criteria of CDC.[10] Blood stream infection (BSI) was defined as one or more positive blood cultures with no identified source. BSI was categorized as central line associated (CLA) in case of a central catheter was in place within ±2 days of positive blood culture. Pneuomonia was categorised as ventilator associated pneumonia (VAP) that developed during or within 48 hours after mechanical ventilation.

The following calculated parameters were used to evaluate HAIs:[11,12]

HAI incidence: number of HAIs / number of patients x 100

HAI rate: number of HAIs / patient-days x1000

CLA-BSI rate: number of CLA-BSI / central line days x 1000

Central line utilization ratio: Central line days / patient-days

VAP rate: number of VAP / ventilator days x 1000

Ventilator utilization ratio: Ventilator days / patient-days

We compared the results of our study with the National Infection Surveillance and Control Unit (UHESA) report (2017), the International Nosocomial Infection Control Consortium (INICC) report (2010-2015) as well as the United States National Healthcare Safety Network (NHSN) report (2013).[12-14]

The data were analysed with SPSS for Windows 22.0. The chi square test was used. Mean±standart deviation and precentages were presented. Chi-square test and Fisher's exact test were performed to find differences between groups. A p value <0.05 was considered as sinificant.

RESULTS

During 3-year study period, 1984 patients which represents 26554 patient days were enrolled. Total of 98 HAI cases were detected in 81 patients of which 13 had multiple HAIs. The overall HAI incidence was 4.9% and rate was 3.7 per 1000 patient days. The most common HAI was BSI (65.3%) followed by VAP (17.3%). The distribution of HAIs according to infection sites are presented in **Table 1**.

Table 1. Distribution of HAI diagnosis according to sites of infections (2016-2018)

	n	%	Rate per 100 patients	Rate per 1000 patient-days
BSI	64	65.3	3.22	2.41
VAP	17	17.3	0.85	0.06
CNS Infections	6	6.1	0.30	0.02
Skin and soft tissue infections	4	4.1	0.20	0.01
Surgical site infections	4	4.1	0.20	0.01
Urinary tract infections	3	3.1	0.15	0.01
Total	98	100	4.93	3.69

BSI, bloodstream infection; VAP, ventilator associated pneumonia; CNS, central nervous system

52 of 64 (81%) BSI episodes were related to central catheter use and overall CLA-BSI rate was 8.6 per 1000 central line days with central line utilization ratio of 0.22. The VAP rate was 5.8 per 1000 ventilator days with ventilator utilization ratio of 0.12.

The annual rate of CLA-BSI were found to vary whereby VAP rate did not change wtihin 3-year study period. Central catheter and ventilator utilization ratios in each year were similar (0.22, 0.21, 0.25 and 0.13, 0.12, 0.13, respectively). The highest CLA-BSI rate (11.5 per 1000 catheter days) was observed in 2016 and decreased to 5.5 per 1000 catheter days in 2017 (**Figure 1**).

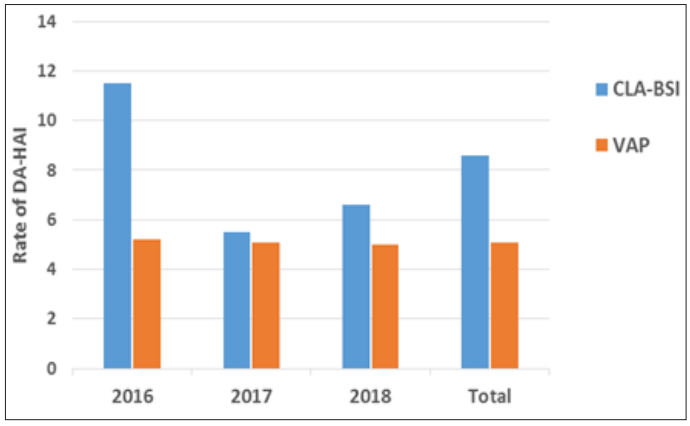

Figure 1. The rates of device-associated nosocomial infections over the 3-year period.
CLA-BSI, central line-associated blood stream infections; VAP, ventilator-associated pneumonia

Table 2 summarizes the CLA-BSI rate and central line utilization ratio of study group and the results national and international reports. Central lines were most commonly used in patients with birth weight less than1500 g. Of 52 CLA-BSI cases, 50 (96%) were preterm and 45 (86.5%) were very low birth weight (<1500 g) infants. Infection was diagnosed averagely on 20.2±8.4 (10-54) days after catheter insertion.

Table 3 summarizes the VAP rate and ventilator utilization ratio of study group and the results national and international reports. The highest VAP rate and ventilator utilization was observed in ≤750 g birth weight class. All VAP cases were preterm infants. VAP was detected averagely on day 28.3±17.2 (4-75) of mechanical ventilation.

The distribution of isolated microorganisms from HAIs were shown in **Table 4**. The most common organisms were Klebsiella pneumonia. (38.9%), Staphylococcus epidermidis (22.1%) and Candida spp. (11.6%). Resistance rates of Klebsiella pneumonia to the antimicrobial agents, respectively, were as follows: gentamicin 52%; carbapenem 33%; colistin 20%; ciprofloxacin 24%, trimethoprim-sulfamethoxazole 20%; ESBL production of Klebsiella spp. was found as 64%. All strains were susceptible to tigecycline. Of the Staphyloccocus spp. 68% were resistant to methicilline and cephalothin. There was no vancomycin resistant strain in Gram positive pathogens. Candida spp. were susceptible to amphotericin B, and ekinokandins.

Table 4. Distribution of causative agents in HAI (2016-2018)

Microorganism types	n	%
Klebsiella pneumonia	37	38.9
Staphylococcus epidermidis	21	22.1
Candida spp	11	11.6
Enterobacter spp.	5	5.3
Staphylococcus aureus	4	4.2
Acinetobacter baumannii	6	6.3
Serratia marcescens	4	4.2
Enterococcus faecium	3	3.2
Pseudomonas aeuriginosa	4	4.2
Total	95	100

HAI, healthcare-associated infection; n, number

Table 2. Comparison of central line utilization ratios and CLABSI rates of our hospital NICU with national and international data

Birth-weight category	Patient number	Patient days	Central-line days	CLABSI (n)	Central line utilization ratio				CLABSI rate			
					Our NICU (2016-2018)	UHESA (2017)	INICC (2010-2015)	NHSN (2013)	Our NICU (2016-2018)	UHESA (2017)	INICC (2010-2015)	NHSN (2013)
Total	1984	26554	6069	52	0.22	0.16	0.29	0.26	8.6	2.2	12.7	1.5
≤ 750 gr	44	2575	1479	13	0.57	0.40	0.45	0.39	8.8	3.3	18.3	2.1
751-1000 gr	39	1798	868	10	0.48	0.32	0.44	0.33	11.5	2.9	14.5	1.3
1001-1500 gr	119	4496	1661	22	0.36	0.23	0.33	0.26	13.2	2.4	15.3	0.8
1501-2500 gr	372	6044	990	4	0.16	0.13	0.21	0.17	4.0	2	7.7	0.6
>2500 gr	1410	11641	1071	3	0.09	0.11	0.22	0.23	2.8	1.7	9.3	0.7

CLABSI, central line associated blood stream infection; UHESA, National Hospital Infection Surveillance and Control Unit; INICC, International Nosocomial Infection Control Consortium; NSHN, National Healthcare Safety Network

Table 3. Comparison of our ventilator utilization ratios and VAP rates withnational and international data

Patient number	Patient days	MV days	VAP (n)	Ventilator utilization ratio				VAP rate			
				Our NICU (2016-2018)	UHESA (2017)	INICC (2010-2015)	NHSN (2013)	Our NICU (2016-2018)	UHESA (2017)	INICC (2010-2015)	NHSN (2013)
1984	26554	3346	17	0.12	0.19	0.23	0.21	5.1	1.1	7.5	0.6
44	2575	1265	8	0.49	0.49	0.48	0.38	6.3	1.8	3.3	1.0
39	1798	350	1	0.19	0.37	0.32	0.22	2.8	1.4	4.9	1.1
119	4496	736	6	0.16	0.24	0.20	0.10	8.1	1.1	13.2	0.7
372	6044	511	2	0.08	0.17	0.18	0.06	3.9	0.8	6.4	0.5
1410	11641	484	0	0.04	0.15	0.23	0.10	0	1	5.5	0.1

VAP, ventilator associated pneumonia; UHESA, National Hospital Infection Surveillance and Control Unit; INICC, International Nosocomial Infection Control Consortium; NSHN, National Healthcare Safety Network

During 3-year study period, the overall mortality rate was 3% in our NICU. The all HAI-related mortality rate was 9.2%. Mortality rate was 11.5% for CLA-BSI and 17.6% for VAP cases. The crude rates for excess mortality associated with HAIs, CLA-BSI and VAP were determined as 6.1%, 7.7% and 11.8%, respectively.

DISCUSSION

Advances in neonatal care have inreased survival rates of prematüre, low birth weight but HAIs are still significant and unsolved problem in NICUs. Monitoring the HAI rates is an significant part of high quality healthcare, especially in NICUs. Therefore, we evaluated infection surveillance of our NICU and compared it with values in national and international reports.

The HAI incidences in literature vary between 1.8 % to 57% with higher rates in developing countries.[2,9] In a study from Egypt, HAI rate was reported as 21.4%.[15] In studies from Brazil, reported rateof HAIs ranged between 18.3% to 50.7%.[16,17] Studies from Europe have reported rates varying between 1.6% to 13.2%.[19] In a multicenter study from Turkey, HAI rate ranged between 2.1% and 17%.[20] In studies from Turkish NICUs, HAI rate was varied between 8% to 29.7%.[21-23] In our study, the overall incidence HAI was 4.9% which was consistent with other studies. Variations in reported HAI rates were considered as a result of differences in clinical practices, demographic factors and resource utilities in NICUs.

BSIs are reported as the most common HAIs worldwide.[24,25] In our study, the most frequent HAIs were BSIs (65.3%) followed VAP (17.3%). The rates of DA-HAIs differ in terms of sites of infection. In studies from developed countries, CLA-BSIs are the most common DA-HAIs whereas VAPs have been reported as major DAIs in studies from developing countries.[6,9] Previous studies from Turkey have reported that VAP accounts almost 80% of all DAIs in NICUs.[20-22,27] In our study, CLA-BSI was the most frequent (75.4%) DAIs followed by VAP (24.6%). These differences can be explained by changes in ventilatory management and central catheter care practices.

The CLA-BSI rate was reported as 2.6-18.3‰ from different Turkish NICUs.[22,23,27] In INICC study, involving 703 centers from 50 countries, CLA-BSI rate was 12.7‰ with catheter utilization ratio of 0.29.[13] CLA-BSI rate was 8.6 per 1000 central line days with central line utilization ratio of 0.22. Our CLA-BSI rate was lower than that reported INICC study with similar catheter utilizaiton ratio.[13] In previous studies from Turkish NICUs, the VAP rate was ranging 6.4-17‰.[22,23,27] The VAP rate was 7.5‰ with ventilator utilization of 0.23 in the INICC report. [13] Our VAP rate lower than that reported INICC study with lower ventilator utilization ratio.[13] When compared to data of NHSN from US, although device utilization ratios were similar, the rates of CLA-BSI and VAP were higher in our study.[14] The findings our study showed us our rates were lower than the those reported from developing countries but in significant level. In order to decrease the device associated infections, we evaluated our catheter care and ventilator management principles and took urgent precautions.

The risk factors related to HAIs include prematurity, low birth weight, mechanical ventilation, central catheter, use of wide spectrum antibiotics, H2 blockers and steroids.[25] Low birth weight infants (<1500 g) have 3 times higher risk for nosocomial infections.[26] In our study, most of the CLA-BSIs and VAPs were diagnosed in infants with birth weight less than 1500 g which was consistent with previous studies. In addition, we observed that prolonged mechanical ventilation and central catheter duration were associated with VAP and CLA-BSI, respectively, accordance with literature.[6,22,27]

The most common pathogens are Gram positive pathogens especially coagulase negative staphylococcus spp. in developed countries whereas Gram negative pathogens are found to be major causative pathogens in developing countries.[24,28,29] In our study, the most frequent pathogens isolated from HAI cases were Klebsiella spp, which is consistent with previous studies.[20,24]

It has been known that HAIs are significantly associated with mortality, especially in low birth weight infants. HAI related mortality was 9.2% of which VAP has the highest rates (17.6%) in our NICU. Our rates were lower than those reprted in previous studies.[13,20,29] On the other hand, since patients without HAI have a lower mortality rate (3%) than those with nosocomial infection, it seems like we should continue to focus on preventive strategies to reduce HAIs such as limiting the use of devices in our NICU.

CONCLUSION

Our study showed that the nosocomial infections was a important problem in our NICU. Reducing HAI rates requires a well –organized infrastructure as well as continuous education of the staff and the unit culture and policies on patient care. Fast turnover of staff, especially of nurses hinders the growth of a unit culture and frequent use of antibiotics mostly within the context of defensive medicine considerations complicates the problem.

ETHICAL DECLARATIONS

Ethics Committee Approval: This study was approved by Medeniyet University, Goztepe Training and Research Hospital, Ethics Committee on Nowember 20, 2019 with decision number: 2019/0332.

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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Orjinal Araştırma / Original Article

A Three Year Retrospectıve Analysis of Anti-Tnf Treatment Outcomes in Rheumatoid Arthritis and Ankylosing Spondylitis Patients

Romatoid Artrit ve Ankilozan Spondilitli Hastalarda Anti-Tnf Tedavisi Sonuçlarının Üç Yıllık Retrospektif Analizi

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Öz

Amaç: Ankilozan Spondilit (AS) ve Romatoid artrit(RA) 'lı hastalarda Anti–TNF alfa tedavisinin etkinliğini ve güvenirliğni araştırmak.

Gereç ve Yöntem: Çalışmamız retrospektif bir çalışma olup, bu çalışmada Romatoloji-İmmunoloji Bilim Dalı Polikliniğine 2009 ile 2011 tarihleri arasında başvurmuş 18-65 yaşları arasında 1987 American Rheumatism Association kriterlerine göre RA tanısı almış ve Anti–TNF alfa tedavisi almakta olan 110 hastanın, 1984 Modifiye New York Kriterleri' ne göre AS tanısı almış ve Anti–TNF alfa tedavisi almakta olan 70 hastanın dosyaları ve ilgili formları incelendi. Bu hastalardan 100 RA hastası (76 kadın, 24 erkek),60 AS hastası (16 bayan,44 erkek) çalışmaya alındı. Çalışmaya alınan hastaların Anti–TNF alfa tedavisine yanıtları (klinik parametrelerden BASDAİ, DAS28 ve VAS skoru; laboratuvar parametrelerinden Sedimentasyon ve CRP düzeyleri) tedavi öncesi ve tedavi sonrası altıncı ayda karşılaştırılarak değerlendirildi.

Bulgular: Anti–TNF alfa tedavisi öncesi ve tedavinin 6. ayındaki AS için BASDAİ skoru, RA için DAS28 skoru, her iki hastalık için VAS, Sedimentasyon ve CRP düzeyleri istatistiksel olarak anlamlı düzelme göstermiş olup demografik verilerin bu değerleri etkilemediği saptanmıştır.

Sonuç: Bulgularımız Anti–TNF alfa tedavisinin AS ve RA hastalarında çok etkili olduğu ve güvenle kullanılabileceğini göstermektedir. Bu bulgular çalışmanın kısa dönem sonuçları olup, çalışma sonuçlarının geçerliliğini ortaya koymak için daha geniş hasta serilerinin yer aldığı, uzun takip süreli çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: Ankilozan spondilit; romatoid artrit; Anti–TNF alfa tedavisi; tedavi sonuçları

Abstract

Objective: To investigate the effectiveness and reliability of Anti–TNF alfa treatment in Ankylosing Spondylitis-Rheumatoid arthritis patients.

Material and Method: 180 patients (110 Rheumatoid arthritis (RA) patients diagnosed according to 1987 American Rheumatism Association criteria, 70 Ankylosing Spondylitis (AS) patients diagnosed according to Modified NewYork Criteria) admitted to the hospital for arthritis and related compliants who were followed up and treated with Anti–TNF alfa treatment in the department of Rheumatology&Immunology from 2009 to 2011. We enrolled 100 patients with RA (76 women, 24 men) and 60 patients with AS (16 women, 44 men) to the study, excluded 20 patients according to the exclusion criteria. The response of the patients to the Anti–TNF alfa treatment was evaluated by comparing the clinical parameters BASDAI, DAS28 and VAS score; and laboratory measurements of erytrocyte sedimentation rate, C-reactive protein levels of rheumatoid arthritis and ankylosing spondylitis before and at the sixth month of the treatment.

Results: After the sixth month of Anti–TNF alfa treatment, BASDAI score for AS, DAS28 score for RA, VAS, ESR and CRP levels for both diseases showed a statistically significant improvement, moreover demographic variations did not affect these values.

Conclusion: Our results demonstrated that Anti–TNF alfa treatment is safe and effective treatment modality in AS and RA patients. These findings are short-term results of our study; however, future studies with larger patient series and long term follow-up are needed to confirm outcomes of long term Anti–TNF alfa therapies.

Keywords: Ankylosing spondylitis; rheumatoid arthritis; Anti–TNF alfa treatment; outcomes

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INTRODUCTION

Rheumatoid arthritis (RA) and Ankylosing Spondylitis (AS) are both chronic, inflammatory, progressive, autoimmune rheumatismal disorders usually presents with arthritis. The etiology and pathogenesis of them are not totaly clarified yet, but previous studies obviously showed that many triggering factors take part at the initial stages of diseases including environmental factors, genetic tendencies, hormonal abnormalities and some viral/bacterial infections. NSAIDs (nonsteroidal anti-inflammatory drugs) are the most commonly used first step medications for the treatment, besides that immunosupressive agents also take place in the treatment regimens.[1,2]

RA is an inflammatory polyarthritis which ranging from mild symmetrical synovitis to the treatment refractory, agressive and severely patient disabling form. The most important characteristics of the disease is the symmetrical synovial proliferation and sensitivity at the small joints of feet and hands. Early diagnosis and treatment is very important at RA patients, because disease leads to severe joint damage and disability in a short time period. AS is one of the most common chronic inflammatory joint diseases. It effects mainly the spine, however it may also involve peripheral joints and extra-articular structures. AS leads to ankylosis of vertebral and sacroiliac joints. Pain, morning stiffness and functional disability are the most prevalent presenting complaints.[1,2]

TNF alpha (TNFα) is a cytokine which is released from active macrophage and fibroblasts. Its potential role in inducing and maintaining inflammatory proliferative processes in rheumatoid synovitis was shown by previous studies. The reasons behind the evaluation of TNF as the target molecule in the RA treatment is mainly based on three facts:

1. TNFα concentrations were detected high in synovial fluids of patients with RA.
2. In vitro studies revealed that TNFα induces the other inflammatory cytokines and chemokines in synovial cytokine network.
3. In in-vivo experimental models arthritis were supressed with anti TNFα agents.[3]

When synovial fluid and synovial tissue of RA patients have been compared with that of osteoarthritis patients (OA); it has been observed that TNFα mRNA transcription and protein secretion were higher in RA group than OA group. Another evidence indicating the importance of TNFα in the pathogenesis of RA is that TNFα receptors are localized in cartilage-pannus junction where pathological erosions arise most commonly in these regions. Moreover, after the TNFα targeted treatment plasma inflammatory biomarkers and the number of circulating regulatory T cells decreased, the bone erosions radiologically and ultrasonographically regressed, clinical symptoms and disease activity reduced.[4-7] Likewise, TNFα levels were found to be high in the sacroiliac joint biopsy materials of AS patients.[7] After the initiation of Anti–TNF alfa atment on AS patients a prominent clinical status improvement and marked increase in the life quality was observed.[8,9] Moreover recent studies showed that TNFα mRNA level were high in sacroiliac joint fluid as well.[10] These findings suggest that TNFα plays a a central role in the pathology of cartilage and bone erosions and inflammation developing in spondyloarthropathies, and also these findings clearly demonstrates the role of TNFα in the pathogenesis of RA and AS.[8,9]

It is thought that in cases with AS, both in peripheral blood and in lamina propria of colon, Th1 cytokine [IL-2 and interferon gamma (IFNγ)] expression is impaired, owing to harmful effect of high TNF concentrations on the production of IL-2 and INF production by T cells, and that chronic inflammation and auto immunity arises as a consequence of the impairment of defence against bacteria by T cells in intestines.[11,12]

Current treatments used in RA and AS include NSAIDs, glucocorticoids, disease modifying anti-rheumatic drugs (DMARDs) and TNFα inhibitors. Although DMARDs used in RA and AS treatment are effective, disease activity still can not be controlled completely in many patients. They may remain ineffective particularly in AS patients with axial involvement. New developments in the treatment of RA and AS, have provided alternative treatment regimes targeting cytokines such as TNFα, which play key role in pathogenesis, in patients refractory to conventional treatment. Satisfactory results have been obtained with Anti–TNF alfa drugs in patients refractory to conventional treatment and the progress of radiological damage can be prevented.

MATERIAL AND METHOD

This retrospective study was conducted at Rheumatology Immunology Department of Ankara Dışkapı Training and Reseach Hospital between 2009-2011. 115 patients files who were diagnosed with RA according to 1987 American Rheumatism Association Criteria receiving Anti–TNF alfa treatment and 70 patients who were diagnosed with AS according to 1984 Modified New York Criteria receiving Anti–TNF alfa treatment were enrolled to the study. Of these patients, according to the inclusion and exclusion criterias, 100 RA patients and 60 AS patients were included in the study. Sociodemographic and clinical characteristics were recorded. The drugs used by the patients, drug doses, duration of drug use, other accompanying diseases and history of smoking were inquired. Patients were evaluated with clinical and laboratory parameters before and after treatment.

Applied drug doses were as follows: methotrexate 10-25 mg/weeks; leflunomid 20 mg/day; sulfasalazine 2 gr/day, infliximab at 0, 2, 6. weeks and then every 8 weeks; adalimumab every two weeks and etanercept twice weekly. All patients also used analgesics, NSAIDs and methylprednizolone 4-16 mg/day in addition to those drugs.

Male and female patients between the ages of 18-65, patients diagnosed with AS according to 1984 Modified New York Criteria, patients who have discontinued treatment after three months of using sulfasalazin it due to lack of response and/or side effects, and those diagnosed with RA according to

Criteria of American Rheumatism Association, and who used at least two NSAIDs at maximum dose at least for 3 months and discontinued treatment due to lack of response or side effects, and patients with disease activity (BASDAI) score >4 were included in the study.

Patients with previous or active tuberculosis, patients with active infection, and high risk of infection (septic arthritis or prosthesis infection within the last 12 months, ,persistent or recurrent lung infection, permanent urinary catheter), patients who are pregnant or lactating, or do not use effective birth control method, and those with lupus and demyelinating diseases and patients with malignant diseases were excluded from the study.

In the evaluation of functional status and disease activity, for RA patients, disease activity score (DAS28), for AS patients Bath AS Disease activity Index (BASDAI) , for both diseases VAS (Visual Analog Scale) scoring was used.[13] If BASDAI score was ≥4.1, it was considered as activation of disease.[3] DAS28>5.1 was evaluated as high disease activity and DAS28<2.6 as low disease activity. .

Eritrocyte sedimentation rate (ESR) and CRP (C reactive protein) were measured by automatic analysers. Sedimantasyon rate was measured with Westergreen method (Lena ESR analyzer, Lınear Chemıcals S.L, Spaın) and CRP with turbidometric method (Cobas 6000, Roche Diagnostics).

Analysis of data was carried out with SPSS for Windows 11.5 software program. Continous variables was investigated with Shapiro Wilk test whether they are normallly distributed. Descriptive statistics and continuous variables were expressed as mean±standard deviation or median (minimum-maximum), and categorical variables with the number of cases and percentages (%). The significance of the difference between groups was evaluated with Student's t test in mean values and the significance of the difference between groups was evaluated with Mann Whitney U test in median values. Categorical parameters were analysed with Pearson's chi-square or Fisher's exact chi-square test. Whether there was a difference in groups between pre and post treatment measurements was investigated with Wilcoxon rank test. Whether there was a statistically significant correlation between continuous variables was investigated with Spearman's Correlation test. P<0.05 was considered statistically significant.

RESULTS

Demographic Data

160 patients receiving Anti–TNF alfa treatment were included in this study. (100 RA patients, 60 AS patients). Anti–TNF alfa treatment included infliximab, etanercept and adalimumab. Majority of patients used methotrexate, sulfasalazine, methylprednisolone, NSAIDs along with Anti–TNF alfa treatment. In addition, there were 73 patients taking chloroquine and 27 patients using leflunomid instead of methotrexate.

In RA group 24 males and 76 females were included in the study. Mean age of patients receiving Anti–TNF alfa treatment was 47.7±12.5 years. Mean age of diagnosis with RA was 37.5±10.7 years. Mean duration of disease was found to be 8.5 years (range: 1-25 years) in RA patients receiving Anti–TNF alfa treatment, and mean duration DMARDs treatment was 8 years (range: 1-19 years). The percentages of Anti–TNF alfa drugs used in RA patients group was 37% (n:37), 20% (n:20) and 43% (n:43) infliximab, etanecercept and adalimumab respectively. Mean doses of methotrexate, sulfasalazin, NSAIDs and steroid used in conjunction with Anti–TNF alfa drug treatment were similar in all patients (**Table 1**).

Table 1. Demographic and clinical features of study population

	AS (n=60)	RA (n=100)	p-value
Age (year)	39,3±11,5***	47,7±12,5	<0,001
Gender			<0,001
Male	44 (%73,3) ***	23 (%23,0)	
Female	16 (%26,7) ***	77 (%77,0)	
Age at disease onset	29,2±10,6***	37,5±10,7	<0,001
Duration of disease	8 (1-35)	8,5 (1-25)	0,155
Duration of DMARDs usage (year)	5 (1-30) **	8 (1-19)	0,010
Smoking history	29 (48,3) ***	15 (%15,0)	<0,001
Anti-TNF alpha treatment regimen			<0,001
Adalimumab	8 (%13,3) ***	43 (%43,0)	
Etanersept	12 (%20,0) ***	20 (%20,0)	
Infliksimab	40 (%66,7) ***	37 (%37,0)	

RA: Rheumatoid arthritis; **AS:** Ankylosing spondylitis; **DMARDs**: Disease-Modifying Anti rheumatic Drugs; **TNF:** Tumor Necrosis Factor. Significance levels are shown as *p<0,05, **p<0,01, ***p<0,001 when comparing ankylosing spondylitis patients and rheumatoid arthritis patients. Data are presented as mean±SD (standard deviation) and percentages.

60 AS patients included in the study (44 male and 16 female). Mean age of AS patients receiving Anti–TNF alfa treatment was 39.3±11.5 years. Mean age of diagnosis with AS was 29.2±10.6 years. Among AS patients receiving Anti–TNF alfa treatment, mean duration of disease was 8 years (range:1-35 years), and mean duration of DMARDs usage was 5 years (range:1-30 years). The percentages of Anti–TNF alfa drugs used in AS patients group was 66.7% (n:40), 20% (n:12) and 13.3% (n:8) infliximab, etanecercept and adalimumab respectively. Mean doses of methotrexate, sulfasalazine, NSAİD and steroid used in combination with Anti–TNF alfa were similar in all patients (**Table 1**).

According to our study results a statistically significant difference was found between RA and AS patients using DMARDs and Anti–TNF alfa treatment in terms of age, sex and the age of diagnosis (respectively p<0.001, p<0.001, p<0.001). In addition no significant difference was found between RA and AS patients using DMARDs and Anti–TNF alfa treatment in terms of disease and DMARDs usage duration (respectively p:0.155, p:0.11). Mean dose of methotrexate, sulfasalazine, NSAIDs and steroid used by patients in combinatin with Anti–TNF alfa treatment was similar in all groups (**Table 1**). 27 AS patients and 46 RA patients had comorbid diseases, namely HT(hypertension), DM(diabetes mellitus), HL(hyperlipidemia), osteoporosis, anemia and goitre (**Table 2**).

Table 2. Distribution of co-morbid diseases according to the patient groups

	AS (n=60)	RA (n=100)
Co-morbid diseases	27 (%45,0)	46 (%46,0)
HT	13 (%21,7)	28 (%28,0)
DM	1 (%1,7)	3 (%3,0)
HPL	20 (%33,3)	34 (%34,0)
Osteoporosis	2 (%3,3)	7 (%7,0)
Goitre	-	4 (%4,0)
Anemia	2 (%3,3)	2 (%2,0)
Others	4 (%6,7)	2 (%2,0)

RA: Rheumatoid arthritis; **AS:** Ankylosing spondylitis; **HT:** Hypertension; **DM:** Diabetes Mellitus; **HPL:** Hyperlipidemia. **Table 2** presents the distribution of co-morbid diseases as percentages and number of cases in both groups.

Clinical Activity Scores

When we compared DAS28 and VAS scores in RA patients before and after Anti–TNF alfa treatment, we found significant difference between them (p<0.001). Mean DAS28 value was 6.8 before Anti–TNF alfa treatment which decreased to 6 after Anti–TNF alfa treatment. Mean VAS value was 9 before Anti–TNF alfa treatment which decreased to 7 after Anti–TNF alfa treatment (**Figure 1**).

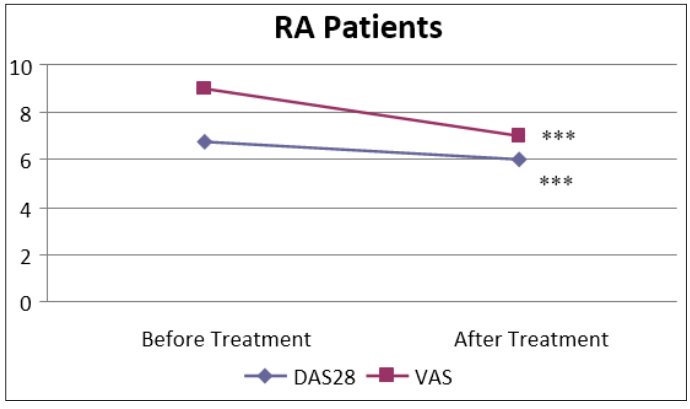

Figure 1. The comparison of DAS 28 and VAS values in patients with RA before and after Anti–TNF alfa treatment
p<0,001 before versus after Anti–TNF alfa treatment

Likewise, when we compared BASDAI and VAS scores in AS patients before and after Anti–TNF alfa treatment, we found significant difference between them (p<0.001). BASDAI score decreased from 6.1 to 5.3 and VAS value decreased from 8 to 6 after Anti–TNF alfa treatment. BASDAI score decreased from 6.1 to 5.3 and VAS value decreased from 8 to 6 after treatment (**Figure 2**).

Laboratory results

CRP levels before and after Anti–TNF alfa treatment were presented in **Table 3**. A significant difference was observed between plasma CRP levels before and after Anti–TNF alfa treatment in both groups (p<0.001). The mean measured CRP level of RA patients was 15.1 mg/L before Anti–TNF alfa treatment which was decreased to 5.1 mg/L after Anti–TNF alfa treatment (**Figure 3**). Accordingly, the mean alayzed CRP level of AS patients was decreased from 18.1 mg/L to 4.8 mg/L after the treatment (**Figure 3**).

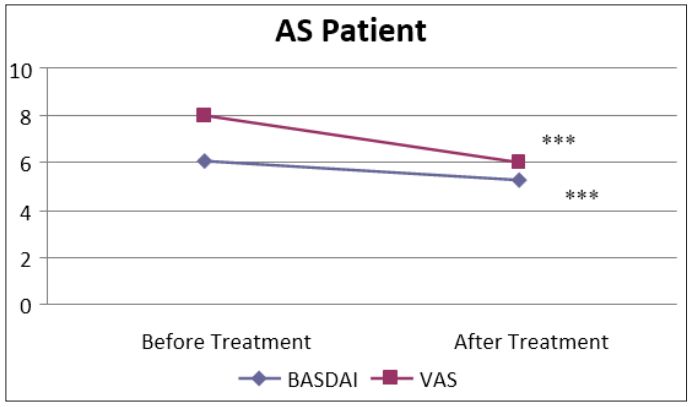

Figure 2. The comparison of BASDAI and VAS values in patients with AS before and after Anti–TNF alfa treatment
*** p<0,001 before versus after Anti–TNF alfa treatment

Tablo 3. Change in clinical and laboratory parameters before and after the Anti–TNF alfa treatment

		Before Anti–TNF alfa treatment	After Anti–TNF alfa treatment	p-value
MORNING STIFFNESS				
	AS	40 (20-65) ***	12,5 (5-25)	<0,001
	RA	45 (20-60) ***	15 (5-60)	<0,001
VAS				
	AS	8 (3-9) ***	6 (2-8)	<0,001
	RA	9 (6-10) ***	7 (4-9)	<0,001
ESR				
	AS	40,5 (3-142) ***	21 (2-63)	<0,001
	RA	46 (5-110) ***	28,5 (3-90)	<0,001
CRP				
	AS	18,1 (3,1-139) ***	4,8 (1,2-46)	<0,001
	RA	15,1 (1,4-174) ***	5,1 (1-91)	<0,001
BASDAI				
	AS	6,1 (4,0-7,5) ***	5,3 (3,1-6,8)	<0,001
DAS 28				
	RA	6,8 (5,2-8,2) ***	6,0 (3,5-7,3)	<0,001

AS: Ankylosing spondylitis; **RA:** Rheumatoid arthritis; **VAS:** Visual analogue scales; **DAS28:** Disease Activity Score 28; **BASDAI:** Bath Ankylosing Spondylitis Disease Activity Index; **CRP:** C-reactive protein; **ESR:** Erythrocyte sedimentation rate; Significance levels are shown as *p<0,05, **p<0,01, ***p<0,001 when comparing ankylosing spondylitis patients and rheumatoid arthritis patients. Data are presented as mean and range (minimum-maximum).

Similarly, a statisticallly significant difference was found between ESR values before and after the Anti–TNF alfa treatment (p<0.001). The avarage ESR values decreased from 46 to 28.5 mm/h in RA patients and from 40.5 to 21 in AS patients after treatment (**Table 3/Figure 4**).

In addition, we have assessed the correlation between changes in BASDAI scores and age, age of disease diagnosis, duration of disease, change in ESR and CRP in RA group. There was no correlation between them (**Table 4**).

Furthermore, we have analysed the correlation between changes in DAS28 score and age, age of disease diagnosis, duration of disease, change in ESR and CRP in RA group. There was no correlation between them (**Table 5**).

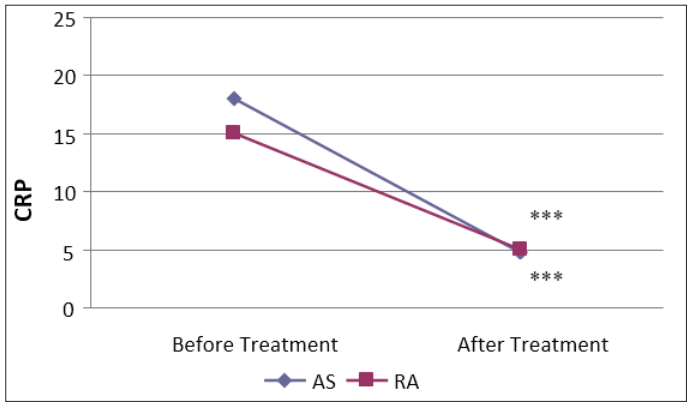

Figure 3. The comparison of serum CRP levels in patients with AS&RA before and after Anti–TNF alfa treatment
*** p<0,001 before versus after Anti–TNF alfa treatment

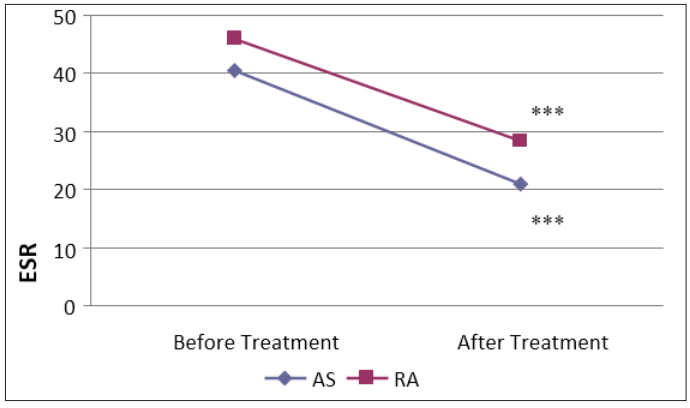

Figure 4. The comparison of ESRs in patients with AS&RA before and after Anti–TNF alfa treatment
*** p<0,001 before versus after Anti–TNF alfa treatment

Table 4. Correlations among the change in BASDAI score and Age, Age of Disease Diagnosis, Duration of Disease, Change in ESR and CRP value in AS Group

	Correlation Coefficient	p-value
Age	0,017	0,899
Age of Disease Diagnosis	0,025	0,85
Duration of Disease	-0,016	0,906
Change in ESR	-0,054	0,684
Change in CRP	0,086	0,512

AS: Ankylosing spondylitis; CRP: C-reactive protein; ESR: Erythrocyte sedimentation rate. Significance levels are shown as *p<0,05, **p<0,01, ***p<0,001.

Table 5. Correlations among the change in DAS28 score, and Age, Age at Disease Diagnosis, Duration of Disease, Change in ESR and CRP values in the RA Group

	Correlation Coefficient	p-value
Age	-0,059	0,563
Age of Disease Diagnosis	-0,060	0,555
Duration of Disease	-0,087	0,387
Change in ESR	0,132	0,192
Change in CRP	0,036	0,723

RA: Rheumatoid arthritis; CRP: C-reactive protein; ESR: Erythrocyte sedimentation rate. Significance levels are shown as *p<0,05, **p<0,01, ***p<0,001.

Also, we have evaluated the Anti–TNF alfa treatment according to the gender and smoking history of patients, whether those parameters have an impact on the treatment. We have found out that there was no correlation between changes in BASDAI score after treatment in AS patients, as well there was no correlation between changes in DAS28 score in RA patients (**Table 6**).

Table 6. According to Gender and Smoking History Change in DAS28 within RA Group, and Change in BASDAI within AS Group

	AS BASDAI	RA DAS28
Gender		
Female	-0,7 (-3,1 – -0,2)	-0,8 (-1,9 – 1,3)
Male	-0,8 (-2,0 – -0,4)	-0,8 (-2,6 – 0,1)
p-value	0,841	0,941
Smoking history		
Nonsmoker	-0,7 (-2,0 – -0,4)	-0,8 (-2,6 – 1,3)
Smoker	-0,7 (-3,1 – -0,2)	-0,8 (-2,0 – 0,1)
p-value	0,321	0,482

AS: Ankylosing spondylitis; **RA:** Rheumatoid arthritis; **DAS 28:** Disease Activity Score 28; **BASDAI:** Bath Ankylosing Spondylitis Disease Activity Index. Significance levels are shown as *p<0,05, **p<0,01, ***p<0,001. Data are presented as mean and range.

DISCUSSION

In the present study, the efficacy and safety of Anti–TNF alfa treatment in 100 RA and 60 AS patients who are regularly monitorized in our clinic at least for six months period was investigated. Patients who received conventional treatment before the study (sulfasalazine ve NSAIDs) were established to display marked imporvement in clinical outcome and laboratory values following Anti–TNF alfa treatment. Side effects associated with Anti–TNF alfa treatment occurred at a lower rate than those reported in the literature. The most commonly encountered side effect was development of skin, soft tissues and joints infections. But, there was no serious infection. In patients included in the present study, substantial improvement was determined in pain, morning stiffness, and global evaluation of the patients and the physician after Anti–TNF alfa treatment. There was prominent decrease in BASDAI and DAS 28 scores, which are considered as disease activity indexes for AS and RA patients respectively. ESR and CRP values, which are laboratory parameters, were found to be markedly decreased. In the evaluation of demographic characteristics of the patients in the present study, it was established that younger and male patients are predominant in AS patients while female and elder patients are more common among RA patients.

AS typically occurs more commonly among male and younger patients. It has a more slowly progressing insidious course and presents mostly with peripheral joint involvement with a milder spinal ankylosis in women. Female/male ratio in AS has recently been reported to be varying between 1/10-1/3.[14,15] In the present study, female/male ratio was found to be 4/11, which is compatible with the literature.

In a multicentered RA and AS study, conducted by Bodur et.al, it was reported that mean age of the patients was 38.1±10.6 years, mean duration of disease was 11.5±7.9 years and time from diagnosis was 8.9±6.4 years.[16] In the present study, mean age of AS patients taking Anti–TNF alfa treatment was 39.3 ±11.5 years and mean age when they were diagnosed with AS was 29.2 ±10.6 years. Mean duration of disease in RA patients receiving Anti–TNF alfa treatment was 8.5 years (range:1-25 years), which was consistent with the literature.

Konttinen et.al investigated the efficacy of etanercept and infliximab treatment in 229 AS patients with a multicentered study and they have reported marked improvements in pain, morning stiffness, BASDAI, sedimentation and CRP values at the end of two years follow up. Moreover, they have reported 79% and 42% improvement according to the ASAS20 and ASAS40 criterias, respectively.[17] Consistent with this literature, a statistically significant clinical and biochemial positive treatment response was determined in BASDAI, VAS, CRP and ESR evaluation results of the patients after treatment in the present study ($p<0.001$).

In the multi centered double-blind randomized placebo controlled study of Van der Heijde with 279 patients, (ASSERT), 201 patients were administered infliximab and 78 patients placebo. In the evaluation made 24 weeks later, BASDAI-50 response was obtained in 51% of the patients in infliximab groups and 10.7% of those in placebo group. Improvement in BASFI was seen in 47.5% of patients in infliximab group, while it improved in 13.3%, of those in placebo group. In adition, it was reported that in infliximab group, ASAS-20 response, ASAS 5/6 response and ASAS partial remissson response was obtained in 61.2%, 49% and 22.4% of patients respectively. [18] The study of Van der Heijde et.al including 315 patients, in the eveluation made 24 weeks later, BASDAI response was obtained in 42.3% of the patients.[19]

Ferdinand et al. administered three different treatments i.e. adalimumab+methotrexate, only methotrexate and only adalimumab to 799 patients with active RA and followed them for two years. At the end of first year, DAS28 remission (DAS28<2.6) was obtained in 43%, 23% and 21% of patients in adalimubab+methotrexate, adalimubab and methotrexate groups, respectively. At the end of second year, remission was obtained in 49% of patients receiving combined treatment and 25% of those receiving adalimumab and methotrexate on their own.[20] In our study, DAS28 remission was achieved at 24th weeks in patients receiving Anti–TNF alfa treatment.

In the COMET study, 542 patients with active RA were administered methotrexate or etanercept+methotrexate and quality of life and disease activity scales were compared between the onset of treatment and at the end of second year. DAS28 remission (DAS<2.6) was obtained in 132 of 265 (50%) patients receiving combined treatment, and in 73 of 263 patients (28%) receiving only methotrexate.[21] In this study, DAS28 remission (DAS28<2.6), was demonstrated in 7 of 37 (%19) patients receiving Anti–TNF alfa treatment, and in 3 of 38 patients (8%) receiving DMARDs treatment.

In the ATTRACT study, one group was administered infliximab+methotrexate and the other group only methotrexate. In the group not rmeeting AC20 criteria and using Anti–TNF alfa treatment, in DAS28, CRP, ESR, parameters measured at 54th week, marked improvement was observed compared to the groups receiving only methotrexate.[22]

In the ARMADA study in which long term efficacy and the safety of the addition to adlimubab to methotrexate was investigated for 4 years in RA patients. In ARMADA study, after 4 years, DAS 28 score decreased from 5.3 to 3, HAQ 20 score from 1.5 to 0.7 and CRP value from 25 mg/L to 7 mg/L.[23] In our study, DAS28 score decreased from 6.8 to 6 and CRP value from 15.1 mg/L to 5.1 mg/L.

The treatment of RA cases with Anti–TNF alfa drugs bring about marked decrease in disease activity and higher rates of remission compared to DMARDs treatment. Currently, Anti–TNF alfa drugs has various superior aspects compared to conventional DMARDs, positive response continues as long as drugs are used, but cost of treatment is very high. These are parameters that should be taken into account when choosing these drug, it should also be in mind that long term side effect profile of these drugs still remains uncertain and they may be associated with opportunistic infections like tuberculosis, which are especially important in our country. Clinicians should be vigilant for infections at infusion sides or intra articular, malignancies, autoimmunity and etc. while managing these patients.

In conclusion, our study is a population based cross-sectional study on the patients with RA and AS, and it evaluates the association between treatment modalities and their clinical/biochemical results. Our findings show that Anti–TNF alfa treatment seems to be efficacious and safe on the patients with RA and AS. Our data showed a marked clinical/biochemial progress in BASDAI, VAS, CRP and ESR values. But our study also highlights that these drugs should be carefully monitorized because of their severe side effects.

ETHICAL DECLARATIONS

Ethics Committee Approval: In this research, the data before 2020 was used and the research was concluded before 2020. According to the Regulation on Clinical Researches published in the Official Gazette of the Republic of Turkey with the number 28617 dated 3 November 2015, the ethics committee approval was not obtained in accordance with the article "Retrospective studies are outside the scope of the regulation (article 2- (2))". This study was prepared in accordance with the Law on Protection of Personal Data, by anonymizing patient data and in accordance with the 2013 Brazil revision of the Helsinki Declaration and guidelines for Good Clinical Practice..

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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The Evaluation of Health-Care Associated Infections In a Tertiary Intensive Care Unit

Üçüncü Basamak Bir Yoğun Bakımda Görülen Sağlık Bakımı İlişkili Enfeksiyonların Değerlendirilmesi

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Abstract

Aim: In this study, we aimed to determine the epidemiological characteristics of infections detected in a tertiary ICU of our hospital and to evaluate the transmission routes.

Material and Method: A total of 1278 patients who were followed up in the ICU for two years were analyzed retrospectively. Health-care associated infection (HAI) diagnoses were evaluated according to the "Centers for Disease Control and Prevention (CDC)" criteria.

Results: Fifty-seven of the patients who were followed up were diagnosed with HAI, and 54 pathogens were detected. The rate of HAI development among patients hospitalized in the ICU was 5.24%. In this unit; mechanical ventilator day was 3483, rate of ventilator utilization was 51%, speed of VAP was 0.86, UC day was 6734, rate of UC utilization was 100%, speed of CR-UTI was 0.89, CVC day was 4327, rate of CVC utilization was 63%, speed of CVCR-BSI was determined as 3.93. Pneumonia with specific laboratory findings was the most common infection in patients with HAI (33.4%). Other infections of the lower respiratory tract (31.6%), CVCR- BSI (14%), CR-UTI (7%), VAP (5.2%), clinically defined pneumonia (5.2%),soft tissue infection (1.8%) and laboratory-proven BSI (1.8%) respectively, were followed. Eleven different microorganisms were determined as the pathogens of HAI. The bacteriological profile causing HAI in the study, Gram-negative and Gram-positive pathogens were 87,1% and 12.9%, respectively. Acinetobacter baumanni was the most common pathogen (51.9%). Other pathogens were Pseudomonas aeruginosa (11.1%), Klebsiella pneumoniae (9.3%), Staphylococcus aureus (5.6%), Escherichia coli (5.6%), Stenotrophomonas maltophila (5.6%), Enterococcus faecium (3.7%), Acinetobacter lwoffi (1.9%), Enterococcus faecalis (1,9%), Coagulase-negative staphylococcus (1.9%) and Enterobacter cloacae (1.9%).

Conclusion: Each unit should determine its patient profile, flora and resistance patterns by conducting surveillance studies and plan treatment strategies accordingly.

Keywords: Health-care associated infection, intensive care unit, surveillance.

Öz

Amaç: Bu çalışma ile hastanemizin üçüncü basamak bir yoğun bakım ünitesinde (YBÜ) tespit edilen sağlık bakımı ilişkili enfeksiyonların (SBİE) epidemiyolojik özelliklerinin belirlenmesi ve bulaş yolları ile ilgili değerlendirilme yapılması amaçlanmıştır.

Gereç ve Yöntem: YBÜ'de iki yıl boyunca takip edilen toplam 1278 hastanın takipleri retrospektif olarak incelendi. SBİE tanısı "Hastalık Kontrol ve Önleme Merkezleri (CDC)" kriterlerine göre değerlendirildi.

Bulgular: Takip edilen hastaların 57 tanesinde SBİE tespit edildi ve 54 etken saptandı. Yoğun bakıma yatırılan hastalar arasında SBİE gelişme oranı %5,24 olarak hesaplandı. Bu ünitede; mekanik ventilatör kullanım günü 3483, ventilatör kullanım oranı %51, VİP hızı 0,86, ÜK kullanım günü 6734, ÜK kullanım oranı %100, Kİ-ÜSE hızı 0,89, SVK kullanım günü 4327, SVK kullanım oranı%63, SVKİ-KDE hızı 3,93 olarak belirlendi. SBİE görülen hastalarda en sık spesifik laboratuvar bulguları olan pnömoni tespit edildi (%33,4). Bunu sırasıyla alt solunum yollarının diğer enfeksiyonları (%31,6), SVKİ-KDE (%14), Kİ-ÜSE (%7), VİP (%5,2), klinik olarak tanımlanmış pnömoni (%5,2), yumuşak doku enfeksiyonu (YDE) (%1,8) ve laboratuvar tarafından kanıtlanmış KDE (%1,8) izledi. SBİE etkeni olarak 11 farklı mikroorganizma saptandı. Tüm SBİE patojen dağılımına bakıldığında %87,1 oranında Gram negatif, %12,9 Gram pozitif patojen görüldü. Acinetobacter baumanni en sık saptanan patojendi (%51,9). Bunu sırasıyla Psödomonas aeruginosa (%11,1), Klebsiella pneumoniae (%9,3), Staphylococcus aureus (%5,6), Escherichia coli (%5,6), Stenotrophomonas maltophila (%5,6), Enterococcus faecium (%3,7), Acinetobacter lwoffi (%1,9), Enterococcus faecalis (1,9%), Koagülaz-negatif stafilokok (%1,9) ve Enterobacter cloacae (%1,9) izledi.

Sonuç: Her ünite kendi hasta profilini, florasını ve bunların direnç paternlerini sürveyans çalışmaları yaparak saptamalı ve tedavi stratejilerini buna göre planlamalıdır.

Anahtar Sözcükler: Sağlık bakımı ilişkili enfeksiyon, yoğun bakım ünitesi, sürveyans.

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INTRODUCTION

Health-care associated infection (HAI) are still an important health problem in the world despite the precautions taken. These infections cause an increase in morbidity, mortality and treatment costs depending on the length of hospital stay.[1] Patients hospitalized in intensive care units (ICU); are the group with the most severe clinical picture, the longest hospital stay, the most frequently used invasive procedures and the use of broad-spectrum antibiotics.[2] Approximately 20-25% of all HAIs are seen in the ICU.[3] Urinary tract infection (UTI), catheter infection, ventilator-associated pneumonia (VAP) and surgical site infection (SSI) are among the most common infections in patients followed up in these units.[4] Resistant microorganisms are generally responsible for infections that develop in the ICU. This causes important problems in treatment and increases mortality and morbidity. Control of these infections is possible by monitoring the surveillance results in each hospital, comparing these results with the infection rates of other hospitals and taking effective infection control preventions.[5] The detection of common infection factors in the hospital through surveillance studies provides an appropriate and successful treatment planning. Besides, it is essential to identify common infectious agents to perform empirical treatment planning successfully. In this study, we aimed to determine the epidemiological characteristics of infections detected in a tertiary ICU of our hospital and to evaluate the source of contaminations.

MATERIALS AND METHODS

The study was approved by the local ethics committee of University of Health Sciences, Konya Training and Research Hospital, with the 06.02.2020/35-32 ID number. A total of 1278 patients hospitalized in Konya Training and Research Hospital 3rd level ICU between the dates of 01.10.2017-30.09.2019 were retrospectively followed up with patient-based active surveillance methods in terms of nosocomial infections. In this period, a total of 57 HAI cases were diagnosed. Health-care associated infection diagnoses were evaluated according to the "Centers for Disease Control and Prevention (CDC)" criteria. The study was carried out in accordance with the Helsinki Declaration Principles. The patients included in the study were over 18 years old. Culture samples were taken according to the physical examination findings of the patients. When the fever was over 38 ° C, blood cultures were repeated. According to the patient's examination findings, throat culture, blood and catheter culture, urine culture, tracheal aspirate culture, bronchoalveolar lavage culture were taken. While evaluating the culture results, physical examination findings, biochemical and hematological examination results, radiological imaging methods were taken into consideration.

Invasive device-associated hospital infections rates;

- Ventilator-associated pneumonia (VAP) rate=VAP number / ventilator day x 100,
- Catheter-related urinary tract infection (CR-UTI) rate=CR-UTI number / urinary-catheter (UC) day x 100,
- Central venous catheter (CVC) -related bloodstream infection (BSI) rate=CVCR-BSI number / CVC day was calculated with the formula x 100.

Statistical analysis

SPSS version 20.0 (IBM SPSS Statistics 20.0) was used for data evaluation and analysis. Variables are expressed as mean ± standard deviation, and categorical variables as numbers and percentages.

RESULTS

A total of 1278 patients who were followed up in the ICU for two years were analyzed retrospectively. HAIs were detected in 57 of these patients.The patients who were diagnosed with HAI, 35 (61.4%) were male, and 22 (38.6%) were female. Fifty-seven of the patients who were followed up were diagnosed with HAI, and 54 pathogens were detected. The diagnosis of hospitalization for patients diagnosed with HAI is shown in **Table 1**.

Table 1. Distribution of hospitalization diagnosis

Hospitalization Diagnosis	n	%
Traffic accident	14	24.5
Cerebrovascular disease	14	24.5
Renal failure	10	17.5
Chronic obstructive pulmonary disease	4	7
Subarachnoid hemorrhage	4	7
Toxicity	3	5.4
Electric shock	2	3.5
Fall	2	3.5
Cardiac arrest	2	3.5
Malignancy	1	1.8
Pneumothorax	1	1.8
Total	57	100

In this unit; mechanical ventilator day was 3483, rate of ventilator utilization was 51%, speed of VAP was 0.86, UC day was 6734, rate of UC utilization was 100%, speed of CR-UTI was 0.89, CVC day was 4327, rate of CVC utilization was 63%, speed of CVCR- BSI was determined as 3.93. Two-year invasive device utilization ratio and rates of infection in ICU are given in **Table 2**.

Table 2. Device utilization ratio and deviceassociated infection rates

	Utilization day	Utilization ratio		Infection number	Infection rate
Central venous catheter	4327	0.63	CVCR-BSI	8	3.93
Urinary-catheter	6734	0.89	CR-UTI	4	0.89
Mechanical ventilator	3483	0.51	VAP	3	0.86

The rate of HAI development among patients hospitalized in the ICU was 5.24%. Pneumonia with specific laboratory findings was the most common infection in patients with HAI (33.4%). Other infections of the lower respiratory tract (31.6%), CVCR- BSI (14%), CR-UTI (7%), VAP (5.2%), clinically defined pneumonia (5.2%),soft tissue infection (1.8%) and laboratory-proven BSI (1.8%) respectively, were followed (**Figure 1**).

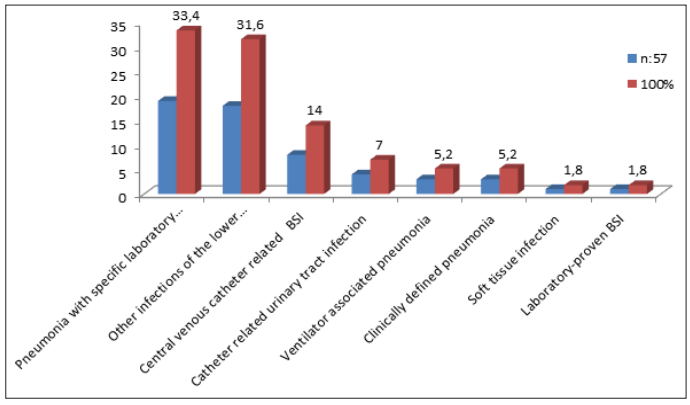

Figure 1. Distribution of health-care associated infections

Eleven different microorganisms were determined as the pathogens of HAI. The bacteriological profile causing HAI in the study, Gram-negative and Gram-positive pathogens were 87,1% and 12,9%, respectively. Acinetobacter baumanni was the most common pathogen (51.9%). The distribution of other pathogens is shown in **Figure 2**.

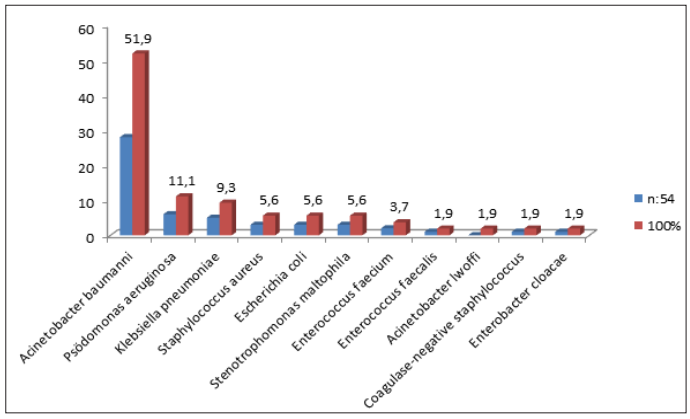

Figure 2. Distribution of isolated pathogens

Pneumonia with specific laboratory findings was caused by *A.baumanni, K.pneumoniae, P.aeruginosa* and *E.cloacae*; 73.6%, 10.6%, 10.6%, 5.2%, respectively. *A.baumanni, S.aureus, K.pneumoniae, P.aeruginosa* and *E.coli*, were caused to other infections of the lower respiratory tract, were determined to be 55.5%, 16.6%,11.2%, 11.2% and 5.5%, respectively. In 25%, 25%, 25%, 12.5%, 12.5% CVCR- BSI, the pathogens were *A.baumanni, P.aeruginosa, S.maltophila, E.faecalis* and *A.lwoffi*, respectively. 50% of catheter-associated UTI were from *E.faecium*, 25% from *E.coli* and 25% from *K.pneumoniae*. *A.baumanni* in 66.7% and *S.maltophila* in 33.3% of the VAP were detected. The pathogen in soft tissue infection was *E.coli* (100%), and the pathogen in laboratory-proven BSI.

DISCUSSION

The patients in ICU compared to the patients in the general hospital population have more comorbid diseases and more acute severe physiological disorders, so they are under relative immunosuppression. Invasive interventions such as intravenous catheters, endotracheal tubes, and urinary catheters reduce host resistance against infections. Therefore, more diseases and infections are encountered in ICU than in other hospital units.[6,7]

According to 2017 Turkey's National Nosocomial Infections Surveillance Network (NNISN); a summary in all tertiary health center intensive care unit-acquired infections data was; in Anesthesiology ICUs rate of ventilator utilization was 62%, speed of VAP was 6.8, rate of ventilator utilization Internal Medicine ICUs was 31%, the speed of VAP was 5.5, the rate of ventilator utilization was 40% and the speed of VAP was 3.5 in the Chest Diseases ICUs.[8] The rate of mechanical ventilator utilization in our ICU is similar to the other tertiary care centers ICUs average, but our VAP speed is lower than other ICUs. According to NNISN data, the rate of UC utilization in Anesthesia and Reanimation ICUs was 97%, the speed of CR-UTI was 2.5, the rate of UC utilization in Internal Diseases ICUs was 91%, the speed of CR-UTI was 2.2 and in the Chest Diseases ICUs the rate of UC utilization was reported to be 83%, and the speed of CR-UTI was 1.[8] In our study, our rate of UC utilization was higher than other NNISN data, but our speed of CR-UTI was lower. Although we have a high rate of insertion of UC in our ICU, it has been thought that the necessary care has been given to catheter care in our unit. To reduce our urinary catheter insertion rate, unnecessary catheterization should be avoided.

According to NNISN data, the rate of CVC utilization in the Anesthesia and Reanimation ICUs was 61%, the speed of CVCR-BSI was 4.5%, the rate of CVC utilization in the Internal Diseases ICUs was 43%, the CVCR-BSI speed was 4.5, the rate of CVC utilization in the Emergency ICUs was 42%, the CVCR-BSI speed was reported as 6.7.[8] In our study, the rate of CVC utilization was 63%, and the speed of CVCR-BSI was 3.93. Our CVC utilization rate was slightly higher, but the speed of CVCR-BSI was lower than the NNISN data. It was thought that CVC care was performed in accordance with the infection prevention rules in our unit.

In a study by Karahocagil et al.[9] investigating HAI incidences, HAI rates have been shown to be 5% in pediatric ICU, 5.6% in chest diseases ICU and 18.3% in Anesthesia and Reanimation ICU. In the study carried out by Dağlı et al.[10] in ICUs in a university hospital, the rate of HAI was found to be 49.7%. In the study conducted by İnan et al.[11] it was shown that the infection rates in all ICUs varied between 1.6% and 47.4%. In our study, the rate of HAI development was calculated as 5.24%

among the patients admitted to ICU, and it was seen that the infection rates in our unit were lower than the literature data of previous years. It was thought that increasing technical possibilities, increasing the use of more antibiotic groups, and increasing awareness of healthcare professionals about handwashing and infection may be effective in this decrease in HAI rates.

The most common infections in ICUs are UTI, BSI, and pneumonia.[12] The most common three infections were pneumonia, UTI and catheter-related infection (CRI) in the study conducted by Pişkin et al.[13] In the study conducted by Akın et al.[14] in the Anesthesia ICU, it was stated that pneumonia, BSI and UTI are the most common HAIs. In the study in which Şahin et al.[15] evaluated HAIs in the ICU, the most common infections were pneumonia, UTI, and BSI. In the study conducted by Kaya et al.[16] in a tertiary ICU, BSI, UTI, and CRI were reported as the most common HAIs. In our study, similar to many studies conducted in ICU, the most common distribution of infections were pneumonia, CVCR-BSI and CR-UTI.

Health-care associated infection factors that develop in the ICU can vary from hospital to hospital, as well as may vary over time in the same unit.[17] In studies conducted in our country, the most commonly isolated pathogenic microorganisms were in ICUs; *S.aureus* (19-37%), *P.aeruginosa* (17-32%), *E.coli,* Klebsiella spp. and Acinetobacter spp.[18] The most frequent HAI factor was reported as Acinetobacter, Pseudomonas and Enterobacter in the study conducted by Tüfek et al.[19] In the study of Dikici et al.[20] the three most frequently isolated pathogens were *A.baumannii*, *S.aureus*, and *E.coli*, respectively. In the study of Erdinç et al.[21] it was stated that the most frequently isolated microorganisms were *E.coli, K.pneumoniae,* Enterococcus species and *S.aureus.* In a prevalence study (EPIC II) in which ICUs were examined and 1265 ICUs from 75 countries participated, it was reported that 62% of positive isolates were Gram-negative, 47% were Gram-positive bacteria and 19% were fungi. Similar to our study in many studies conducted in our country, Gram-negative bacteria appear as the most common factor. In our study, 87,1% Gram-negative and 12.9% Gram-positive pathogens were observed as the factors of HAI. The three most common pathogens were *A.baumanii, P.aeruginosa* and *K.pneumoniae*. When the distribution of infection agents according to specific regions is examined, it is observed that Gram-negative bacteria are more isolated in CR-UTI, VAP and Gram-positive bacteria in BSI. In the study conducted by Motor et al.[22] *A.baumannii* in VAP, *E.coli* in CR-UTI and Gram-positive cocci in BSI were identified as infection agents. In the study of Öktem et al.[23] Gram-negative bacteria, especially Acinetobacter spp., *P.aeruginosa, K.pneumoniae* and *E.coli*, are frequently isolated as agents, while gram-positive bacteria, coagulase-negative in the bloodstream and surgical site infections. Staphylococci (CNS), *S.aureus* and Enterococcus species were seen as causative agents. In our study, *A.baumanni* was found to be the most common pathogen in pneumonia with specific laboratory findings, other infections of the lower respiratory tract and VAP (73.6%, 55.5%, 66.7%, respectively). In the CVCR-BSI, the three most common pathogens are *A.baumanni, P.aeruginosa,* and *S.maltophila* (25% incidence of all). The most common pathogen was *E.faecium* (50%) in CR-UTI, the most common pathogen was *E.coli* (100%) in soft tissue infection, and the most common pathogen in laboratory-proven BSI was Coagulase-negative staphylococcus (100%). In our ICU, Acinetobacter appears as an essential problem. Reasons for this include inappropriate antibiotic use, unnecessary long-term prophylaxis, antibiotic revision according to culture results, and failure to follow infection control measures to the required extent.

CONCLUSION

HAIs are significant cause of morbidity, mortality, and cost increase in our country as well as all over the world. Therefore, the incidence of HAI will be greatly reduced by avoiding unnecessary invasive procedures in patients, removing invasive catheters as soon as possible, paying attention to aseptic practices, taking infection control measures, preventing inappropriate antibiotic use, and taking isolation measures. Besides, each unit should determine its patient profile, flora, and resistance patterns by conducting surveillance studies and plan treatment strategies accordingly.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was approved by the local ethics committee of University of Health Sciences, Konya Training and Research Hospital, with the 06.02.2020/35-32 ID number.

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Can A Simple Complete Blood Count Predict Gestational Diabetes Mellitus?

Basit Bir Tam Kan Sayımı Gestastonel Diyabetes Mellitusu Öngörebilir Mi?

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Abstract

Aim: To assess the role of simple complete blood count (CBC) in prediction of gestational diabetes (GDM).

Material and Method: Pregnant women screened for GDM in 24-28 gestational weeks with a 75g-OGTT between January 2018-January 2020 were retrospectively investigated. Patients with a known systemic disease, using aspirin, low-molecular-weight heparin and steroids were excluded. A total of 359 patients (81 with GDM and 278 controls) were enrolled. The assessed parameters in CBC were hemoglobin, hematocrit, red blood cells, mean corpuscular volume, mean corpuscular hemoglobin concentration, white blood cells (including neutrophils, lymphocytes, monocytes, eosinophils, basophils), platelets, platelet distribution width (PDW), mean platelet volume (MPV), red cell distribution width (RDW), nucleated red blood cell (NRBC), NRBC percentage, plateletcrit (PCT), platelet large cell ratio (P-LCR), immature granulocytes (IG) and IG percentage. Platelet mass index (PMI), neutrophil-to-lymphocyte ratios (NLR) and platelet-to-lymphocyte ratios (PLR) were calculated. These parameters were compared between GDM patients and controls. Regression analysis was performed with the parameters that were significantly correlated with GDM. ROC curve analysis was done in order to find cut-off values.

Results: RBC, WBC (all subtypes including immature granulocytes), platelet indices including PMI, NLR and PLR were all similar. Only RDW and NRBC were found to be significantly increased in GDM patients and came out to be independent predictors of GDM with maternal age and screening week.

Conclusion: These findings suggest that women with GDM may be accompanied with increased RDW and NRBC levels which seem to be independent predictors of this disease and these parameters may be used to monitor and evaluate the development of GDM.

Keywords: Gestational diabetes mellitus, nucleated red blood cell, red cell distribution width, platelet indices, complete blood count

Öz

Amaç: Basit bir tam kan sayımının (TKS) gestasyonel diyabetus mellitus (GDM) öngörüsündeki rolünü değerlendirmek

Gereç ve Yöntem: Ocak 2018-Ocak 2020 yılları arasında 24-28. Gebelik haftalarında 75g oral glukoz tolerans testi ile GDM taraması yapılan gebeler retrospektif olarak değerlendirildi. Bilinen sistemik hastalığı olan, aspirin, düşük-molekül-ağırlıklı heparin veya steroid kullanan hastalar elendi. Toplam 359 hasta (81 GDM'li ve 278 kontrol) çalışmaya alındı. TKS içinde hemoglobin, hematokrit, eritrositler, ortalama korpüsküler hacim ve hemoglobin konsantrasyonu, lökositler (nötrofil, lenfosit, bazofil, monosit, eozinofil dahil), trombositler, trombosit dağılım genişliği, ortalama trombosit hacmi, kırmızı-hücre dağılım genişliği (RDW), çekirdekli kirmizi kan hücreleri (ÇKKH) ve yüzdesi, plateletkrit, trombosit büyük hücre oranı ve immatür granülosit ve yüzdesi mevcuttu. Trombosit kütle indeksi (TKİ), nötrofil-lenfosit (NLO) ve trombosit-lenfosit oranları (TLO) hesaplandı. Bu parametreler GDM olan ve olmayan hastalarda karşılaştırıldı. GDM ile anlamlı korelasyon gösteren parametrelerle regresyon analizi yapıldı. Eşik değer hesaplaması ROC eğrisi analizi ile yapıldı.

Bulgular: Eritrositler, lökositler (immatür granülosit dahil tüm alt gruplar), TKİ, NLO ve TLO da dahil trombosit indeksleri gruplarda benzerdi. Sadece RDW ve ÇKKH, GDM'li hastalarda anlamlı olarak yüksek olarak bulundu ve bu parametreler yaş ve tarama haftası ile birlikte GDM için bağımsız prediktörler olarak tespit edildi.

Sonuç: Bu sonuçlar GDM'li hastalarda RDW ve ÇKKH seviyelerinin artmış olduğunu, bu parametrelerin GDM için bağımsız prediktörler olarak görüldüğünü ve GDM gelişmesinin izleminde ve değerlendirilmesinde kullanılabileceğini göstermektedir.

Anahtar Kelimeler: Gestasyonel diabetes mellitus, çekirdekli kırmızı kan hücreleri, kırmızı hücre dağılım genişliği, tromosit indeksleri, tam kan sayımı

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INTRODUCTION

Diabetes mellitus is the most common medical disorder complicating pregnancy with about a prevalence of 10% and gestational diabetes mellitus (GDM) represents 90% of these cases.[1] GDM results from carbohydrate intolerance that develops due to placental hormones that peak in the late second trimester. Insulin resistance and chronic subclinical inflammation are suggested to be the underlying mechanisms of the disease.[2] It is observed that the frequency of GDM is increasing and GDM continues to represent a significant challenge for both clinicians and investigators as it may cause maternal and fetal complications if not managed appropriately. Therefore, diagnosis is important and all pregnant women are recommended to be screened for GDM with a laboratory-based screening test using blood glucose levels.[3,4]

Screening may either be done with using a 75-g, 2-hour oral glucose tolerance test (OGTT) or using a-two-step approach starting with a 50-g OGTT and continue with a 100-g, 3-hour diagnostic OGTT if the result is above the cut-off values. However, not infrequent, some women cannot tolerate to drink such a liquid containing that much glucose with at least 8-hour fasting time. And unfortunately, there is still no practical way to predict GDM before screening tests.

This has led investigators to find alternative screening modalities. Measurement of hemoglobin A1c has been proposed however, due to its decreased sensitivity compared with OGTT, it is not found to be suitable for use alone.[5] Some investigators focused on the inflammatory markers as there is chronic low-grade inflammation that triggers vascular injury and dysfunction and subsequent platelet activation in GDM.[6,7] Recently because, systemic inflammatory response markers that are components of complete blood count test (CBC) including neutrophil-to-lymphocyte ratio (NLR) and platelet-to- lymphocyte ratio (PLR),[8-10] platelet indices including platelet count, mean platelet volume (MPV) platelet distribution width (PDW), plateletcrit (PCT),[11,12] white blood cells, red blood cells[13] are suggested to differ in GDM patients in different studies. However, in some other studies these results could not be confirmed.[10,14-17]

CBC is a convenient and inexpensive test that provides important information. In addition to the above parameters that had been assessed in GDM, immature granulocytes, platelet mass (platelet count x MPV/1000), nucleated red blood cells (NRBC) and red cell distribution width (RDW) are also components of CBC that have been correlated with inflammation and blood glucose.[18,19] There is scarce data with regard to the correlation of these components of the CBC with GDM. And in light of the inconsistent findings the aim of this study was to assess the role of simple CBC in prediction of GDM.

MATERIALS AND METHODS

All the pregnant women who were screened for GDM in their 24-28 gestational weeks with a 75 g OGTT in our obstetrics department between January 2018 and January 2020 were included in this retrospective cohort study. All the data were obtained from the electronic data base of the hospital. Screening is offered to all pregnant women in our clinic between 24-28 gestational weeks unless she has risk factors for earlier testing.[3] For standardization, patients with a known systemic disease that would cause inflammatory changes and interfere with CBC results, such as hypertension, preeclampsia, renal failure, cardiac diseases, thyroid abnormalities, rheumatologic disorders, any kind of autoimmune diseases, malignancies and respiratory diseases were excluded. Women who were using aspirin, low molecular weight heparin and steroids for any reason were also excluded. In addition, only the patients to whom a CBC was ordered at the same time during GDM screening were included. The institutional ethics approval was obtained for the study.

The screening for GDM using a 75-g, 2-hour OGTT had been performed as follows: the woman was recommended not to eat or drink for 8 to 14 hours before the test and was instructed to drink a standard liquid that contains 75 g glucose after her blood was drawn. Every 60 minutes after she drank the liquid, blood was drawn again for two more times. She was not allowed to eat or drink during the test. The diagnosis of GDM be established when any single threshold value was met or exceeded (fasting value, 92 mg/dL; 1-hour value, 180 mg/dL; or 2-hour value, 153 mg/dL).[20]

The blood sample for CBC is drawn before the patient is asked to drink the standard liquid. The CBC was analyzed by with the SYSMEX-XN-1000/23797 hemogram device. The assessed parameters in CBC were hemoglobin, hematocrit, red blood cells, mean corpuscular volume (MCV), MCH concentration, white blood cells (including neutrophils, lymphocytes, monocytes, eosinophils, basophils, and their percentages), platelets, PDW, MPV, RDW, NRBC, NRBC percentage, PCT, platelet large cell ratio (P-LCR), immature granulocytes (IG) and IG percentage. Platelet mass index (PMI) was calculated by multiplying platelet number with MPV and divide the result by 1000. NLR and PLR are calculated by dividing the absolute neutrophil and platelet counts by the absolute lymphocyte count.

Statistical analysis was accomplished with statistical program for social sciences (SPSS 22, demo version, IBM). Normality of the data was tested with Kolmogorov-Smirnov Test. Normally distributed data were expressed as mean±standard deviation and compared with t test. Mann-Whitney U test was used for comparison of non-normally distributed data which were expressed as median (interquartile range). Binomial data were expressed as percentages and compared with chi square test. Correlation analysis (Pearson or Spearman coefficients where appropriate) was done to find factors that had correlations with diagnosis of GDM and a regression analysis was performed with these factors that were found to have significant correlation in order to find out the independent predictors of GDM diagnosis. ROC curves were constructed for independent predictors of GDM diagnosis to establish diagnostic cut-off values. A value of ≤ 0.05 was considered to be significant.

RESULTS

A total of 756 patients had been screened for GDM with a 75-g OGTT and 359 pregnant women fulfilled the inclusion criteria. Eighty-one of these 359 patients were diagnosed to have GDM (22.6%). The demographic characteristics of the patients are depicted in **Table 1**. The patients with GDM were significantly older, had screening one week later and had fetuses with lower 1 and 5 minutes-APGAR scores than the control patients (**Table 1**).

The comparison of complete blood count parameters is shown in **Table 2**. Hematocrit, RDW, PCT and NRBC were all significantly higher in the GDM patients. In the GDM patients and the controls PLR (135.2±41.1 vs 132.2±49.1, p:0.610, respectively), NLR (4.1±1.2 vs 4.1±1.8, p:0.776, respectively) and PMI (2655.8±637.8 vs 2553.8±536.8, p: 0.151, respectively) did not differ significantly. Correlation analysis showed that GDM was positively correlated with age, screening week, gravidity, hematocrit, RDW, PCT and NRBC (**Table 3**). These correlated parameters were included in the regression analysis. Age, screening week, RDW and NRBC were found to be independent predictors of GDM (**Table 4**).

Table 1. Demographic characteristics of the groups (shown as mean±standard deviation, median (interquartile range) or % where appropriate)

	Controls	GDM patients	p
Age (years)	30.4±5.2	34.9±5.7	<0.0001
Gravidity	2.3±1.6	2.7±1.5	0.06
Screening week	25.5±1.6	26.5±2.3	<0.0001
Gestational week at delivery	38.0±1.6	37.4±2.4	0.039
Fetal birthweight (grams)	3242.9±513	3172.5±705	0.418
Umbilical cord blood pH	7.3±0.1	7.2±1.0	0.274
AGGAR 1 minute	7.9±1.2	7.5±1.0	0.029
APGAR 5 minutes	9.2±0.9	8.8±1.1	0.002
Newborn intensive care unit need	14 %	38%	<0.0001

Table 2. Demographic and laboratory data of the patients with gestational diabetes and the healthy controls. (shown as mean±standard deviation or median (interquartile range) where appropriate)

	Controls	GDM patients	p
Hemoglobin (g/dL)	11.3±1	11.5±1.2	0.291
Hematocrit (%)	33.4±2.8	34.2±3.2	0.031
RDW	13.7±1.6	14.2±1.5	0.02
White Blood Cells	10.2±2.3	10.5±2.4	0.592
Neutrophils	7.4±1.9	7.7±2.1	0.256
Lymphocytes	2.0±1.2	1.9±0.5	0.482
Monocytes	0.65±0.4	0.64±0.2	0.826
Eosinophils	0.11 (0.12)	0.12 (0.1)	0.270
Basophils	0.04 (0.02)	0.030 (0.03)	0.429
Platelets(/mm^3)	244,300±58900	252,500±66,800	0.286
Platelet Distribution Width	12.6±2.9	13.1±2.5	0.224
Mean Platelet Volume	10.6±0.9	10.6±1.1	0.791
PCT	0.25 (0.07)	0.26 (0.08)	0.047
PLCR	29.2 (9.7)	29.6 (11.85)	0.627
NRBC	0 (0)	0 (0.1)	<0.0001
NRBC percentage	0 (0)	0 (0.1)	<0.0001
Immature granulocytes	0.08 (0.09)	0.08 (0.1)	0.982
Immature granulocytes percentage	0.8 (0.8)	0.9 (0.7)	0.956
PLR	132.2±49.1	135.2±41.1	0.610
NLR	4.1±1.8	4.1±1.2	0.776
PMI	2553.8±536.8	2655.8±637.8	0.151

RDW: Red cell distribution width, PCT: Plateletcrit, PLCR: Platelet large cell ratio, NRBC: Nucleated red blood cell, PLR: platelet-to- lymphocyte ratio, NLR: neutrophil-to-lymphocyte ratio, PMI: Platelet mass index

Table 3. Correlation analysis of possible factors related with gestational diabetes

	Correlation Coefficient	p
Age (years)	0.338	<0.0001
Screening week	0.229	<0.0001
Gravidity	0.130 *	0.014
Hematocrit (%)	0.114	0.031
RDW	0.160 *	0.002
PCT	0.106 *	0.047
NRBC	0.188 *	<0.0001

*: Spearman rho,
RDW: Red cell distribution width

Table 4. Regression analysis of factors independently associated with gestational diabetes

	β	t	p	95% Confidence Interval
Age	0.311	5.693	<0.0001	0.015 -0.031
Screening week	0.213	4.255	<0.0001	0.026 -0.070
Gravidity	0.008	0.150	0.881	-0.026 - 0.030
Hematocrit	0.070	1.373	0.171	-0.004 - 0.025
RDW	0.116	2.333	0.020	0.005 -0.058
PCT	0.086	1.721	0.086	-0.004 - 0.061
NRBC	0.141	2.820	0.005	3.860 -21.678

RDW: Red cell distribution width, PCT: Plateletcrit, NRBC: Nucleated red blood cell

In order to find cut-off values for RDW and NRBC to predict GDM, ROC curve analysis was performed. A RDW of 13.75 was found to predict GDM with a sensitivity of 60% and a specificity of 62.6% (**Figure 1**). For NRBC 0.005 was found to have a sensitivity of 32.5% and a specificity of 85.5% for GDM prediction (**Figure 2**). NRBC was found to be positive (>0) in 30.9 % (n:25/81) of the patients with GDM and only 14.4% of the patients without GDM (chi square, p:0.001).

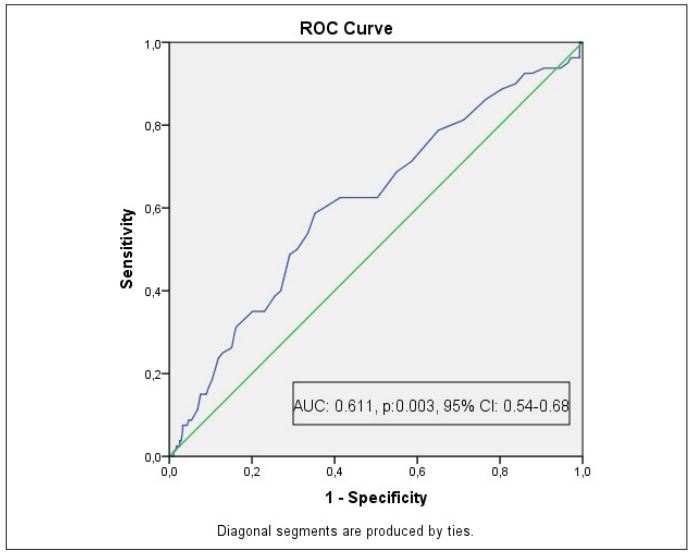

Figure 1. ROC curve analysis for red cell distribution width for gestational diabetes diagnosis
AUC: Area under the curve, CI: Confidence interval

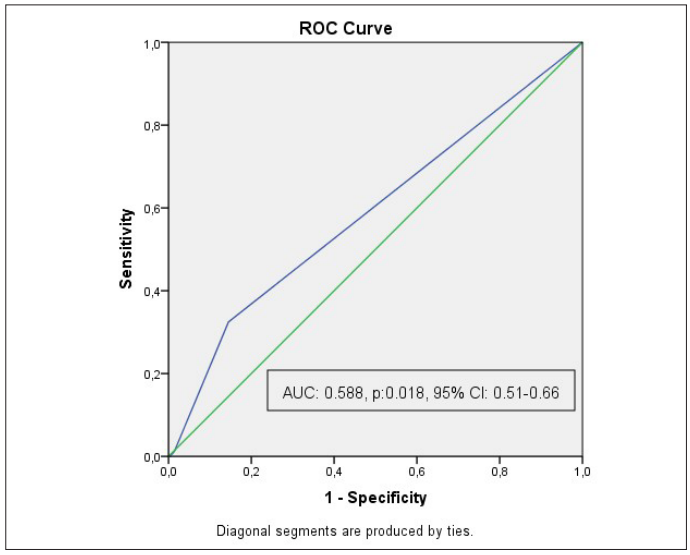

Figure 2. ROC curve analysis for nucleated red blood cell for gestational diabetes diagnosis.
AUC: Area under the curve, CI: Confidence interval

DISCUSSION

CBC is a simple, inexpensive and widely available test that provides very important data with regard to many diseases. In this study it was shown that this test also has a potential to provide clues for GDM diagnosis. RDW and NRBC, but not platelet indices, seem to have a predictive role. These findings suggest women with GDM may be accompanied with increased RDW and NRBC levels which seem to be independent predictors of this disease and these parameters may be used to monitor and evaluate the development of GDM.

GDM has been shown to be a chronic inflammatory condition that is one of the key components of the pathogenesis of insulin resistance and type 2 diabetes with increased proinflammatory cytokines.[2,6,21] This subclinical inflammation affects hematological parameters including platelets, white blood cells and red blood cells. Platelet hyperactivity has been reported in diabetes both in vivo and in vitro.[22] Platelet indices including MPV, PDW, PCT and indices such as PLR and NLR have been shown to be affected in GDM patients.[8-12] However, the results are contradictory as there are numerous studies that reported no difference in these parameters.[10,14-17] Similarly, there are contradictory results with respect to WBC and red blood cells.[13,16] Among platelet indices only PCT was found to be increased significantly in GDM patients; however, in regression analysis this association disappeared indicating that PCT is not an independently associated factor. PMI was also assessed which had not been assessed in GDM before. PMI has been suggested to be a better parameter of inflammation than MPV.[23] Again, no association was observed between PMI and GDM. Similarly, no significant difference was observed in the levels of total WBC and its subtypes including neutrophils and lymphocytes. Immature granulocytes were also assessed for the first time in GDM. Immature granulocytes had been shown to be increased in inflammatory states much earlier than conventional parameters.[24,25] No significant difference was observed in this parameter in GDM patients and controls. The possible mechanism may be that GDM is a subclinical inflammatory state and IG and PMI are associated with more clinically prominent inflammatory states. From this point the platelet indices, NLR, PLR and immature granulocytes do not seem to have a predictive value for GDM diagnosis.

RDW is a hematologic parameter that reflects anisocytosis and is expressed as the ratio between the standard deviation of RBC volumes and the mean corpuscular volume multiplied by 100. Recently it has been shown to reflect the systemic inflammatory states and has been associated with the severity and prognosis in several diseases including diabetes.[26] Anisocytosis was reported to be more prevalent in GDM.[27] In their cohort study including 16971 adults Wang et al found that each unit increase of RDW was associated with a 16% higher incident diabetes and concluded that high RDW was associated with high risk of diabetes.[25] The number of studies assessing the association between RDW and GDM is scarce and there are conflicting results. Erdogan et al retrospectively investigated 68 patients with GDM and 61 health controls.[15,28,29] They found no difference between RDW levels; however, Yildiz et al reported significantly increased RDW values in GDM patients.[28] Similarly, Cheng et al found RDW to be an independent predictor of early stage renal injury in GDM patients.[29] In the present study we showed significantly increased RDW in GDM patients and in regression analysis RDW came out to be an independent predictor of GDM. Our study included 359 pregnant women and had a larger sample size than the aforementioned studies. The possible mechanism of the increase of RDW in GDM could be explained by several pathways. Hypergylcemia and oxidative stress lead structural changes in RBC and effects lifespan of RBCs resulting in highly variable volumes of RBCs.[30-33] In addition, due to proinflammatory cytokines synthesis of erythropoietin is disturbed which results in a gradual increase in RDW values.[34,35] A RDW value of ≥13.75 of our laboratory was found to predict GDM with relatively low sensitivity and specificity with an area under the curve value of 0.611 in the ROC analysis. Based on the contractual classification system, the surface below the ROC curve in the range of 0.7–0.8 is not a strong predictor of clinical sensitivity or specificity.[36] Moreover, it must be kept in mind while interpreting this data is that as a technical issue in routine assessment of RDW, the reference range is highly analyser-dependent.[37] Our cut-off value is based on our laboratory findings.

NRBC are immature erythrocytes, produced in response to increased erythropoietin which is secreted in cases of tissue hypoxia.[28,29] In infants there are studies that show elevated NRBC count in relation with complications like hypoxia,[40] hypoxemia,[41] asphyxia, maternal diabetes, prenatal brain damage, preterm infants,[18] RDS,[42] and preeclampsia.[43] Vatansever et al.[18] demonstrated that serum erythropoietin concentrations were high in intrauterine growth restricted

infants and infants of diabetic mothers. However, there are no studies that assess the significance of NRBC in maternal circulation with respect to pregnancy complications. In this study we showed for the first time that NRBC of GDM patients increases significantly and NRBC may function as a diagnostic parameter for GDM. It was found to be independently associated factor with a relatively high specificity, but low sensitivity when a cut-off value was set at 0.005. As stated, GDM is an inflammatory state with altered erythropoietin secretion and hyperglycemia with oxidative stress may result in some degree of hypoxia for the mother. This relative hypoxic state may result with increased circulation of NRBC. However, NRBC count has a variable pattern and this must be regarded while interpreting our findings.

The main strength of the present study is that NRBC, PMI and immature granulocytes have been assessed for the first time in the GDM. All the patients were from the same clinic and all the blood analysis had been performed with the same devices which provides standardization. The retrospective design was the main drawback. And one should keep in mind while interpreting these data is that the assessed parameters are highly analyzer-dependent and variable. Therefore, prospective, single or multicenter studies that use the same analyzers with larger sample sizes would be more informative.

CONCLUSION

A simple CBC test in the 24-28 weeks of gestation seem to have informative data with respect to GDM development. Neither of the platelet indices including PMI and MPV nor white blood cell subtypes including immature granulocytes have diagnostic role for GDM. However, RDW and NRBC significantly increase in GDM patients and although laboratory and analyzer dependent and have variable serum patterns, increased RDW and NRBC levels may be useful in the assessment of patients who have increased risk for GDM.

ETHICAL DECLARATIONS

Ethics Committee Approval: Ethical Approval was obtained from Mersin University's Ethical Committee. (8/07/2020, 14/495).

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Orjinal Araştırma / Original Article

The Reliability of Quantifying the Pancreatic Ductus in Predicting the Operability of Pancreatic Adenocarcinomas

Pankreas Adenokarsinomlarında Operabilitenin Belirlenmesinde Pankreatik Kanal Çapının Güvenilirliği

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Abstract

Aim: To evaluate the quantifying of the pancreatic ductus in predicting the operability of pancreatic adenocarcinomas
Material and Method: We reviewed the clinical and imaging data of 30 patients (21 men, 9 women; mean age, 64.2 years; age range 41-93 years) who had histopathologically proven pancreatic head adenocarcinoma, and underwent multidetector CT for their initial nonspesific symptoms before the diagnosis was rendered. Accompanying secondary signs also were analysed.
Results: Thirty patients with pancreatic head adenocarcinoma were evaluated. Thirteen of them (43.3%) were found to be operable (Group A) and seventeen of them (56.7%) were found to be inoperable (Group B) radiologically and surgically. The mean caliber of the dilated pancreatic duct in Group A patients was 5.80 mm, and in Group B pateints was 9.15 mm (p=0.001). The ratio of pancreatic duct caliber to gland width was 0.46 in Group A and was 0.62 in Group B (p=0.001). Accompanying secondary signs such as choledoch dilatation, tumor size, and initial complaints showed no significant difference between the two groups.
Conclusion: The main pancreatic duct diameter and/or a ratio of duct to gland width can be useful in predicting the operability of pancreatic adenocarcinomas

Keywords: Computed tomography, pancreatic adenocarcinoma, pancreatic duct, operability

Öz

Amaç: Pankreas adenokarsinomlarının operabilitesini öngörmede pankreas kanalının çapını değerlendirmek.
Gereç ve Yöntem: Histopatolojik olarak kanıtlanmış pankreas baş adenokarsinomu olan ve tanıdan önce nonspesifik semptomları nedeniyle multidetektör bilgisayarlı tomografi uygulanan 30 hastanın (21 erkek, 9 kadın; ort. yaş, 64.2 yıl; yaş aralığı 41-93 yıl) klinik ve görüntüleme bulgularını inceledik. Eşlik eden sekonder bulgular da analiz edildi.
Bulgular: Pankreas başı adenokarsinomu olan 30 hasta değerlendirildi. Bunlardan 13'ünün (% 43,3) operabl olduğu (A Grubu) ve 17'sinin (% 56,7) radyolojik ve cerrahi olarak inoperabl olduğu (B Grubu) bulundu. Grup A hastalarında dilate pankreas kanalının ortalama çapı 5.80 mm ve Grup B hastalarında 9.15 mm ölçüldü (p = 0.001). Pankreas kanalı çapının bez genişliğine oranı Grup A'da 0.46 ve Grup B'de 0.62 bulundu (p = 0.001). Koledok dilatasyonu, tümör büyüklüğü ve ilk başvuru şikayetleri gibi eşlik eden sekonder belirtiler iki grup arasında anlamlı bir farklılık göstermedi.
Sonuç: Ana pankreas kanalı çapı ve/veya kanal çapının bez genişliğine oranı, pankreas adenokarsinomlarının operabilitesini öngörmede faydalı olabilir.

Anahtar Kelimeler: Biligisayarlı tomografi, pankreatik adenokarsinom, pankreatik kanal, operabilite

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INTRODUCTION

Pancreatic adenocarcinoma is the 9th most common malignancy; however, it is the 4th among the malignancies with the highest mortality.[1-3] Its prognosis is very poor, but the 5-year survival increases in patients with the chance of curative surgery.[4] However, the curative surgery at diagnosis is possible only in 10-20% of the patients and generally concomitant metastasis or co-existence of invasion to the adjacent structures is observed at diagnosis.[2,4,5]

The presence of metastasis is detected at diagnosis in almost 45% of the patients with pancreatic adenocarcinoma and the presence of peripancreatic vascular invasion, the criterion for inoperability, is also observed in 40%. However, the development of newer vascular reconstruction techniques and the improvements in neoadjuvant therapies have now made disease with limited vascular involvement potentially resectable.[6] The survival is limited to a few month in inoperable cases, whereas the 5-year survival is around 20% in patients with chance of surgery; this rate increases up to 75% in cases of stage 1.[5,7] Therefore, early detection of the lesions is of great importance for the chance of curative surgery, and thereby achieving an extended survival. Although the pancreatic masses of early stage are mostly in small size, all of the small-size pancreatic mass lesions do not represent the early stage.[8] This is thought to be resulted from the early extension of pancreatic adenocarcinomas over the adjacent tissues through perineural ways.[9]

Pancreatic adenocarcinoma cases are evaluated by using various imaging techniques, and the multidetector Computed Tomography (CT) is considered as the most elective imaging method.[6] The main purpose of CT imaging is to demonstrate the mass and to evaluate the resectability. The positive predictive value of CT at the evaluation of non-resectable pancreatic masses is 89-100%, while its specificity for assessment is lower in predicting resectable lesions.[10-12] A substantial part of the patients considered resectable from the evaluation by CT assessment are found to be inoperable during the operations.[13]

The present study aimed to evaluate the association of the pancreatic duct diameter and duct diameter/parenchymal thickness ratio with the resectability of masses in cases with adenocarcinoma in the head of the pancreas; and thereby to establish the reliability of these parameters in evaluating the resectability of masses in the head of the pancreas.

MATERIAL AND METHOD

Patients

The abdominal CT assessments of 93 patients with pancreatic adenocarcinoma (mean age: 58.4±9.6; 57 male, 36 female), who were histopathologically diagnosed after sampling by postoperative or minimal invasive surgical methods between June 2009–December 2013 were retrospectively examined. The pancreatic masses other than localized in the head of the pancreas and the non-adenocarcinoma lesions were excluded from the study; additionally, the patients with a detected lesion in the head of the pancreas but who had choledochal stent or surgical intervention were also excluded. In conclusion, 30 patients who were not previously diagnosed and diagnosed with mass in the head of the pancreas at admission to our institution with symptomatic complaints for the first time (21 male, 9 female; mean age: 64.2 years; age range: 41-93 years) were included in the study; the CT assessments of the patients were retrospectively examined. Additionally, the complaints of the patients at admission were classified as obstructive (n=15) (jaundice and/or pruritus), non-obstructive (n=12) (abdominal pain, weight loss, incidental (1)) and coexistence of both (n=3).

CT Technique

CT assessments were performed with Siemens Somatom AR Star (Erlanger, Germany). Standard scanning parameters were 130 kVp and 83 mA, and the slice thickness was 3 mm, and the pitch ratio was 1. After a 6 to 8-hour fasting achieved in all patients, 2 ml/kg iodized contrast agent was intravenously administered at 4 ml/s via an automatic injector to obtain contrast-enhanced sections. Non-ionic agents containing 150 mg/ml iodine were used as the contrast agent. Images were obtained at the 70th second following contrast agent injection.

Image Analysis

All images were evaluated through a workstation (Siemens Leonardo, Erlangen, Germany). CT sections were analyzed and the ratio of pancreatic duct diameter, pancreatic parenchymal thickness and pancreatic duct width to parenchyma was measured. Additionally, the mass sizes were recorded and the operability of the masses was evaluated radiologically. The invasion findings and if any, the metastatic lesions of the patients considered as inoperable were recorded. The pancreatic duct width >3 mm was considered as dilated. The choledochus >7 mm in patients below 60 years of age, >9 mm in patients above 60 years of age and >10 mm in patients who had cholecystectomy was considered dilated.[5,14] The gallbladder pathology was evaluated for hydrops. The gallbladder transverse diameter >40 mm was considered as hydropic (**Figure 1**).[15] The intrahepatic bile ducts were evaluated as either normal or dilated. Distal atrophy was defined as parenchyma in the distal of the mass. The pancreatic duct diameter and duct/parenchyma ratio (including duct diameter) were measured at the widest part of dilatation (**Figure 2**).[16] The presence of distant organ metastasis or adjacent tissue invasion was taken as the main criteria for the evaluation of inoperability. The arterial invasion was considered as the vascular circumferential contact of >180 degrees, between the mass and the vessel and the venous invasion was considered as the vascular circumferential contact of >270 degrees between the mass and the vessel or the demonstration of intraluminal invasion (**Figure 3**).[17,18]

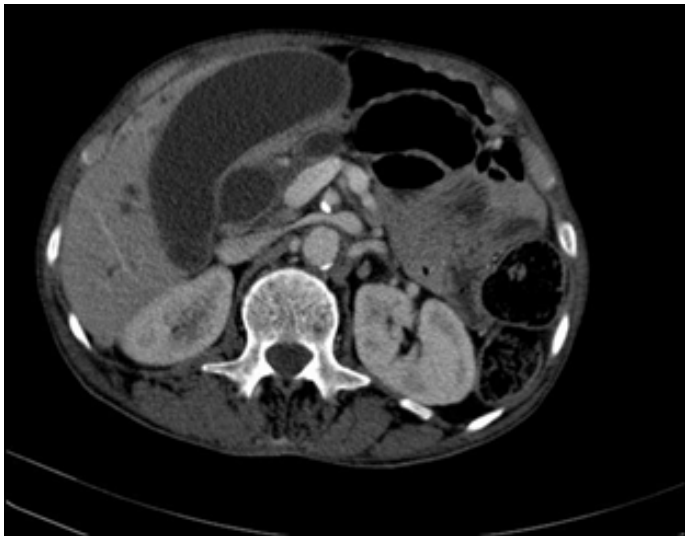

Figure 1. Axial contrast-enhanced computed tomography demonstrating hydroipc gallbladder with transverse diameter more than 40 mm.

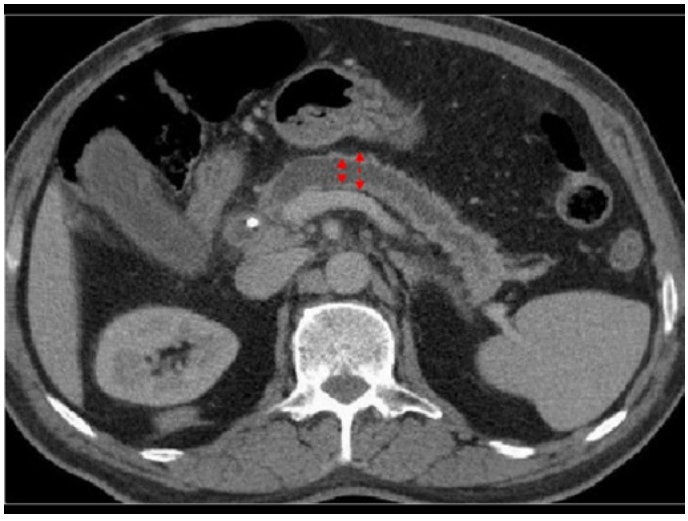

Figure 2. Axial contrast-enhanced computed tomography demonstrating the ratio of pancreatic duct caliber to width of gland (including duct).

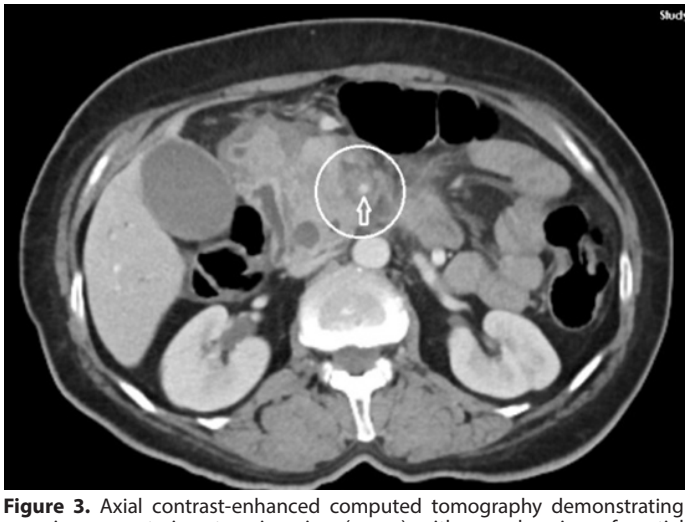

Figure 3. Axial contrast-enhanced computed tomography demonstrating superior mesenteric artery invasion (arrow) with vascular circumferential contact of >180 degrees (in circle), between the mass and the vessel.

Statistical Analysis

Descriptive statistics for studied variables (characteristics) were presented as median, mean, standard deviation, minimum and maximum values. Student t test was used to compare group means for the studied variables. For determination linear relations among the variables, Pearson correlation analysis was carried out. Cut off value of pancreatic duct and duct/gland width were determined by ROC analysis. Statistical significance levels were considered as 5%. The SPSS (ver. 13) statistical program was used for all statistical computations.

RESULTS

The CT images of 30 patients who were diagnosed with adenocarcinoma in the head of the pancreas at initial admission were retrospectively evaluated. It was found that only 1 of 14 patients who were considered operable radiologically (Group A) was inoperable due to portal venous invasion during the operation. Of 17 (56.7%) patients considered inoperable (Group B); 6 (35.3%) had vascular invasion, 3 (17.6%) had vascular invasion and metastasis, 4 (23.5%) had metastasis, 3 (17.6%) had adjacent organ invasion and 1 (5.9%) had vascular and adjacent organ invasion (**Figure 4A, B, C**).

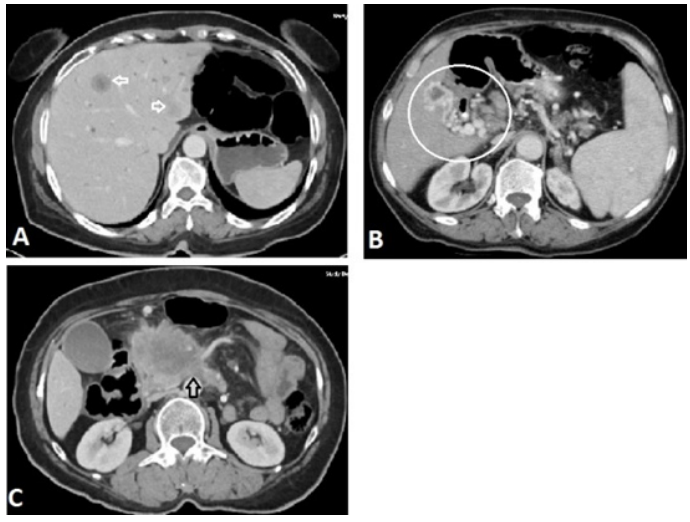

Figure 4. Axial contrast-enhanced computed tomography demonstrating patients considered inoperable with **(A)** hepatic metastasis, **(B)** vascular invasion resulting in cavernous transformation (in circle), and **(C)** duodenal invasion.

In Group A patients; the mean age was 65.54±10.43 years, the mean pancreatic duct diameter was 5.80±1.60 mm, the mean choledochus diameter 15.38±3.98 mm, the pancreatic duct/parenchymal thickness (including duct) ratio was 0.462 and the mean mass widest axial size was 3.06±0.76 cm. In Group B patients; the mean age was 63.18±13.79 years, the mean pancreatic duct diameter was 9.15±2.94 mm, the mean choledochus diameter 16.87±3.34 mm, the duct/parenchymal thickness (including duct) ratio was 0.627 and the mean mass widest axial size was 4.17±1.61 cm. For all patients; the mean age was 64.2±12.3 years, the mean pancreatic duct diameter was 7.7±2.94 mm, the mean choledochus diameter 16.23±3.64 mm, the duct/parenchymal thickness (including duct) ratio was 0.55 and the mean mass widest axial size was 3.69±1.40 cm (**Table 1**).

Table 1. Descriptive statistics					
	N	Minimum	Maximum	Mean	SD
Pancreatic duct (mm)	30	3	15	7.70	2.944
Choledoch (mm)	30	8	23	16.23	3.644
Duct/Gland Width	30	.3	.8	.555	.1422
Age (year)	30	41	93	64.20	12.305
Tumor Size (cm)	30	2	8	3.69	1.405
SD: Standart Deviation					

Patients were evaluated in 3 categories based on their complaints at initial admission; obstructive, non-obstructive and co-existence of both. Of the patients (n=30); 15 (50%) presented with obstructive complaints (operable=7, inoperable=8), 12 (40%) with non-obstructive complaints (operable=6, inoperable=6) and 3 (10%) with both obstructive and non-obstructive complaints (all inoperable). The statistical assessment did not reveal any statistically significant difference in operability between the patients presenting with obstructive and non-obstructive complaints based on the complaints at initial admission (p=0.275). The presentation and descriptive statistics and the comparison results of the patients at initial admission are presented in **Tables 2** and **3.** When the pancreatic duct diameter was used to differentiate the operable and inoperable adenocarcinoma (Group A and Group B) among the patients included in the study, the power of differentiation was found to be 85.3% (p=0.001); and when the duct diameter/parenchymal thickness ratio was used, this value was found to be 86% (p=0.001) (**Figure 5**). When the cut-off value for the duct diameter was taken as 6.8 mm, the sensitivity and specificity were calculated as 82.4% and 84.6%, respectively. When the cut-off value for the duct diameter/parenchyma ratio was taken as 0.5, the sensitivity and specificity were calculated as 94.1% and 76.9%, respectively.

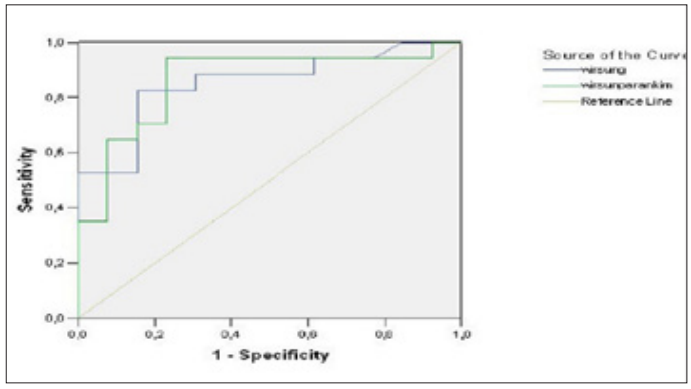

Figure 5. ROC curve. The relationship of duct caliber and pancreatic duct width to parenchyma between operability were evaluated. Area under the curve is 0.853 and 0.860 for duct caliber and the ratio, respectively.

Table 2. Descriptive statistics and comparison results acording to presentation

	presentation	Mean	Median	St. Dev.	Maximum	Minimum	p
Pancreatic duct (mm)	0	8.23	8.60	2.92	12.80	3.20	.489
	1	7.37	6.55	3.30	15.00	3.70	
	2	6.40	6.40	.90	7.30	5.50	
Choledoch (mm)	0	16.46	17.10	3.91	21.00	8.20	.598
	1	16.16	15.55	3.79	23.00	12.00	
	2	15.33	16.20	2.23	17.00	12.80	
Duct/Gland Width	0	.58	.61	.16	.80	.30	.512
	1	.53	.52	.11	.72	.35	
	2	.50	.52	.17	.66	.33	
Age (year)	0	65.87	59.00	14.29	93.00	49.00	.307
	1	65.00	62.00	8.92	83.00	53.00	
	2	52.67	57.00	10.21	60.00	41.00	
Tumor Size (cm)	0	3.85	3.80	1.60	8.00	1.50	.645
	1	3.65	3.50	1.27	6.00	1.80	
	2	3.03	3.00	.95	4.00	2.10	

Table 3. Descriptive statistics and comparison results acording to operability

	Operability	Mean	Median	St. Dev.	Maximum	Minimum	p
Pancreatic duct (mm)	0	5.80	5.80	1.60	8.60	3.20	.001
	1	9.15	8.90	2.94	15.00	4.50	
Choledoch (mm)	0	15.38	15.10	3.98	22.80	8.20	.276
	1	16.87	17.00	3.34	23.00	12.00	
Duct/Gland Width	0	.46	.48	.11	.69	.30	.001
	1	.63	.62	.12	.80	.33	
Age (year)	0	65.54	63.00	10.43	83.00	49.00	.345
	1	63.18	59.00	13.79	93.00	41.00	
Tumor Size (cm)	0	3.06	3.20	.76	4.00	1.50	.028
	1	4.17	4.10	1.61	8.00	1.80	

DISCUSSION

The association between pancreatic duct dilatation and pancreatic cancer was first reported by Burger and Blaunstein in 1974. In the later years, studies were reported about the role of the duct abnormalities in the differentiation of pancreatic cancer and pancreatitis.[19] The pancreatic duct-to-parenchyma ratio also can be helpful in determining the degree of suspicion for malignancy. At endoscopic US, a pancreatic duct to parenchyma ratio of greater than 0.34 strongly favors the diagnosis of malignancy. In patients with a pancreatic duct-to-parenchyma ratio of greater than 0.34, there is marked upstream pancreatic ductal dilatation with marked parenchymal atrophy, which are the imaging hallmarks of cancer. Relatively mild ductal dilatation with mild upstream parenchymal atrophy.[19] Other than malignancy or non-neoplastic inflammation, benign lesions such as intraductal papillary mucinous neoplasm (IPMN) can also lead to dilatation. Main pancreatic duct dilatation could represent an indirect sign of the presence of neoplastic papillae growing into the duct, too.[20] Although, there have been recent studies on the significance of duct abnormalities in the mass detection, we could not identify any studies aimed at investigating the association of duct dilatation and operability in the current literature based on our research.[19] The present study investigated the association of pancreatic duct diameter and duct/parenchymal thickness ratio with resectability in the adenocarcinomas in the head of the pancreas and the potential to use these parameters in predicting operability or inoperability.

Adenocarcinomas account for 90-95% of the primary pancreatic malignancies and 60-65% of these are localized in the head of the pancreas.[21,22] Symptoms are variable and non-specific; but the most common are weight loss, pain and jaundice. The present study investigated the association of symptoms with resectability by categorizing symptoms as obstructive and non-obstructive, and no statistical significance was found (p=0.275). The present study found no statistical significance between presentation and pancreatic duct diameter (p=0.489); choledochus diameter (p=0.598); duct/parenchyma ratio (p=0.512); age (p=0.307) and mass size (p=0.645).

The inoperability criteria for pancreatic adenocarcinoma include metastasis, vascular invasion and adjacent organ invasion. The criteria defined above can be easily evaluated using sectional imaging methods and the positive predictive value of CT for detecting inoperable masses reaches up to 100% when these criteria are taken as references.[23] However, the negative predictive value of CT, which cannot provide the same level of success for demonstrating the resectable masses, is 80-94%.[6,24] The primary reason for this fault due to the CT assessment in evaluating resectability has been reported as the presence of minimal vascular invasions that cannot be demonstrated clearly.[24,25] In the present study, vascular invasion was detected in 1 (5.9%) of 17 patients during the surgery.

Choledochus[19] and main pancreatic duct dilatation (double duct sign) is suggestive of a mass in the head of the pancreas; however, it is reported that this symptom can be seen in benign pathologies, too.[26] In the present study, the choledochus was observed as dilated in all of the cases, and the mean diameter was 15.38±3.98 mm in Group A patients and 16.87±3.34 mm in Group B patients. There was no statistically significant difference in choledochus diameter between two groups (p=0.276).

The study by Karasawa et al.[16] for the differentiation of pancreatic adenocarcinoma from chronic pancreatitis reported that almost 90% of the patients with a duct/parenchyma ratio >0.5 had carcinoma. However, no information was provided about resectability. In the present study, the duct/parenchyma ratio was found to be 0.46±0.11 mm in Group A compared to 0.63±0.12 in Group B. A statistically significant difference was found between two values (p=0.001). The duct/parenchyma ratio of all patients included in the study (n=30) was calculated as 0.555±0.142, and this value is similar to the findings of Karasawa et al.[16] Nevertheless, Karasawa et al.[16] interpreted the ratio of <0.5 in favor of benignity, whereas the mean duct/parenchyma ratio was found to be 0.46 in Group A patients in the present study. Given that the pancreatic adenocarcinomas are generally inoperable at initial diagnosis, this difference is understandable.[5] When the cut-off value of duct/parenchymal thickness ratio was taken as 0.5, it is possible to detect the operable patients with a sensitivity of 94.1% and a specificity of 76.9%.

In the present study, the pancreatic duct diameter is significantly different in Group A and Group B patients (p=0.001). The mean pancreatic duct diameter was 5.80± 1.60 mm in Group B compared to 9.15±2.94 mm in Group B. When the cut-off value of duct diameter was taken as 6.80, it is possible to detect the operable patients with a sensitivity of 82.4% and a specificity of 84.6%. When the pancreatic duct diameter was taken as a reference, the power of differentiation was found to be 85.3% and when the duct/parenchymal thickness ratio was used, this value was found to be 86%. Since the power of differentiation of both techniques is similar, we believe that it will be more practical to use the duct diameter for evaluating operability.

Due to the low socioeconomic and sociocultural level, patients generally come to our center when the symptoms become unbearable and are diagnosed in the inoperable period. And also the operable patients go to larger centers and thereby we cannot obtain the surgical outcome. Therefore, the number of operable and total patients is low in the present study, and this is the most important limitation of the study. The present study is also limited to the inclusion of patients only with the masses localized in the head of the pancreas. Studying duct diameter and duct/parenchyma ratio in adenocarcinomas localized in the head and other parts of the pancreas at more advanced centers may provide significant contribution to the literature.

CONCLUSION

Pancreatic adenocarcinomas are aggressive lesions and the survival may significantly improve in patients with a chance of surgery. The pancreatic duct diameter and/or duct/parenchyma ratio may indicate resectability at high rates in ductal adenocarcinomas. However, large-sample studies are required.

ETHICAL DECLARATIONS

Ethics Committee Approval: In this research, the data before 2020 was used and the research was concluded before 2020. According to the Regulation on Clinical Researches published in the Official Gazette of the Republic of Turkey with the number 28617 dated 3 November 2015, the ethics committee approval was not obtained in accordance with the article "Retrospective studies are outside the scope of the regulation (article 2- (2))". This study was prepared in accordance with the Law on Protection of Personal Data, by anonymizing patient data and in accordance with the 2013 Brazil revision of the Helsinki Declaration and guidelines for Good Clinical Practice.

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

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Orjinal Araştırma / Original Article

Sinonasal Anatomic Variations and Relationship with Sinonasal Inflammatory Mucosal Disease: A Computed Tomography Study

Sinonazal Anatomik Varyasyonlar ve Sinonazal İnflamatuar Mukozal Hastalık ile İlişkisi: Bilgisayarlı Tomografi Çalışması

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Abstract

Objective: To evaluate sinonasal anatomic variations on the paranasal computed tomography (CT) scans and to investigate association with sinonasal inflammatory mucosal disease.

Materials and Methods: Between January 2019 and December 2019, paranasal CT scans of 279 adult patients were retrospectively analyzed. Patients data were obtained from medical and imaging records. On CT examinations, each anatomic variation was evaluated with respect to side and bilaterality. We investigated statistically coexistence between anatomic variations and presence of sinonasal inflammatory mucosal disease.

Results: Our results showed high prevalence of sinonasal anatomic variations. The most common anatomic variation was nasal septal deviation (65.2%), followed by concha bullosa (41.6%)and septal spur (28.7%). We found a statistically significant relationship between concha bullosa and sinonasal inflammatory mucosal disease (p=0.009) which was observed especially in bulbous (p=0.048) and extensive types(p=0.017). No significant association was noted with the other anatomic variations.

Conclusion: Concha bullosa, particularly bulbous and extensive types have a tendency to cause sinonasal inflammatory mucosal disease.

Keywords: Sinonasal cavity, anatomic variation, computed tomography, mucosal disease, rhinosinusitis

Öz

Amaç: Paranazal bilgisayarlı tomografi (BT) incelemeleri değerlendirilerek sinonazal anatomik varyasyonlar ve bu varyasyonların sinonazal inflamatuar mukozal hastalık ile ilişkisinin ortaya konması amaçlandı.

Gereç ve Yöntem: Ocak 2019 ile Aralık 2019 arasında 279 yetişkin hastanın paranazal BT incelemeleri retrospektif analiz edildi. Tıbbi ve görüntüleme kayıtlarından hasta verileri elde edildi. BT incelemelerinde her anatomik varyasyon yerleşimine göre kaydedildi. Anatomik varyasyonlar ile sinonazal inflamatuar mukozal hastalığın birlikteliği istatistiksel yöntemler kullanılarak araştırıldı.

Bulgular: Bu çalışmada sinonazal anatomik varyasyonların oldukça yüksek prevalansı olduğunu gösterdik. En sık görülen anatomik varyasyon nazal septal deviasyon(%65,2) iken, bunu konka bülloza (%41,6) ve septal spur (%28,7) izledi. Özellikle bulböz (p=0,048) ve yaygın (p=0,017) tiplerinde olmak üzere konka bülloza (p=0,009) ile sinonazal inflamatuar mukozal hastalık arasında istatistiksel olarak anlamlı bir ilişki bulduk. Diğer anatomik varyasyonlarla istatiksel anlamlı bir ilişki saptanmadı.

Sonuç: Özellikle bulböz ve yaygın tipleri olmak üzere konka büllozanın, sinonazal inflamatuar mukozal hastalığa neden olma eğilimi vardır.

Anahtar Kelimeler: Sinonazal kavite, anatomik varyasyon, bilgisayarlı tomografi, mukozal hastalık, rinosinüzit.

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INTRODUCTION

Anatomic variations in sinonasal cavity are highly prevalent and thought to be predisposing factors for the development of sinonasal disease or surgical complications. For the evaluation of sinonasal cavity, plain radiographs were traditionally initial imaging modality. Due to overlapping anatomic structures conventional radiography has now been replaced by high-resolution CT.[1]

Sinonasal inflammatory mucosal diseases (SIMD) also known as allergic rhinitis or rhinosinusitis, are one of the most common health problems affecting children and adults around the world.[2] CT is the imaging modality of choice in assessment of the sinonasal cavity and routinely performed before undergoing functional endoscopic sinus surgery (FESS), the aim of which is to restore the normal mucociliary drainage pathways.[1,3] Therefore it is essential for radiologist to report the anatomy of the drainage pathways and clinical important anatomic variations. Also knowing the details of the anatomy of the sinonasal cavity and the extent of pneumatization can guide the surgeon to avoid complications.[4,5]

Recently several studies have investigated the relationship between sinonasal anatomic variations and SIMD however, there has been no consensus whether anatomic variation may play a significant role in the etiology of any sinus disease. Thus this study aims to evaluate the sinonasal anatomic variations on the paranasal CT scans and to investigate the relationship with SIMD.

MATERIAL AND METHOD

We retrospectively reviewed the medical records of 279 adult patients (≥ 18 years) who underwent paranasal CT scan with suspicion of sinonasal abnormality from January 2019 to December 2019. Cases with prior history of sinonasal surgery, trauma, polyposis, malignancy or congenital malformation were excluded. For eligible cases, medical charts were reviewed for demographic characteristics and CT findings.

CT scans were performed without contrast using 16-slice CT scanner (Toshiba Alexion Advance Edition 16, Japan). All scans were obtained using 3 mm thickness in axial and coronal planes with sagittal reconstruction. Evaluation was performed by two experienced radiologists (5 and 7 years of experience) retrospectively.

On CT examinations, patients were considered positive who had one of the following anatomic variations: nasal septal deviation, septal spur, concha bullosa (lamellar, bulbous and extensive type), paradoxical middle turbinate, infraorbital ethmoidal (Haller) cell, sphenoethmoidal (Onodi) cell, uncinate cell, agger nasi cell, crista galli pneumatization, anterior clinoid process pneumatization, infraorbital nerveprotrusion into maxillary sinus and vidian nerve protrusion into sphenoid sinus. Each anatomic variation was evaluated with respect to side and bilaterality. As similar to previous studies the following imaging findings were considered as SIMD:

- Presence of diffuse mucosal thickening with ≥5 mm in the frontal, maxillary, and sphenoid sinuses
- Presence of air-fluid level or partial/total opacification in any sinus.
- Reactive adjacent bone changes such as sclerosis, decalcification, and erosion.[4]

Then all patients were distributed into two groups according to imaging findings: with or without radiologically SIMD. The role of anatomic variations on SIMD was evalauted by comparison with the two groups.

Data obtained were analyzed using the IBM SPSS Statistics software, version 24.0 (SPSS Inc, Chicago, IL, USA.) Continuous variables were expressed as median (minimum-maximum) and categorical values as number (percentage). The distributions of the continuous were tested for normality by using the Shapiro-Wilk test. The chi-square test was used to significance the correlation between the independent two groups. A p-value ≤ 0.05 was considered as statistically significant.

This retrospective study was approved by Kütahya Sağlık Bilimleri University Non-Interventional Research Ethics Board (06 February 2020, IRB number: 2020/03-18) and written informed consent was obtained from each patient before the study.

RESULTS

A total of 279 patients were (female/male : 158/121; mean age: 41±15years, range 18-91 years) included in this study. Anatomic variations in sinonasal cavity were noted on 263 (94.3%) CT scans. An anatomic variation no observed in 16 (5.6%) patients. Anatomic variations were detected mostly around the ostiomeatal unit. The most frequent anatomic variation observed was nasal septal deviation (65.2%), followed by concha bullosa (41.6%), septal spur (28.7%), vidian nerve protrusion into sphenoid sinus (25.4%) Haller cell (21.9%), agger nasi cells (19.7%), Onodi cell (18.3%), anterior clinoid process pneumatization (17.9%), infraorbital nerveprotrusion into maxillary sinus (12.5%), uncinate cell (10%), paradoxical middle turbinate (5.7%), crista galli pneumatization (5%) (**Figure 1 and 2**). Right-sided nasal septal deviation (33%) was found to be slightly more common than left-sided and S-curved deviation (27.6% and 4.7%, respectively). Septal spurs were more frequently associated with nasal septal deviation except for only 0.7% patients. All concha bullosa were detected in middle turbinate and the lamellar type was the most common type accounting for 20.1% of all patients. Most anatomic variation observed on the left side whereas Onodi cell was seen more on the right side. Also bilaterality was observed predominantly among concha bullosa, infraorbital nerveprotrusion and vidian nerve protrusion into sinus. The frequencies of the anatomic variations of paranasal

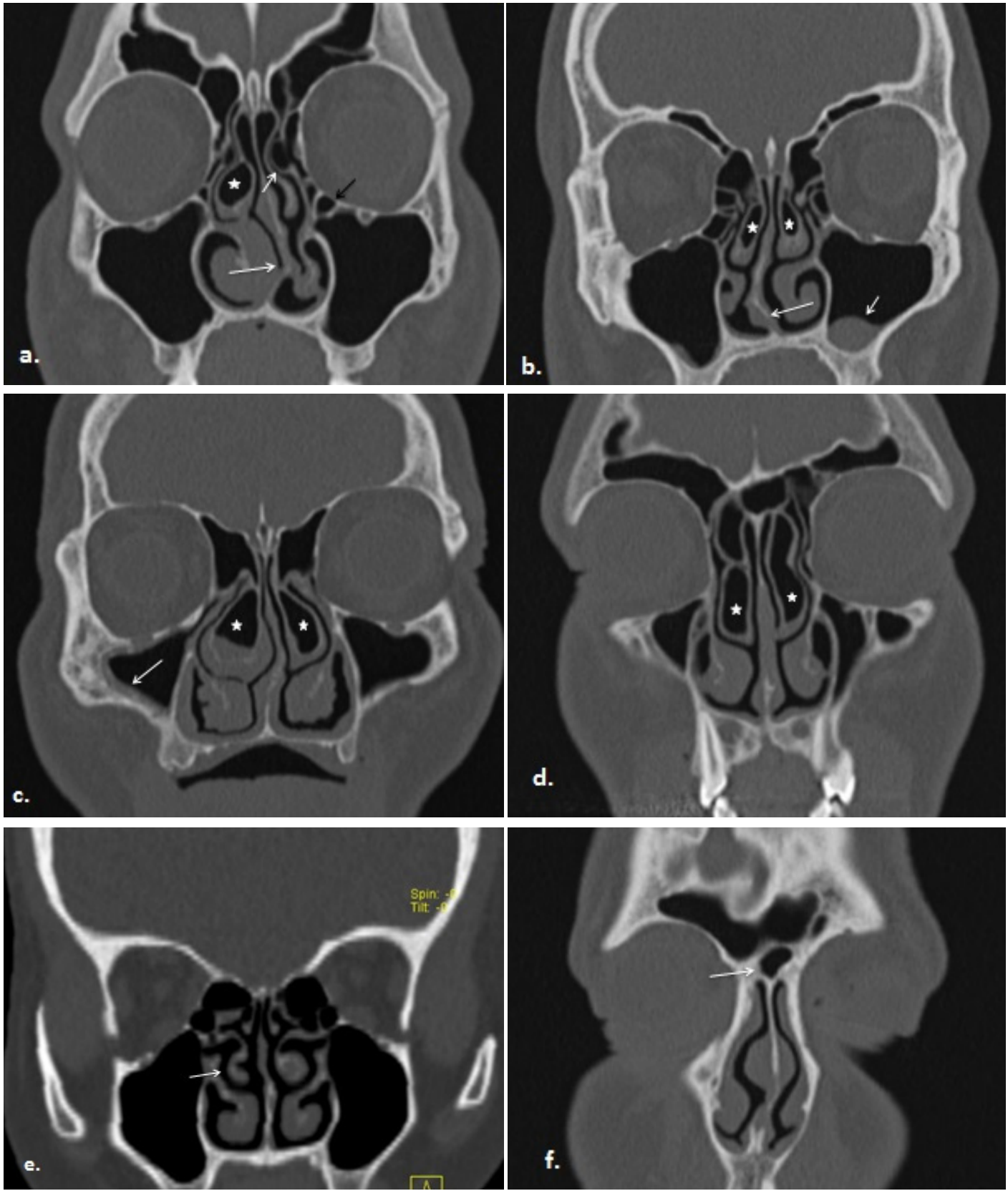

Figure 1. Coronal CT images (a-e) show different sinonasal anatomic variations. a:Left sided nasal septum deviation (long white arrow), right bulbous type concha bullosa (star), left uncinat cell (short white arrow) and left Haller cell (black arrow); b: Right-sided nasal septum deviation (long white arrow), mucosal thickening of the left maxillary sinus (short white arrow) and bilateral lamellar type concha bullosa (stars); c: Bilateral bulbous type (fluid within right side) concha bullosa (stars) and mucosal thickening of the right maxillary sinus (arrow); d: Bilateral extensive type concha bullosa (stars); e: Right paradoxical middle turbinate (arrow); f: Agger nasi cell (arrow).

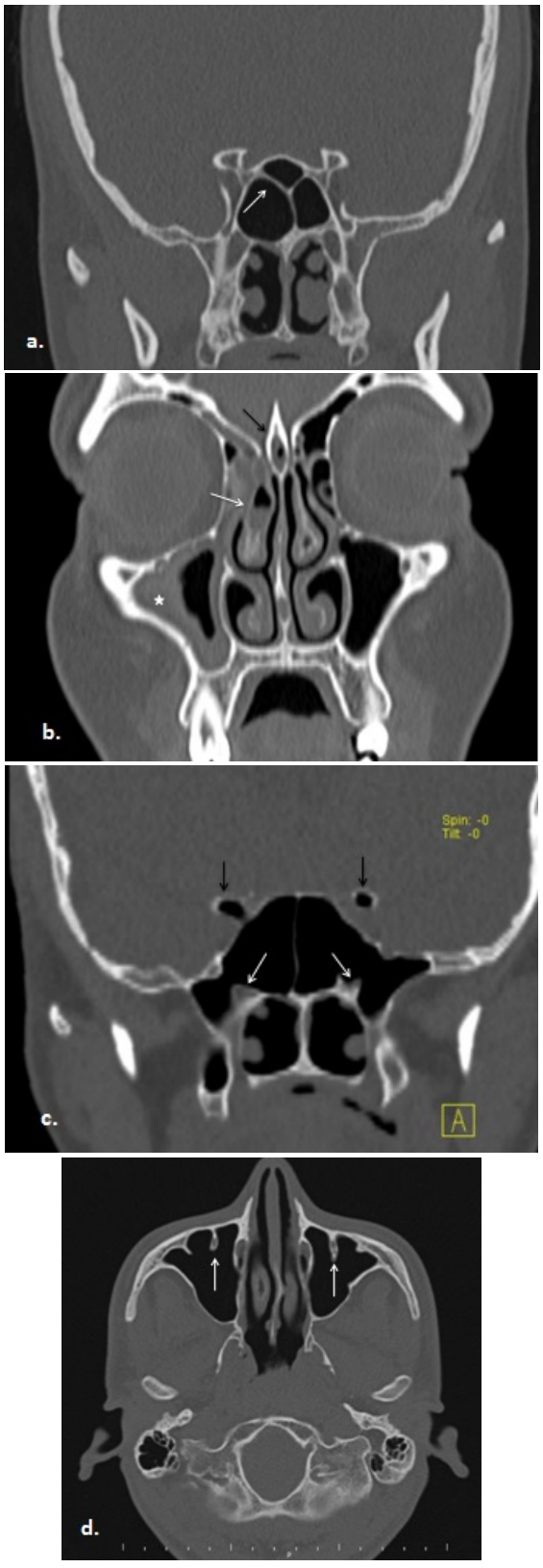

Figure 2. Coronal (a-c) and axial (d) CT images show different sinonasal anatomic variations. a: Onodi cell (arrow); b: Mucosal thickening within the pneumatized crista galli (black arrow) and right maxillary sinus (star) and fluid within right concha bullosa (white arrow); c: Bilateral anterior clinoid process pneumatization(black arrows) and bilateral vidian canal protrusion into the sphenoid sinus (white arrows); d: Bilateral maxillary nerve protrusion into the maxillary sinus (arrows).

Table 1. Patients' characteristics and the prevelance of sinonasal anatomic variations

	n(%)
Total number of patients	279
Age -year, mean ± standard deviation, (range)	41±15 (18-91) years
Gender	
Female	158 (56.6%)
Male	121 (43.4%)
Presence of sinonasal mucosal inflammatory disease	172 (61.6%)
Anatomic variation	263 (94.3%)
Septal Deviation	182 (65.2%)
Right-sided	92 (33%)
Left-sided	77 (27.6%)
S-curved	13 (4.7%)
Septal spur	80 (28.7%)
Septal spur with septal deviation	78 (27.9%)
Right-sided	37 (13.3%)
Left-sided	39 (13.9%)
Only septal spur	2 (0.7%)
Left-sided	
Concha bullosa	118 (41.6%)
Right-sided	34 (12.2%)
Left-sided	32 (11.5%)
Bilateral	52 (18.6%)
Lamellar type	56 (20.1%)
Bulbous type	25 (9%)
Extensive type	35 (12.5%)
Paradoxical middle turbinate	16 (5.7%)
Right-sided	2 (0.7%)
Left-sided	14 (5%)
Agger nasi cell	55 (19.7%)
Haller cell	61 (21.9%)
Right-sided	28 (10%)
Left-sided	31 (11.1%)
Bilateral	2 (0.7%)
Onodi cell	51 (18.3%)
Right-sided	32 (11.5%)
Left-sided	17 (6.1%)
Bilateral	2 (0.7%)
Uncinate cell	28 (10%)
Right-sided	12 (4.3%)
Left-sided	15 (5.4%)
Bilateral	1 (0.4%)
Anterior clinoid process pneumatization	50 (17.9%)
Right-sided	2 (0.7%)
Left-sided	26 (9.3%)
Bilateral	22 (7.9%)
Crista galli pneumatization	14 (5%)
Protrusion of the maxillary nerve into maxillary sinus	35 (12.5%)
Right-sided	2 (0.7%)
Left-sided	8 (2.9%)
Bilateral	25 (9%)
Protrusion of the vidian nerve into sphenoid sinus	71 (25.4%)
Right-sided	6 (2.2%)
Left-sided	19 (6.8%)
Bilateral	46 (16.5%)

sinuses were summarized in **Table 1**.

SIMD was seen in 172 patients (61%) the remaining patients were considered as control group. Anatomic variations of sinonasal cavity were also associated with high prevalencerate of SIMD varying from 52.7% to 85.7%. Only, there was statistically significant relation between concha bullosa and SIMD (p=0.009). Additionally the bulbous and extensive types of concha bullosa were found significantly higher in patients with SIMD (p=0.048 and p=0.017, respectively). No statistically significant association was found in patients with the other anatomic variations (p>0.05 for all) The relation between sinonasal anatomic variations and SIMD was illustrated in **Table 2.**

Table 2. The relation between sinonasal anatomic variations and sinonasal inflammatory mucosal disease

	Sinonasal anatomic variations (+)	Presence of sinonasal inflammatory mucosal disease n (%) (-)	P value*
Septal Deviation	110 (64%)	72 (36%)	0.569
Septal spur	53 (66.3%)	27 (33.8%)	0.316
Concha bullosa	82 (70.7%)	34 (29.3%)	0.009
Lamellar type	35 (61.4%)	22 (38.6%)	0.966
Bulbous type	20 (80%)	5 (20%)	0.048
Extensive type	28 (80%)	7 (20%)	0.017
Paradoxical middle turbinate	10 (62.5%)	6 (37.5%)	0.943
Agger nasi cell	29 (52.7%)	26 (47.3%)	0.129
Haller cell	41 (67.2%)	20 (32.8%)	0.312
Onodi cell	33 (64.7%)	18 (35.3%)	0.619
Uncinate cell	20 (71.4%)	8 (28.6%)	0.262
Anterior clinoid process pneumatization	30 (60%)	20 (40%)	0.791
Crista galli pneumatization	12 (85.7%)	2 (14.3%)	0.057
Protrusion of the maxillary nerve into maxillary sinus	24 (68.6%)	11 (31.4%)	0.368
Protrusion of the vidian nerve into sphenoid sinus	49 (69%)	22 (31%)	0.139

* p-value ≤ 0.05

DISCUSSION

Sinonasal cavity is an important anatomical and functional unit consisting of air-filled cavities located in the bone surrounding the nasal cavity and are closely related to upper airway.[6] Imaging of the sinonasal cavity is crucial to define anatomic structures and extent and severity of sinonasal diseases. Paranasal CT scan is an important diagnostic imaging technique in delineating accurately the normal anatomy and anatomic variations, by dramaticallly improving the evaluation compared to plain radiographs.[7-9]

FESS is the main minimally-invasive technique specifically for chronic sinusitis, which is used to restore sinus ventilation and normal sinus function. Consequently systematic CT analysis of the sinus disease, sinus drainage pathways, anatomic variations, and surrounding soft tissues leads to a crucial report which provides a road map for the surgeons prior to FESS.[10,11] Recent developments in imaging and widespread of FESS have led to evaluate the sinonasal anatomic variations. Until now, many studies have been reported anatomic variations of sinonasal cavity with quite different prevalences.[1,7,11-13] This wide range of prevalence could be probably depending on the diagnostic method, definition, case selection, race etc. [3,10] In our study, nearly similar prevalence rates of anatomic variations were obtained when comparing with the previous findings reported in the literature.

Despite its prevalence and significant health impact, the etiology of rhinosinusitis remains incompletely understood and is thought to be multifactorial such as infection, allergy, altered immunity, different sinus drainage pathways or a combination of these factors.[13,14] Most clinicians consider that some anatomic variations especially around the ostiomeatal unit including septal deviation, concha bullosa, middle turbinate pneumautization, agger nasi cell, uncinate cell, Haller cell may be a cause of obstruction which can contribute to rhinosinusitis. But the others such as Onodi cell, infraorbital nerve, vidian nerve or internal carotid artery protrusion into the sinuses are critical for determination of performing FESS. [15]

In literature, several researchers with comparative studies have not been yet reached a consensus whether anatomic variations play a role in development of sinus disease. Some studies have noted no significant association between these anatomic variations and rhinosinusitis.[16-20] On the other hand, some studies have reported significant differences between the prevalence of certain anatomical variations and rhinosinusitis.[11] In one study septal deviation, bilateral concha bullosa, medial deviation of uncinate process, Haller cell, agger nasi cell, hypertrophic ethmoidal bullawere found to be significantly associated with sinonasal mucosal diseases. [21] Kaya et al.[22] noted a statistically significant relationship between hypertrophy of middle concha, concha bullosa, agger nasi cells, Onodi cells, uncinate bulla, and the medial and lateral deviations of uncinate process and sinusitis. Another study showed that uncinate bulla and giant ethmoid bulla were significantly associated with sinonasal mucosal disease. [15] Also Alkire et al.[23] showed an association between Haller cells and recurrent acute rhinosinutsitis. In one study septal deviation, concha bullosa and infraorbital ethmoidal (Haller) cells which contribute to the narrowing of the osteomeatal complex, were associated with sinus mucosal disease. [24] In the present study we found a significant relationship between concha bullosa and SIMD. No significant difference were identified in the prevalence of of the other anatomic variations between patients with and without clinically significant radiologic evidence of SIMD. As well, bulbous and extensive type concha bullosa were found significantly higher in patients with rhinosinusitis.

With regard to the retrospective nature, some limitations need to be acknowledged. We did not have access to information

about FESS results. It is a retrospective single-center study with a relatively small sample size. Therefore our results may not reflect entire population.

CONCLUSION

Knowing the anatomic variations is crucial for the radiologist and surgeon in order to allow accurate diagnosis and management of surgery and avoid surgical complications. The current study extends our knowledge of anatomic variations of the sinonasal cavity and contributes to the current understanding of the role of anatomic variations of the sinonasal cavity on development of SIMD. Our results confirm previous researchs that anatomic variations have a wide range ofprevalence. Also we found statistically significant relationship between concha bullosa especially bulbous and extensive types and SIMD. However several questions still remain to be answered. We believe that there is a need for multi-center studies with larger number of patients, wider range of population group in order to increase the validity and generalizability of findings.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was approved by Kütahya Sağlık Bilimleri University Non-Interventional Research Ethics Board(06 February 2020, IRB number: 2020/03-18).

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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KOAH Hastalarında Sigara Bağımlılık Düzeyinin Hastaların Kaygı Düzeylerine Etkisi

The Effect of Smoking Dependence Level on Patients' Anxiety Levels of COPD Patients

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Öz

Amaç: Çalışmamızda önemli bir toplum sağlığı sorunu olan ve kişiyi ruhsal yönden de etkileyen KOAH'da hastaların kaygı düzeylerini ölçmeyi ve sigaranın kaygı düzeylerine olan etkisini göstermeyi amaçladık.

Gereç ve Yöntem: Çalışmamız Mart 2016 – Haziran 2016 tarihleri arasında S.B Ankara Eğitim ve Araştırma Hastanesi Aile Hekimliği ve Göğüs Hastalıkları polikliniklerinde yürütüldü. Çalışmamıza sözlü ve yazılı onamları alınan 147 KOAH hastası dahil edildi. Hastaların genel demografik bilgileri alındıktan sonra Solunum Fonksiyon Testi, "Fagerström Nikotin Bağımlılık Ölçeği" ve "Durumluk ve Sürekli Kaygı Ölçeği" uygulandı

Bulgular: Çalışmamıza 56 (%38,1) kadın ve 91 erkek (%61,9) olmak üzere 35-80 yaş aralığındaki toplam 147 KOAH hastası dahil edildi. Tüm hastalara "Durumluk ve Sürekli Kaygı Ölçeği" uygulandı. Sigara kullanımı olan 86 (%58,5) hastaya "Fagerström Nikotin Bağımlılık Ölçeği" uygulandı. Hastaların ortalama kaygı ölçeği skorları normal değerlerden yüksek bulundu. KOAH şiddeti, ek bir kronik hastalık varlığı ve yaş ile hastaların kaygı düzeyleri arasında anlamlı ilişki bulundu. Hastalık şiddetinin artması, ek kronik bir hastalık varlığı ve yaşın yüksek olması hastaların kaygı düzeylerini anlamlı bir şekilde artırdı.

Sonuç: KOAH hastalarında kaygı düzeyleri artmaktadır. Bu hastaları ilk ve en sık gören aile hekimleri hastaları mutlaka psikolojik olarak da değerlendirmeli ve şüphelendiği hastaları uzman bir psikiyatri hekimine yönlendirmelidir. Ayrıca tüm KOAH hastalarına mevcut ruhsal durumundan bağımsız olarak sigarayı bırakmaları yönünde gerekli olan rehberlik ve sosyal destek sağlanmalıdır.

Anahtar Kelimeler: KOAH, Fagerström nikotin bağımlılık ölçeği, durumluk ve sürekli kaygı ölçeği

Abstract

Aim: COPD is a significant public health problem that also affects the mental aspect. In this study we aimed to show the effects of smoking on anxiety in COPD patients by measuring anxiety levels.

Material and Method: Our study was conducted in outpatient clinics of Family Medicine Department and Chest Diseases Department at Ankara Training and Research Hospital between March-June 2016. 147 individuals with COPD were included in the study. Demographic questions, "State- Trait Anxiety Inventory" and pulmonary function test were applied to all patients while "Fagerstrom Test for Nicotine Dependence" was only for the current smokers. The data were analyzed using SPSS statistical software version 16.0.

Results: 147 COPD patients in the age range of 35-80 years including 56 females (38.1%) and 91 males (61.9%) were enrolled in the study. State-Trait Anxiety Inventory was applied to all patients. Current smokers with a number of 86 (58.5%) also performed Fagerstrom Test for Nicotine Dependence. The average anxiety scores of COPD patients were higher than the normal values. COPD severity, presence of comorbid chronic illness and age were significantly correlated with anxiety levels of the patients. Increasing severity of COPD, the presence of comorbid chronic illness and higher ages increased the levels of anxiety in COPD patients.

Conclusion: Anxiety levels are increased in patients with COPD. Family physicians who see the patients first and most frequent should also evaluate the COPD patients psychologically and should lead them to a psychiatrist if necessary. Besides all COPD patients should be encouraged to quit smoking independently of anxiety levels.

Keywords: COPD, Fagerstrom test for nicotine dependence, state-trait anxiety ınventory

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GİRİŞ

Ülkemizde Sağlık Bakanlığı tarafından 2006 yılında hazırlanan "Kronik Hastalıklar Raporu"nda 22 milyon kişinin kronik hastalık yükü altında olduğu belirtilmiştir. Kronik Obstrüktif Akciğer Hastalığı (KOAH) etkilediği 3 milyon insan ile Hipertansiyon ve Diabetes Mellitus'tan sonra 3.sırada gelmektedir. KOAH, Dünya Sağlık Örgütü (DSÖ) 2004 yılı verilerine göre meydana gelen ölümlerde %5,1 ile 4.sırada yer almakta iken 2030 yılında ise %8,6 lık payla üçüncü sırada yer alması beklenmektedir.[1] KOAH, orta ve özellikle ileri evresinde hastaların nefes almasını zorlaştırarak egzersiz kapasitelerini ciddi oranlarda düşürmekte ve çok hafif bir eforla dahi inhaler tedavi gereksinimine sebep olmaktadır. Bunun sonucunda kişide yorgunluk, uyku bozukluğu, iş gücü kaybı gibi sosyal hayatı kısıtlayan ciddi problemler ortaya çıkmaktadır.

KOAH'ın etyolojisinde ve klinik seyrinde çok önemli bir rol oynayan sigara ülkemizde ve tüm dünyada çok yaygın kullanıma sahip olup hayatın tüm evrelerini kapsayan ve sağlığı olumsuz yönde etkileyen önlenebilir en önemli mortalite ve morbidite sebepleri arasındadır.[2]

KOAH, kişiyi fiziksel ve sosyal yönden etkilemesinin yanında ruhsal yönden de ciddi boyutlarda etkilemekte olup hastalarda duygu durum bozuklukları ve anksiyete sık görülür. Biz de bu nedenle çalışmamızda KOAH hastalarının kaygı düzeylerini ve bu kaygı düzeyleri üzerine sigaranın etkisini araştırmayı planladık.

GEREÇ VE YÖNTEM

KOAH'lı hastalarda sigara bağımlılık düzeyinin hastaların kaygı düzeylerine olan etkisini araştıran çalışmamız gözlemsel, analitik ve prospektif bir çalışmadır. Çalışmamıza başlamadan önce S.B. Ankara Eğitim ve Araştırma Hastanesi Etik Kurulu'ndan 16.03.2016 tarih 0633 toplantı no ve 5316 numaralı onay alındı.

Çalışmamız Mart 2016 – Haziran 2016 tarihleri arasında S.B Ankara Eğitim ve Araştırma Hastanesi Aile Hekimliği ve Göğüs Hastalıkları polikliniklerine başvuran hastalardan çalışmaya katılmayı kabul edenlerin yazılı onamları alındıktan sonra anket yapılarak ve solunum fonksiyon testi (SFT) uygulanarak yürütüldü. En az 6 aydır KOAH tedavisi alan, 35-80 yaş arası iletişim kurabilen, soruları cevaplayabilecek bilişsel yeterliliğe sahip ve çalışmaya istekli hastalar çalışmaya dahil edildi. Hastaların KOAH tanısı ve evreleri GOLD 2015'e göre yapıldı.

Çalışmaya katılan hastalardan veri toplamak amacıyla genel demografik bilgiler, Solunum Fonksiyon Testi, "Fagerström Nikotin Bağımlılık Ölçeği" ve "Durumluk ve Sürekli Kaygı Ölçeği" uygulandı.

Solunum Fonksiyon Testi: En az 6 aydır KOAH tedavisi alan, 35-80yaş arası hastalara V max encore 229 C/ Carefusion-Yorba Linda, CA 92887 USA cihazında, hasta oturur pozisyonda 3 kez yapıldı. Elde edilen değerlerin en iyisi alındı. FVC (Zorlu vital kapasite), FEV1 (1.saniye zorlu ekspirasyon volümü), FEV1/FVC ve PEF değerlerine bakıldı.

Fagerström Nikotin Bağımlılık Testi: Karl O. Fagerström tarafından ilk kez 1978'de sigaraya olan fiziksel bağımlılığın düzeyini saptamak amacıyla The Fagerström Tolerance Questionnaire (FTQ) geliştirildi. Heatherton ve Kozlowski 1991'de bu testi yeniden ele alıp revize ederek Fagerström Test for Nicotine Dependence (FTND) adı altında yayımladılar.[3] Ülkemizde bu testin güvenilirlik ve geçerlilik çalışması 2004 yılında Uysal ve ark. tarafından yapılmış olup güvenirliği orta düzeyde (a=0.56) bulunmuştur.[4] Fagerström nikotin bağımlılık testi 6 sorudan oluşmaktadır. Sorular kapalı uçlu olup her sorunun yanıtına göre belli bir puan verilmektedir. Sigaraya bağımlılık düzeyi arttıkça testen alınan puan da artmaktadır. Testten elde edilen toplam puanlara göre bağımlılık düzeyi; çok az (0-2 puan), az (3-4 puan), orta (5), yüksek (6-7 puan) ve çok yüksek (8-10 puan) olmak üzere 5 grupta sınıflandırılmaktadır.[3]

Durumluk ve Sürekli Kaygı Ölçeği: Kaygı, "durumluk kaygı" ve "sürekli kaygı" olmak üzere iki şekilde olabilir. Durumluk kaygı; çevresel koşullara bağlı ortaya çıkan tehlike durumlarında bireyin göstermiş olduğu karmaşık heyecansal tepkilerin ifadesidir. Sürekli kaygı ise, çevresel kaygılardan bağımsız olarak, bireyin huzursuzluk, vesvese, endişe duyma, yoğun heyecansal tepkilerde bulunma eğilimidir. KOAH hastalarında her iki tip kaygı da görülebilir.[3-5]

KOAH'lı hastaların duygu durumunu belirlemek için uyguladığımız Durumluk Sürekli Kaygı Ölçeği, Spielberger ve arkadaşları tarafından 1970'te geliştirilmiş, Öner ve Le Compte tarafından 1985'te Türk toplumuna uyarlaması yapılmış olan, durumluk ve sürekli kaygı düzeylerini 20 soru ile ayrı ayrı ölçen likert tipte bir ölçektir. Yüksek puan yüksek kaygı seviyesini, düşük puan düşük kaygı seviyesini ifade eder.[6]

Veriler, SPSS istatistik paket programı 16.00 versiyonuna girilerek değerlendirildi. Öncelikle faktör skorlarının genel ortalaması ile ölçeklerin total skoru hesaplandı. Sonrasında çalışma grubunun genel özellikleri yaş gruplarına dağılımı gibi özellikler deskriptif tipte analizlerle (sayı, yüzde, ortalama ve standart sapma) ortaya kondu. Durumluk ve Sürekli Kaygı Ölçeği üzerine etkili olabilecek faktörler "Faktöriyel Anova" testi ile değerlendirildi. Etkili olan faktörler belirlendikten sonra "Bağımsız Gruplarda Ortalamaların Karşılaştırılması Analizi" (Student T test) "One Way Anova" ve Pearson Korelasyon Analizi ile hangi yönde etkili oldukları değerlendirildi. P değeri 0,05'den düşük olanlar istatistiksel olarak anlamlı kabul edildi.

BULGULAR

Çalışmaya 56 (%38,1) kadın ve 91 erkek (%61,9) olmak üzere 35-80 yaş aralığındaki toplam 147 KOAH hastası dahil edildi. KOAH hastalarının 86 (%58,5)'i sigara kullanmaktaydı. KOAH hastalarının genel özellikleri **Tablo 1**'de, spirometik ölçümleri ise **Tablo 2**'de gösterilmiştir..

KOAH hastalarında sigaraya başlama yaşı kadınlarda 20,36±4,66, erkeklerde ise 17,48±3,78 olarak saptandı. Paket/yıl tüketimi ise kadınlarda 36,71±19,29 iken erkeklerde bu değer 35,72±17,89 olarak saptandı. Sigara bağımlılık düzeyini değerlendirmek için 86 hastaya Fagerström Nikotin Bağımlılık Testi uyguladık. Kadınların test skorları 6,04±4,21; erkeklerin test skorları ise 5,13±3,73 olarak saptandı.

Tablo 1. KOAH hastalarının genel özellikleri

Parametre	Kadın		Erkek		Genel	
	n	Ort±SS/%	n	Ort±SS/%	n	ort±SS/%
Sigara						
İçiyor	28	50,0	58	63,7	86	58,5
Kullanmamış	23	41,1	18	19,8	41	27,9
Eski İçici	5	8,9	15	16,5	20	13,6
Biomass						
Var	13	23,2	0	0	13	8,8
Yok	43	76,8	91	100	134	91,2
KOAH şid.						
1	19	33,9	33	36,3	52	35,4
2	22	39,3	33	36,3	55	37,4
3	15	26,8	25	27,5	40	27,2
Kronik hastalık						
Var	30	53,6	65	71,4	95	64,6
Yok	26	46,4	26	28,6	52	35,4
Düzenli Kontrole G.						
Evet	23	41,1	33	36,3	56	38,1
Hayır	33	58,9	58	63,7	91	61,9

Çalışma grubumuzdaki tüm hastalara kaygı düzeylerini ölçmek için Durumluk ve Sürekli Kaygı Ölçekleri uygulandı. Durumluk kaygı puanları kadınlarda 52,92±21,38; erkeklerde ise 56,97±18,17 olarak saptandı. Sürekli kaygı puanlarında ise kadınlarda 49,30±15,38; erkeklerde 52,84±14,43 değerleri saptandı (**Tablo 3**).

Bağımsız gruplarda Student's T testi yaparak kadınların sigaraya başlama yaşının erkeklerin sigaraya başlama yaşına göre ileride olmasının istatistiksel olarak anlamlı olduğunu gösterdik (20,36±4,66; 17,48±3,78; p=0,003). Paket/yıl tüketimi, Fagerström skoru, Durumluk ve Sürekli Kaygı Ölçeği skorlarında cinsiyetler arasında anlamlı bir fark bulunmadı (p= ns).

Kronik hastalığın SKÖ skorları ile ilişkisini anlamak için bağımsız gruplar testi yaptık. Kronik hastalığı olanlarda (n=95) ölçek skorlarını kronik hastalığı olmayanlara göre (n=57) daha yüksek bulduk (55,63±12,64; 43,94± 15,70; p<0,001).

KOAH şiddetine göre sigara kullanımını göstermek için RXC tabloda ki-kare testi yaptık. Hafif KOAH grubunda sigara kullanımı 20 (%38,5), orta KOAH grubunda 32 (%58,2), ağır KOAH grubunda ise 34 (%85,2) olarak saptandı. KOAH şiddeti arttıkça sigara kullanmanın anlamlı bir şekilde arttığı görüldü (p<0,001) (**Tablo 4**).

Tablo 4. KOAH şiddetine göre sigara kullanma durumunun değerlendirilmesi

KOAH Şiddeti (GOLD'a göre)	Sigara Kullanma			Toplam
	Evet n (%)	Hayır n (%)	Eski İçici n (%)	Evet n (%)
Hafif	20 (38,5)	20 (38,5)	12 (23,1)	52 (100,0)
Orta	32 (58,2)	19 (34,5)	4 (7,3)	55 (100,0)
Ağır	34 (85,0)	2 (5,0)	4 (10,0)	40 (100,0)
Toplam	86 (58,5)	41 (27,9)	20 (13,6)	147 (100,0)

TARTIŞMA

Çalışmamızda KOAH hastalarında sigara kullanma durumunun hastaların kaygı düzeylerine olan etkisinin değerlendirilmesi amaçlanmıştır. Hastaların kaygı düzeylerinin artmış olduğunu ve bu kaygı düzeylerine "Hastalık şiddeti", "Ek kronik hastalık varlığı" ve "Yaş" faktörlerinin etkili olduğunu tespit ettik.

Kronik hastalıklarda anksiyetenin arttığını gösteren çalışmalar mevcuttur. Aydoğan ve ark. yaptıkları çalışmada hipertansiyon hastalarında %38,5 orta-şiddetli anksiyete saptamışlardır.[7] Genel populasyonda yaygın anksiyete bozukluğu %3-5 oranında bulunurken, Pırıldar ve ark. diabetik hastalar üzerinde yaptıkları çalışmadan bu oranı %14 olarak saptamışlardır.[8]

Tablo 2. KOAH hastalarında cinsiyete göre spirometrik ölçüm değerleri

Parametre	Kadın		Erkek		Genel	
	n	Ort±SD	n	Ort±SD	n	Ort±SD
FVC	56	1,57±0,58	91	2,34±0,79	147	2,04±0,80
FVC %	56	61,38±17,08	91	61,23±16,04	147	61,29±16,42
FEV1	56	1,11±0,39	91	1,60±0,62	147	1,41±0,59
FEV1%	56	51,73±14,95	91	52,80±15,59	147	52,39±15,31
FEV1/FVC	56	0,69±0,10	91	0,67±0,10	147	0,68±0,10
FEV1/FVC %	56	87,77±12,04	91	85,91±9,90	147	86,62±10,76
PEF	56	170,75±64,11	91	251,03±99,93	147	220,44±96,10
PEF %	56	48,39±17,53	91	52,90±19,30	147	51,18±18,71

Tablo 3. Fagerström skorları ile durumluk ve sürekli kaygı skorlarının cinsiyete göre değerlendirilmesi

Parametre	Kadın		Erkek		Genel	
	n	Ort±SD	n	Ort±SD	n	Ort±SD
Sigara başlama yaşı	28	20,36±4,66	58	17,48±3,78	86	18,43±4,28
Paket/yıl	28	36,71±19,29	58	35,72±17,89	86	36,05±18,25
Fagerström skor	28	6.0±4,21	58	5,13±3,73	86	5,41±3,89
Durumluk kaygı	56	52,92±21,38	91	56,97±18,17	147	55,43±19,48
Sürekli kaygı	56	49,30±15,38	91	52,84±14,43	147	51,49±14,84

Hacıhasanoğlu ve ark.[9] 2010 yılında birinci basamağa başvuran ve kronik hastalığı olan 340 hasta üzerinde yaptıkları çalışmada hastaların %51,2'sinin anksiyete skorlarının yüksek olduğunu saptamışlardır. Mevcut kronik hastalığın türünden bağımsız olarak yaş ve kadın cinsiyetin anksiyete skorlarını anlamlı bir şekilde artırdıklarını göstermişlerdir. Bir başka çalışma ise üniversite hastanesi dahiliye polikliniğine başvuran ve kronik hastalığı olan 424 hasta üzerinde yapılnıştır. Çalışmada katılımcıların %24,3'ünde anksiyete bozukluğu saptanmış olup anksiyete skorları kadın cinsiyette ve eğitimi düşük olan kesimde daha yüksek bulunmuştur.[10]

Çalışmamızda KOAH hastalarında kaygı düzeyi üzerine etkisi olan bir diğer faktörü yaş olarak bulduk. Yaş arttıkça hastaların kaygı düzeylerinin arttığını saptadık. Literatürde KOAH ve anksiyete üzerine yapılan çeşitli çalışmalar mevcuttur, çoğunda kaygı düzeyleri yüksek olarak bulunurken bu kaygı düzeylerine etki eden faktörler ve etki etme yönleri farklı olarak bulunmuştur.

Marco ve ark.[11] 202 hasta üzerinde yaptıkları çalışmada anksiyete oranını %28,2 kontrol grubunda anksiyete oranını ise %6,1 olarak saptamışlardır. Kadınlarda anksiyete oranlarını anlamlı olarak yüksek bulmuşlardır. Bizim çalışmamızda ise cinsiyet KOAH hastalarında kaygı düzeylerine etki eden bir faktör olarak saptanmadı.

Yeni Zelanda'da yapılan başka bir çalışmada KOAH şiddeti ile anksiyete skorları arasında anlamlı ilişkili bulunmuş olup şiddet arttıkça anksiyete skorları artmaktadır. Bu bulgu bizim çalışmamızla benzerlik göstermektedir. Anksiyete skorlarını etkileyen diğer faktörün ise cinsiyet olduğunu saptamışlardır. Kadınlarda anksiyete oranının erkeklerden anlamlı olarak yüksek olduğunu göstermişlerdir.[12]

Norveç'de 58 hasta üzerinde yapılan çalışmada anksiyete ile yaş arasında negatif korelasyon saptanmıştır. Yaş arttıkça hastaların kaygı düzeylerinin azaldığı görülmüştür.[13] Bu bulgu bizim çalışmamızla uyumsuzdur. Sakarya'da bilinen psikiyatrik tanısı olmayan göğüs ve kardiyoloji kliniklerinde yatarak tedavi gören 144 hasta üzerinde çalışma yapılmıştır. KOAH hastalarında anksiyete oranını %41 olarak saptamışlardır. Yaş ile anksiyete skoru arasında pozitif ilişki varken eğitim durumu arttıkça anksiyetenin azaldığını göstermişlerdir. Bizim çalışmamızda eğitim durumu kaygı düzeyine etkisi olan faktörlerden biri değildir.[14]

Gudmundsson ve ark.[15] tarafından 5 farklı merkezde yapılan çalışmada KOAH alevlenmesi nedeniyle hastanede yatış öyküsü olan 416 hasta incelenmiştir. Kadın hastalarda anksiyete yüksek bulunmuştur. Bizim çalışmamızdan ve diğer çalışmalardan farklı olarak sigara içme durumu ile anksiyete arasında ilişki tespit etmişlerdir. Sigara içenlerde anksiyetenin anlamlı olarak daha yüksek olduğunu saptamışlardır.

Konya'da KOAH tanısı ile göğüs hastalıkları servisinde yatan 126 hasta üzerinde yapılan çalışmada %88 anksiyete saptanmış olup ek kronik hastalık varlığının anlamlı bir faktör olduğu gösterilmiştir. Bu bulgu çalışmamızla benzerlik göstermektedir. Ayrıca bu hastalarda aile yapısının da anksiyete ile ilişkili olduğu gösterilmiş, geniş ailesi olanlarda anksiyetenin yüksek olduğunu saptamışlardır.[16]

İzmir'de yapılan çalışmada yılda birden fazla acil servise başvuran ve uzun süreli oksijen tedavisi alan hastalar incelenmiştir. Çalışmamızla benzer biçimde ek kronik hastalığı olanlarda anksiyetenin yüksek olduğu saptanmıştır. Hastanede yatış öyküsü olanlarda yattıkları gün sayısından bağımsız olarak yüksek anksiyete saptanmıştır.[17]

Literatürde sigara kullanımının KOAH hastalarında kaygı düzeyine etkisini gösteren Gudmundsson ve ark.[15] tarafından yapılan çalışma haricinde bir çalışmaya rastlanmadı. Gudmundssson ve ark.[15] sigara kullanmanın KOAH hastalarında kaygıyı anlamlı bir şekilde yükselttiğini göstermişlerdi. Çalışmamızda ise sigara kullanımı hastaların kaygı düzeylerine etkili bulunmadı ancak KOAH şiddetine göre sigara kullanımını göstermek için RxC tabloda ki-kare testi yaptık ve KOAH şiddeti arttıkça sigara kullanımının anlamlı bir şekilde arttığını gördük. Sigara kullanmayan sağlıklı kişilerde 35 yaşından sonra FEV1 değerleri her yıl 25-30 ml azalırken sigara kullananlarda bu azalma yıllık 150 ml değerlerine kadar ulaşabilmektedir.[18] Dolayısıyla sigara hastalığın progresyonunu hızlandırıp şiddetini artırmaktadır. Çalışmamıza göre sigaranın direk yoldan değil ama hastalığın şiddetini artırma yoluyla KOAH hastalarında kaygı düzeyini anlamlı bir şekilde artırdığını söyleyebiliriz.

Sigara ile anksiyete ilişkisini araştıran farklı çalışmalar yapılmıştır. Ankara' da 15 yaş ve üzeri 2543 kadın üzerinde yapılan çalışmada sigara kullananlarda anksiyete oranı %24,1 kullanmayanlarda ise %18,1 olarak saptanmıştır ve bu fark istatistiksel olarak anlamlı bulunmuştur.[19] Isparta'da yurtta kalan üniversite öğrencileri arasında yapılan çalışmada sigara içenlerin sürekli kaygı ölçeği puanlarının daha yüksek olduğu gösterilmiş ancak sigara kullanmayanlarla arasında anlamlı bir fark saptanmamıştır.[20] Tunus'da yapılan bir çalışmada sigara bağımlılığı olan hastaların %22,9'unda yüksek anksiyete skorları saptanmış ve bunun anlamlı olduğundan bahsedilmiştir.[21] Saltık ve ark.[22] tarafından Edirne'de öğretmenler üzerinde yapılan bir çalışmada sigara kullanmanın anksiyeteyi artırmadığı gösterilmiştir.

Çalışmalarda KOAH hastalarında anksiyete prevalansı yüksek çıkmasına rağmen günlük pratikte tanısı konulan ve tedavisi yapılan anksiyete hastası son derece azdır. Aile hekimleri bu hastaları ilk ve en sık gören hekimler olup KOAH'ın sistemik bir hastalık olduğunu unutmamalı ve bütün KOAH hastalarını mutlaka psikolojik açıdan da değerlendirmelidirler. Aile hekimliğinin temelinde olan hastaya bütüncül yaklaşım da bunu gerektirir. Bu değerlendirmeyi yaparken çalışmalarda kullanılan ölçekler tarama amaçlı kullanılabilir. Ölçek skorları yüksek olan hastalar uzman bir psikiyatri hekimine yönlendirilmelidir.

KOAH hastalarında tedavinin vazgeçilmezi olan sigaranın bırakılması konusunda son derece özenli davranılmalıdır. Gelen tüm KOAH hastalarına sigara ile ilgili gerekli bilgiler sözel olarak anlatılmalı ve ilgili küçük broşürler verilmelidir. Sigaranın hastalığın seyrindeki rolü mutlaka vurgulanmalı, hastaların sigarayı bırakma yönünde motivasyonları sağlanmalıdır. Hastanın takip edilemeyeceği ya da ilaç tedavisine ihtiyaç duyduğu düşünülüyorsa sigara bırakma polikliniklerine yönlendirilmelidir.

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The Attitudes and Awareness of Urinary Bladder Cancer Patients about the Relationship Between Their Tumoral Diseases and Tobacco Exposure

Ürotelyal Kanserli Hastalarda Hastalıklarının Tütün Dumanına Maruziyeti İle İlişkisi Konusunda Tutum ve Farkındalıklarının Değerlendirilmesi

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Abstract

Aim: To investigate the urinary bladder cancer (UBC) patients about their smoking behaviors and to find out the answer for their attitudes and awareness of the exposure cancer relationship.

Material and Method: A cross- sectional study was conducted between January 2018-December 2019.

Results: One hundred seventy- nine histopathologically proven UBC patients were included . The majority of patients (57.1%) attempt to quit smoking before diagnosis. 42.9 %of them quitted during diagnostic procedures or after being diagnosed as cancer. No significant relationship was found between the smoking status and recurrence of the primary tumoral disease. The grade of the primary tumor and chemotherapy applications did not affect the smoking status of the patients (p=0.521 and p=0.949 respectively). When the awareness about their smoking behavior which was one of the major causes for their bladder cancer was asked; 60 % of the participants were absolutely not aware. When the main reason for smoking cessation was asked, the positive influence and strong advice of healthcare professionals for quit smoking were the most important factor for the patients. However, either gradually worsening quality of life or suffering from serious respiratory illnesses (COPD, asthma) were not the major factors to quit smoking.

Conclusions: Majority of the patients didn't have any or particularly had idea about the relationship between smoking and urothelial cancers. Among the patients who had harm perception of smoking on their tumoral diseases, majority didn't believe that quitting would be beneficial after being diagnosed as cancer.

Keywords: Awareness, knowledge, urinary bladder cancer, tobacco smoking

Öz

Amaç: Ürotelyal kanser hastalarında tütün maruziyet durumunun, primer hastalıkları ile bu maruziyet ilişkisi konusunda bilgi ve farkındalıklarının değerlendirilmesi amaçlandı .

Gereç ve Yöntem: Ocak 2018-Aralık 2019 tarihleri arasında kesitsel çalışma olarak yapıldı.

Bulgular: Çalışmaya histopatiolojik olarak kesin tanı almış 179 hasta dahil edildi. Hastaların çoğunluğu (%57,1) tanıdan önce sigarayı bırakma girişiminde bulunmuşlardı. %42,9'u ise tanısal işlemler sırasında veya kanser tanısı aldıktan sonra sigarayı bırakmışlardı. Sigara içme durumları ve hastalık rekürrensleri arasında belirgin bir ilişki bulunmadı.Primer tümörün diferensiyasyon derecesi ve kemoterapi uygulamaları hastaların sigara içme durumlarını etkilememişti (sırasıyla p=0,521 and p=0,949). Mesane kanseri etyolojisinin major etkenlerinden biri olarak sigara içimi konusundaki farkındalıkları sorgulandığında katılımcıların %60'ı mutlak olarak farkında değildi. Sigarayı bırakmadaki ana nedenleri sağlık çalışanlarının pozitif etkileri ve kuvvetli önerileri en önemli faktördü. Ancak ne giderek bozulan yaşam kaliteleri ne de ciddi solunumsal hastalık varlığı (KOAH, astım) varlığı major bir sigara bırakma nedeni olamamıştı.

Sonuç: Hastaların çoğunluğu sigara ve ürotelyal tümör ilişkisinden hiçbir şekilde bilgiye sahip değildi veya kısmen bilgi sahibiydi..Tümoral hastalıklarında sigaranın etkisi olduğu konusunda zarar algısı olan hastaların çoğunluğu ise kanser tanısı aldıktan sonra bırakmanın bir faydası olmayacağına inanıyordu.

Anahtar Kelimeler: Farkındalık, bilgi, mesane kanseri, tütün içimi

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INTRODUCTION

Urothelium is the specialised epithelium covering the urinary system. The main etiological factors for urinary bladder cancers are cigarette smoking and occupational exposure.[1] However, drugs like phenacetin, chlornaphazine,and cyclophosphamide ,infections like Schistosoma haematobium , genotypes such as NAT2 slow acetylator and GSTM1 null are also associated with an increased risk of this cancer . Such genotypes are associated with increased risk of UBC presumably because of their reduced ability to detoxify carcinogens.[2] Cigarette smoking has been historically established as risk factor for urothelial cancer, and an association with risk of renal cell carcinoma and worse prognosis of prostate cancer has been demonstrated.[3] Cigarette smoking increases the risk of UBC up to 2 to 10 fold.[4] Previous studies indicated a reduction in risk by more than 30% within the first year to 4 years after cessation of smoking, and more than 60% 25 years after cessation, but even after 25 years the risk still does not reach the background level of never smokers.[5] Smoking cessation may decrease recurrence rates for patients with nonmuscle-invasive disease.[6] When focused on the never smoker population with cancer, exposure to secondhand smoke in women may be a risk factor for the development of bladder cancer.[7]

Although there is a great concern among physicians that the relationship between smoking and UBC is nearly clear but somehow the information, knowledge and awareness of people suffering from this illness is an issue that should be investigated. Since tobacco exposure is commonly known to affect respiratory system, several other indirect effects of smoking might be underestimated by the patients. The first rule for the patients to quit and prevent smoking is to hear the "strong recommendation from healthcare professionals".

Only limited studies have shown the communication between patients and their physicians regarding their disease and smoking as well as the awareness and knowledge of UBC patients about the influence of smoking regarding their primary cancer diseases.[8]

In this study we aimed to investigate the UBC patients with their history of smoking (tobacco exposure) and to find out the answer for their attitudes and awareness of the exposure – cancer relationship. Moreover, we aimed to show the association between smoking status with the stage, grade and histopathology of the tumoral disease.

MATERIAL AND METHODS

Study conduction

Demographic, oncological ,surgical and clinical informations with a questionnaire about knowledge and awareness was obtained from all contributors. Totally 21 items were prepared and recorded for assessment of the aforementioned situations. These included age, gender, body mass index(BMI),occupation, educational level, histopathological diagnosis, tumor stage, time of the diagnosis, type of the surgical procedure, history of chemotherapy history of BCG (Bacillus Calmette-Guérin) vaccination and presence of recurrence for the primary disease, history of lung diseases (asthma and chronic obstructive pulmonary disease (COPD), pneumonia, pleurisy), alcohol consumption, smoking and quitting status.

Tumor staging was assessed according to European Association of Urology Guidelines on Non-muscle-invasive Bladder Cancer (TaT1 and Carcinoma In Situ) - 2019 Update.[9] Treatment approach was categorized according to European Association of Urology (EAU) Oncology Guidelines.[10]

Smoking behavior was defined as never smokers, current smokers (package/year given in numbers), former smokers and second- hand (passive) smokers. Former smokers were asked for their quitting time either before/after diagnosis. Current smokers were also asked for their attending quitting in any time course of their lives.

Questions about awareness and attitudes

The patients were asked to give the answer of the following questions within the following choices:

1. "Are you aware of the fact that one of the major cause of your illness is your smoking habit?" The question was a 'yes' or 'no' question.

2. "What was your main reason or factor for quitting smoking?" the choice of answers were as follows: a)The positive influence and advise of health care specialist (physicians and nurses). b) having knowledge of the negative effect of smoking on his/her primary disease, c) having knowledge of the negative effect of smoking on treatment response by causing co-morbidities. d) being unable to smoke because of the worsening of quality of life. e) Suffering from a life-threatening pulmonary disease (COPD exacerbations or pneumonia).

3. If they have not quitted; explanation for this situation was asked. "Why didn't you quit smoking?"

a) I have no idea about the negative effects of smoking on my primary disease and my personal health.

b) I have an idea about the negative effects of smoking on my primary disease and my personal health however, I am not willing to stop since I don't believe that quitting will be beneficial from now on.

Study Population

The design of the study was cross-sectional conducted in a single center. The data of patients between 2018 May-2019 February followed -up in Oncology Hospital have been collected.179 volunteer patients with accurate diagnosis of urothelial bladder carcinoma were included in the study. The data were obtained from adult volunteer bladder cancer patients with > 18 years of age who contributed to the questionnaires.

Exclusion criteria

Individuals who suffer from mental or neurological diseases leading to lack of cooperation for the questionnaires and unable to give reliable answers were excluded.

Ethical consideration

The Ethics Committee of Ankara Oncology Hospital,Turkey approved the protocol, dated September 2018 Number: 2018-09/138. All subjects provided written informed consent. Data

of the patients were treated according to the Declaration of Helsinki Guidelines.

Statistical analysis

Descriptive statistics were performed for all data. For continuous variables, results were presented as mean ± standard deviation. Categorical variables were presented by frequency and percentage. Comparisons between two categorical variables were performed using the chi-square analysis. All analyses were performed using IBM SPSS Statistics 21 (IBM, Armonk, NY USA). All tests were two-sided and a P value of less than 0.05 was considered to be statistically significant.

RESULTS

Of the 179 UBC patients 154 were male and 25 were female (86%,14% respectively). In **Table 1** demographic data and clinical presentation of study group are shown. The mean age was 64.02±11.58. Patients had mean body mass index (BMI):25.26±3.35 (<30) indicating the group with nonobese feature. The duration of diagnosis 35.25±22.47 months. Smoking history of patients revealed 47 never smokers, 74 former smokers,58 current smokers (26.3%, 41.3%, 32.4% respectively). The mean package of cigarette consumption among the study population was 27.62±9.4. Attempt to quit was asked for all patients regarding the diagnostic period. As shown in Table, the majority of patients (57.1%) tried to quit before diagnosis. 42.9 %of them quitted during diagnostic procedures or after being diagnosed as cancer.

Table 1. Demographic data and clinical presentation of the patient group

Variables		Frequency (%)	Mean±SD
Gender	Male	154 (86)	
	Female	25 (14)	
Age			64.02±11.58
Body Mass Index			25.25±3.35
Time of diagnosis (months)			25.25±22.47
Educational Status	Primary School Education	137 (76.5)	
	Higher Education	42 (23.5)	
Chemotherapy	Non	176 (98.3)	
	Applied	3 (1.7)	
BCG Vaccinations	Non	144 (80.4)	
	Applied	35 (19.6)	
Disease Recurrence	None	134 (74.9)	
	Occurred	45 (25.1)	
Previous Respiratory Disease	COPD	17 (9.5)	
	Asthma	10 (5.6)	
	Pneumonia	7 (3.9)	
Alcohol consumption	None	142 (79.3)	
	Consumed	37 (20.7)	
Tumor Grade	T0G3	20 (11.2)	
	CIS	6 (3.4)	
	T1G3	40 (22.3)	
	TaG1	113 (63.1)	
Smoking Status	Never smoker	47 (26.3)	
	Former smoker	74 (41.3)	
	Current smoker	58 (32.4)	

Table 2 showed the characteristics of patients and relationship with smoking status. Smoking status was defined as never smoker, former smoker and current smoker. There was a statistically significant difference between the smoking status and male gender (p=0.001). Educational status of patients did not affect smoking status (p>0.005), The grade of the primary tumor and chemotherapy applications also did not affect the smoking status of the patients (p=0.521 and p=0.949 respectively).No significant difference was found between the remaining parameters and smoking status, including recurrence of the primary tumoral disease.

Table 2. Characteristics of patients and relationship with smoking status

Variables		Smoking Status			P value
		Never	Former smoker	Current smoker	
Gender	Male	24 (15.6)	72 (46.8)	58 (37.7)	<0.001
	Female	23 (92.0)	2 (8.0)	0 (0)	
Educational Status	Primary Education	39 (28.5)	57 (41.6)	41 (29.9)	0.329
	Higher Education	8 (19.0)	17 (40.5)	17 (40.5)	
Tumor Grade	T0G3	5 (25.0)	8 (40.0)	7 (35.0)	0.521
	CIS	3 (50.0)	3 (50.0)	0 (0)	
	T1G3	10 (25.0)	17 (42.5)	13 (32.5)	
	TaG1	29 (25.7)	46 (40.7)	38 (33.6)	
BCG Vaccinations	Non	39 (27.1)	59 (41.0)	46 (31.9)	0.874
	Applied	8 (22.9)	15 (42.9)	12 (34.3)	
Chemotherapy	Non	46 (26.1)	73 (41.5)	57 (32.4)	0.949
	Applied	1 (33.3)	1 (33.3)	1 (33.3)	
Disease Recurrence	None	39 (29.1)	53 (39.6)	42 (31.3)	0.305
	Occurred	8 (17.8)	21 (46.7)	16 (35.6)	

In the questionnaire, some additional questions were asked to UBC patients in order to observe their awareness, behavior and knowledge about their primary disease and relationship between the smoking habit. The first question was 'Are you aware of the fact that one of major the cause of your illness is your smoking habit?' the answer given by the patients was 60% no, % 30 was yes and 10% was no or had no idea. This exactly means that majority of patients did not have any idea about the relationship between smoking and bladder cancer.

Second question was "Which factor or factors played role for your decision to quit during your treatment course ? "What was your main reason or factor for quitting smoking? and the answer choices were shown in **Figure 1**. Apparently, the positive influence and strong advice of healthcare professionals for quit smoking were the most important factors for the UCB patients, however, either gradually worsening quality of life or suffering from serious respiratory illnesses were not the major factors to quit smoking. Ultimately, If they have not quitted smoking during treatment period; the explanation for this situation was asked. "Why didn't you quit smoking ?"

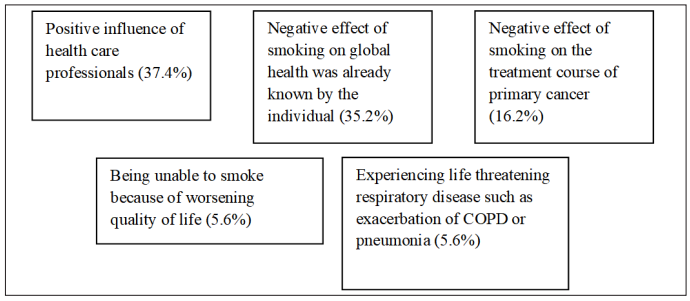

Figure 1. Different factors those played role for decision to quit during treatment of primary disease.

a)I had no idea about the negative effects of smoking on my primary disease course (27%).

b) I had an idea about the negative effects of smoking on my primary disease and my personal health however, I did not believe that quitting will be beneficial from now on after cancer diagnosis (83%).

Among the patients who had awareness about the causative effects of smoking on their tumoral diseases, majority of them unfortunately did not believe that quitting would be beneficial after being diagnosed as cancer. The patients were disappointed and lost their belief about the relationship between being overall healthy and smoking cessation.

DISCUSSION

The main outcome of our study was the lack of patients' awareness about their smoking habit which was one of the major cause for their urinary cancers .Secondly, the main reason for smoking cessation was the positive influence and strong advice of healthcare professionals for quit smoking; however, dramatically either gradually worsening quality of life or suffering from serious respiratory illnesses were not the major factors to quit smoking. Thirdly, the patients who had awareness about the causative effects of smoking on their tumoral diseases majority of them unfortunately didn't believe that quitting would be beneficial after being diagnosed as cancer. The grade of the primary tumor and chemotherapy applications did not affect the smoking status of the patients. The patients were disappointed and lost their belief about the relationship between being overall healthy and smoking cessation.

According to the estimations of World Health Organization in 2013, six million people worldwide died from the diseases caused by smoking including cancer, cardiovascular diseases and pulmonary diseases.[8] Cigarette smoking and occupational exposure are the main risk factors for urothelial carcinoma. In urinary bladder cancer (UBC), cigarette smoking is responsible for about one-third of all diagnosis. Tobacco exposure is not only an etiological factor for urothelial carcinoma, but also a risk factor for the disease recurrence as stated in the previous literature.[11,12] In our study the grade of the primary tumor and chemotherapy applications did not affect the smoking status of the patients. No significant difference was found between the remaining parameters and smoking status, including recurrence of the primary tumoral disease. In a previous study of Sfakianos JP et al.[13] smoking did not appear to affect the response to BCG therapy and long-term oncological results. Ide H et al.[14] emphasized that urinary pH levels were strongly associated with recurrence in patients with smoking history in their study published in 2016. They also recommended urine alkalization for avoiding bladder recurrence.

Although there is a great concern among physicians that the relationship between smoking and UBC is nearly clear but somehow the information, knowledge and awareness of people suffering from this illness is an issue that should be investigated. The first rule for the patients to quit and prevent smoking is to hear the "strong recommendation from healthcare professionals". Our study results also revealed that, the positive influence of healthcare professionals for quit smoking were the most important factor for the UCB patients, however either the worsening of quality of life or suffering from serious respiratory illnesses were not the major powerful factors to quit smoking. This was an interesting outcome indicating that strong recommendation and honest relationships with the health care providers are more important than suffering from serious pulmonary symptoms or diseases. Majority of patients were disappointed and lost their belief about the relationship between being overall healthy and smoking cessation. Therefore, continuous encouragement is essential by the urologists and by the other health care providers who contribute to the follow-up of patients. The term "teachable moment" was used by Lee et al.[15] which defined the lifestyle modification of patients at the time of cancer diagnosis including smoking cessation or even reduction. For this aim, urologists should also be aware of their function as primary contact for patients and ensure compliance and lifestyle changes during their treatment and follow-up courses.

In the previous study of May M et al.[16] about prostate cancer which has a dose-dependent relationship with smoking; education of prostate cancer patients about the relationship between cigarette consumption and cancer-related prognosis was inadequate. They also made additional comment that, urologists should have pursued informational discussions with their patients, thereby strengthening their position as the primary contact person for decision making in prostate cancer management. Our study results indicated that there is a little concern about smoking and urothelial cancer among the patients and majority of patients did not have any idea about the relationship between smoking and urothelial cancers. Additionally, mostly believed issue was the smoking relationship with the overall health, but not targeted at especially urothelial cancers. We think that lack of awareness was associated with the location of the tumor which might not be affected by an inhalation hazardous material. Since tobacco exposure is commonly known to affect respiratory system several other indirect effects of smoking might be underestimated by the patients.

Tobacco use is known as one of the most important causes of preventable diseases worldwide those cause morbidity and mortality Physicians are responsible for their patients' overall health status both by being a role model with their smoking related behaviors. Tobacco dependence treatment includes brief advice and counseling for smoking prevention and cessation and recommending or prescribing cessation medications when needed.[17] Similar to our study design , Gray et al.[18] investigated the patients with oral and oropharyngeal cancer and reported the impact of their diagnosis on smoking cessation. Even after diagnosis of cancer high number of their current smoker patients continued to smoke. Therefore, they concluded that smoking cessation would reduce the risk of recurrence and improve treatment outcomes with proactive approaches by the healthcare professionals. Similar to our results a recent study published in 2016 demonstrated that most UBC survivors did not suspect any cause that might have contributed to the development of their cancer. Therefore, effective education was emphasized for the superficial knowledge of risk factors for bladder cancer.[19]

The strength and limitation of the study

Our study directly interrogated patients about their behaviors and attitudes through smoking habits and disease course in a single center. It demonstrated the incidence of smoking among urothelial cancer patients in an oncology hospital located in Turkey. As well the incidence, the outcome of this study revealed that more supportive approaches and encouragement are needed by health care providers. Since the self – reports were taken into consideration, there was no biochemical validation of smoking cessation. We think that self-reporting in some degree led to some underestimation of smoking prevalence. Overall data for face to face questionnaires were based upon the statements of patients which could be possibly assumed as subjective results, hence further studies can be conducted concerning the objective -confirming measurable data about indicators of smoking.

CONCLUSIONS

According to our study results, no satisfactory result was obtained for the awareness of patients in such a cancer whose etiology was closely related with tobacco exposure. This result also indicated that education of urothelial tumor patients about tobacco exposure was inadequate. In order to maintain the awareness of the patients, further educational attempts about this exposure by the health care professionals are needed based upon the etiology of their diseases, negative impact on their treatment courses as well as triggering respiratory co-morbidities. Having knowledge and information is an important power to give a start about the behavioral changes about smoking. The patients were disappointed and lost their belief about the relationship between being overall healthy and smoking cessation. Therefore, the impact of convincing and honest motivational relationship between patients and physicians is the most important factor for knowledge and attitudes of patients both for current and future approaches.

ETHICAL DECLARATIONS

Ethics Committee Approval: The Ethics Committee of Ankara Oncology Hospital, Turkey approved the protocol, dated September 2018 Number: 2018-09/138.

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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Orjinal Araştırma / Original Article

Relationship Between Gestational Weight Gain and Amount of Postpartum Bleeding

Gestasyonel Kilo Alımı ile Postpartum Kanama Miktarı Arasındaki İlişki

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Abstract

Aim: To evaluate the effect of gestational weight gain on the amount of postpartum bleeding.

Material and Method: Medical records of women with low-risk singleton pregnancies who delivered vaginally at 37 weeks of gestation or beyond, between May 1 and November 1 2018, at a tertiary referral center were reviewed in the observational study. Demographic and clinical characteristics were obtained from the medical records. The relationship between the increased rate in BMI during pregnancy and amount of blood loss in the postpartum first hour was evaluated.

Results: A total of 411 women was included in the study. In the study population, the mean blood loss was 57.3±43.9 ml in the 3rd stage of labor and 113.2±76.9 ml in the postpartum first hour. No correlation was found between the increase in BMI during pregnancy and blood loss during the 3rd stage of labor (r=0.006) and postpartum first hour (r=0.037). Nulliparity, history of postpartum hemorrhage in previous pregnancy, premature rupture of membranes, and episiotomy were found to be risk factors for increased postpartum blood loss during the 1st hour (p<0.05).

Conclusion: Increase in BMI was not related with the amount of postpartum bleeding in women with low-risk pregnancy who had a vaginal delivery.

Keywords: Body mass index, episiotomy, gestational weight gain, nulliparity, postpartum hemorrhage

Öz

Amaç: Gebelikte kilo alımının postpartum kanama miktarına etkisini değerlendirmek.

Gereç ve Yöntem: Gözlemsel çalışmada 1 Mayıs-1 Kasım 2018 tarihleri arasında üçüncü basamak bir merkezde 37. gebelik haftasında veya daha sonrasında vajinal doğum yapan düşük riskli gebeliği bulunan kadınların tıbbi kayıtları incelendi. Olguların demografik ve klinik özellikleri tıbbi kayıtlardan elde edildi. Gebelikte Vücut Kitle İndeksindeki (VKİ) artış oranı ile postpartum birinci saatteki kan kaybı miktarı arasındaki ilişki değerlendirildi.

Bulgular: Çalışmaya toplam 411 kadın dahil edildi. Çalışma grubunda ortalama kan kaybı doğumun 3. evresinde 57,3±43,9 ml ve postpartum birinci saatte 113,2±76,9 ml idi. Gebelik sırasındaki VKİ'deki artış oranı ile doğumun 3. evresindeki (r=0,006) ve postpartum birinci saatteki kanama miktarı (r=0,037) arasında ilişki bulunmadı. Nulliparite, önceki gebelikte postpartum kanama öyküsü, erken membran rüptürü ve epizyotomi 1. saatte postpartum kan kaybını artıran risk faktörleri olarak bulundu (p<0,05).

Sonuç: Vücut kitle indeksindeki artış, vajinal doğum yapan düşük riskli gebeliği olan kadınlarda postpartum kanama miktarıyla ilişkili bulunmadı.

Anahtar Kelimeler: Epizyotomi, gestasyonel kilo alımı, nulliparite, postpartum kanama, vücut kitle indeksi

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INTRODUCTION

Postpartum hemorrhage is a major cause of maternal morbidity worldwide and remains the leading preventable cause of maternal mortality, especially in low-income countries. Advanced maternal age, multiple pregnancies, polyhydramnios, operative or cesarean delivery, placental adhesion anomalies, preeclampsia, maternal anemia, and chorioamnionitis are well-known risk factors for postpartum hemorrhage.[1-4] However, in the past two decades, the increase in the incidence of postpartum hemorrhage in high-income countries suggests that all risk factors have not yet been demonstrated.[5,6] Recent studies have shown that obesity is a risk factor for postpartum hemorrhage.[1,7,8] According to the World Health Organization (WHO), a body mass index (BMI) >40 kg/m^2 is considered to be Class III obesity[9] Blomberg[10] reported a twofold increased risk of postpartum hemorrhage in Class III obese women.

Obesity is one of the most important global health problems, affecting 13% of the population worldwide.[11] Pregnant women are prone to obesity due to excessive weight gain during pregnancy. Maternal obesity and excessive gestational weight gain are related to poor obstetric outcomes such as gestational hypertension, diabetes, and increased risk of cesarean delivery.[12] On the other hand, previous studies reporting the relationship between gestational weight gain and postpartum hemorrhage have had conflicting results. While Li et al.[13] reported increased postpartum hemorrhage risk with the excessive gestational weight gain; no association between the postpartum hemorrhage and gestational weight gain was found in another study.[14] In these reports, the amount of gestational weight gain (kg) was the primary parameter and the change in BMI during pregnancy was not taken into consideration. However, BMI is the most widely used tool for assessing the severity of obesity. In our literature search, the data on the effect of BMI change on the amount of postpartum bleeding are scarce. The aim of the present study is to evaluate the relationship between BMI increase rate during pregnancy and the amount of postpartum blood loss.

MATERIAL AND METHOD

Women with low-risk singleton pregnancies who had a vaginal delivery at 37 weeks of gestation or beyond, between May 1 and November 1, 2018, at University of Health Sciences Etlik Zubeyde Hanim Women's Health Training and Research Hospital were included in the observational study, which was approved by the Etlik Zubeyde Hanim Women's Health Training and Research Hospital Ethical Committee (2018/16). Written and signed informed consent was obtained from all participants. Patients with high-risk pregnancies including adolescent pregnancies (<18 years old), multiple pregnancies, polyhydramnios, hypertension, preeclampsia, diabetes mellitus, bleeding disorders, liver and kidney diseases, chorioamnionitis, adherent placenta, placental abruption,fetal demise, and having a history of previous cesarean delivery were excluded from the study.

Data of maternal demographics, antenatal care, and delivery were obtained from medical records of the women. Maternal age, height, pre-pregnancy maternal weight and weight at birth, gravidity, parity, gestational age at delivery, history of postpartum hemorrhage in previous pregnancies, and anticoagulant use were recorded. BMI was calculated by weight (kg)/height^2 (m^2). BMI increase rate was calculated by dividing the BMI difference between at birth (BMI_2) and pre-pregnancy (BMI_1) into pre-pregnancy BMI (BMI_1). The following obstetric features were recorded: premature rupture of membranes, labor augmentation, durations of 1st, 2nd, and 3rd stages of the labor, amount of blood loss during the 3rd stage and postpartum first hour, incidence of episiotomy, presence of birth canal lacerations and retained placenta, weight of the newborn, prepartum and postpartum hemoglobin levels, need for transfusion of blood products, and the duration of hospital stay.

The last menstrual period and ultrasonographic findings at ≤20 weeks of gestation were used to determine the gestational age. Duration of the 1st stage of labor was defined as time from labor onset to complete cervical dilatation and effacement. The second stage of labor was defined as time from complete cervical dilatation and effacement to fetal expulsion. The third stage of labor was defined as time from fetal expulsion to placental expulsion. Oxytocin with the initial dose of 4U/min (Synpitan Forte 5IU/ml, Deva, Istanbul, Turkey) was administered for labor augmentation in women with prolonged labor. Oxytocin dose was increased by 4U/min as needed every 15 minutes. As a hospital policy, active management of the 3rd stage of labor with intravenous 10 IU oxytocin in 500 ml saline solution was carried out. Amount of vaginal bleeding was measured with a calibrated drape (Evergrand underbuttocks surgical drape, Zhejiang Mediunion Healthcare Group Co. Ltd, Zhangjiagang, Jiangsu, China) placed under the buttocks immediately after delivery of the newborn. The measurement of the amount of blood loss was started after the umbilical cord clamping to prevent amniotic fluid flow into the drape. The amount of blood loss from the time of umbilical cord clamping to the end of postpartum first hour was recorded.

The relationship between the increase in BMI during pregnancy and blood loss in the postpartum first hour was the primary outcome of the trial. The relationship between the amount of postpartum blood loss and the pre-pregnancy BMI, BMI at birth, durations of the stages of labor, and other risk factors for increased postpartum bleeding were the secondary outcomes.

SPSS version 17 (SPSS, Chicago, Illinois, USA) was used for statistical analysis.Descriptive statistics were presented as the mean and standard deviation or median (min–max) for continuous variables and number and percentage for categorical variables.Analysis of normality for continuous variables was performed using Kolmogorov-Smirnov and Shapiro-Wilk tests. Correlation coefficients and their significance of pre-pregnancy BMI, BMI at birth, BMI increase rate, durations of labor stages, and amount of blood loss parameters were calculated using the Pearson test. Continuous variables with normal distribution were analyzed using independent-samples t-test and without normal distribution were analyzed using the Mann–Whitney U test. Analysis of categorical variables was performed by Chi-Square test. Statistical significance was defined as a p value less than 0.05.

RESULTS

A total of 411 women met the inclusion criteria of the trial. The BMI of 25 women (6.1%) was <18.5 kg/m^2, of 228 women (55.4%) was 18.5–24.9 kg/m^2, of 111 women (27%) was 25–24.9 kg/m^2, of 36 women (8.8%) was 30–34.9 kg/m^2, and of 11 women (2.7%) was 35–39.9 kg/m^2. There was no woman with BMI ≥40 kg/m^2. Maternal demographics, antenatal care, and delivery characteristics of the study population are shown in **Table 1**. One hundred and forty-nine women (36.3%) were nulliparous, and 262 women (63.7%) were multiparous. Mean BMI of women was 24.4±4.2 kg/m^2 (min 15.9 kg/m^2–max 39.1 kg/m^2) at first trimester and 28.5±4.2 kg/m^2 (min 17.5 kg/m^2–max 46.8 kg/m^2) at birth. Mean BMI increase rate during pregnancy was 17.5±9.5% (min 1%–max 51.4%). Mean blood loss was 57.3±43.9 ml in the 3rd stage of labor and 113. 2±76.9 ml in the postpartum first hour. Two women (0.5%) had blood loss >500 ml.

No correlation was found between the blood loss in the 3rd stage of labor and BMI_1 (r=0.015), BMI_2 (r=0.030), and increased rate of BMI during pregnancy (r=0.006). There was also no significant correlation between the amount of blood loss in the postpartum first hour and BMI_1 (r=–0.026), BMI_2 (r=–0.003), and increased rate of BMI during pregnancy (r=0.037). Similarly, the amount of blood loss in the postpartum first hour and duration of the 1st (r=0.092), 2nd (r=0.079), and 3rd (r=0.044) stages of labor were not correlated.

As shown in **Table 2,** nulliparity, history of postpartum hemorrhage in previous pregnancies, and presence of episiotomy were found to be the other risk factors increasing postpartum blood loss in both the 3rd stage of labor and postpartum first hour. Episiotomy rates were 92.6% and 56.5% in nulliparous and multiparous women, respectively (p<0.001). Amount of blood loss in the postpartum first hour was higher in women with premature rupture of membranes (130.1±104.5 vs. 109.6±69.3, p=0.047).

Table 1. Maternal demographics, antenatal care, and delivery characteristics of study population

Characersitics	
Age (year)	26.2±5.1
Gravidity	2.3±1.3
Parity	1.0±1.0
Nulliparity	149 (36.3%)
BMI_1 (kg/m^2)	24.4±4.2
BMI_2 (kg/m^2)	28.5±4.2
BMI increase rate (%)	17.5±9.5
Previous PPH	4 (1%)
History of anticoagulant use	1 (0.2%)
PROM	73 (17.8%)
Labor augmentation	83 (20.2%)
Gestational age (weeks)	
37–38	56 (13.6%)
38–39	81 (19.7%)
39–40	125 (30.4%)
40–41	114 (27.7%)
>41	35 (8.5%)
Duration of 1st stage (min)	263.4±151.4
Duration of 2nd stage (min)	27.6±26.1
Duration of 3rd stage (min)	9.6±5.9
Blood loss in 3rd stage (ml)	57.3±43.9
Blood loss in postpartum 1st hour (ml)	113. 2±76.9
≥500 ml blood loss in postpartum 1st hour	2 (0.5%)
Episiotomy	286 (69.6%)
Laceration	73 (17.8%)
Perineal	48(11.7%)
Vaginal	24 (5.8%)
Cervical	1 (0.2%)
Retained placenta	2 (0.5%)
Newborn birthweight (gr)	3275.2±402.6
PrepartumHb (gr/dl)	11.9±1.4
Postpartum Hb (gr/dl)	11.1±1.4
Transfusion need	5 (1.2%)
Erytrocyte transfusion	5 (1.2%)
FFP transfusion	2 (0.5%)
Platelet transfusion	-
Hospital stay (day)	1.2±0.4

BMI, body mass index; BMI1, pre-pregnancy BMI; BMI2, BMI at birth; PPH, postpartum hemorrhage; PROM, premature rupture of membrane; FFP, Fresh frozen plasma;
Data are mean±SD, and number (%)

Table 2. Risk factors for postpartum hemorrhage

Characteristics	Blood loss in third stage of labor (ml)	P value	Blood loss in postpartum first hour (ml)	P value
Age (year)*		0.250		0.343
≥35	50 (5–350)		100 (20–750)	
<35	50 (10–200)		95 (20–280)	
Nulliparity†		0.015		0.002
Nulliparous	64.4±48.9		128.9±75.9	
Multiparous	53.6±40.3		103.9±76.3	
BMI1†		0.799		0.451
≥30 kg/m^2	55.9±29.7		105.1± 50.0	
<30 kg/m^2	57.7± 45.4		114.3±79.9	
BMI2†		0.532		0.898
≥30 kg/m^2	59.4±48.1		113.9±76.3	
<30 kg/m^2	56.5±41.6		112.9±77.5	
BMI increase rate†		0.520		0.711
≥25%	54.6±54.1		110.2±78.6	
<25%	58.2±41.2		113.9±76.7	
Previous PPH†		<0.001		<0.001
Present	157.5 ±149.1		250.0±212.1	
Absent	56.5±40.9		111.8±73.7	
PROM†		0.053		0.047
Present	66.5±53.3		130.1±104.5	
Absent	55.6±41.4		109.6±69.3	
Labor augmentation†		0.389		0.375
Present	61.2±39.6		119.9±65.8	
Absent	56.6±44.9		11.4±79.7	
Gestational age†		0.475		0.340
≥41 weeks	62.6±46.9		125.3±77.6	
<41 weeks	57.0±43.6		112.1±76.9	
Episiotomy†		0.001		<0.001
Present	62.2±47.8		123.2±83.5	
Absent	46.8±30.9		91.1±53.9	
Laceration†		0.344		0.302
Present	53.1±36.6		104.6±65.4	
Absent	58.5±45.3		115.1±79.2	
Prepartum Hb*		0.756		0.301
<10 gr/dl	50 (10–200)		100 (25–400)	
≥10 gr/dl	50 (5–350)		100 (20–750)	

BMI, body mass index; BMI1, pre-pregnancy BMI; BMI2, BMI at birth; PPH, postpartum hemorrhage; PROM, premature rupture of membranes
Data are mean±SD and median (min–max).
*Mann–Whitney U test was used.
†Independent samples T test was used.

DISCUSSION

Although obesity is reported to be a risk factor for postpartum hemorrhage, the study result did not show any association between the increase in BMI during pregnancy and the amount of postpartum blood loss in low-risk pregnancies. Also there was no effect of pre-pregnancy BMI and BMI at birth on postpartum hemorrhage. Nulliparity, history of postpartum hemorrhage in previous pregnancy, episiotomy, and premature rupture of membranes were the other risk factors increasing postpartum blood loss in the study population.

In our series, prevalence of postpartum hemorrhage at or beyond 500 ml was 0.5%. This rate is well below the prevalence reported previously.[15,16] A 3% incidence of postpartum hemorrhage after vaginal delivery in 31,055 women was reported in a multicenter study.[14] Carrolli et al.[16] reported that the global prevalence of postpartum hemorrhage (≥500 ml blood loss) and severe postpartum hemorrhage (≥1000 ml blood loss) are 6% and 1.86% in all deliveries, respectively. The reason for this inconsistency in the literature may be the design of our study. Our study population included low-risk pregnancies and blood loss in the postpartum first hour only was evaluated. Whereas women with well-known risk factors for postpartum hemorrhage such as hypertension, preeclampsia, diabetes mellitus, placenta previa, and so on were included in previous studies and postpartum blood loss within 24 hours was taken into account for determining the prevalence of postpartum hemorrhage.

Unlike previous publications, we did not find an association between the postpartum blood loss and BMI either pre-pregnancy or at birth. Recent studies reported that obesity is a risk factor for postpartum hemorrhage.[1,8,17,18] The study population of these reports included a combination of low- and high-risk patients. Wetta et al.[1] reported that obesity is a risk factor for postpartum hemorrhage as well as multiple gestation, hydramnios, preeclampsia, and chorioamnionitis. In a population-based cohort study, the postpartum hemorrhage risk (bleeding >1000ml) after vaginal delivery was 5.2% in women with BMI ≥40 kg/m^2,whereas this incidence was 4.4% in normal weight women.[10] Our study population included only low-risk pregnancies and vaginal deliveries to eliminate possible confounding factors. Another reason for the presented results may be the low number of obese women in the study population. A total of 47 (11.5%) women had a BMI between 30 and 39.9 kg/m2 and there was no woman with BMI ≥40 kg/m^2 in our cohort.

The WHO recommends an ideal gestational weight gain according to the guidelines developed by the Institute of Medicine (IOM).[19] Previous studies demonstrate that excessive weight gain during pregnancy is associated with adverse pregnancy outcomes such as hypertension, preeclampsia, gestational diabetes, cesarean delivery, and macrosomia.[12,13] However, the effect of gestational weight gain during pregnancy on postpartum hemorrhage has not been clarified yet. There are conflicting results in retrospective studies reporting the relationship between gestational weight gain and postpartum hemorrhage. Li et al.[13] reported an increase of 1.3 times in the risk of postpartum hemorrhage in women with excessive weight gain greater than the IOM recommendation. On the other hand, in a study conducted by Kominiarek et al.[14] the effect of gestational weight gain on postpartum hemorrhage could not be demonstrated in obese women. Risk of postpartum hemorrhage was similar in Class I, II, and III obese women with excessive weight gain and normal weight gain in this report. Our study population consisted for the most part of normal weight women, and we did not find any correlation between the gestational weight gain and postpartum blood loss after vaginal delivery.

In the present study, several features previously described as risk factors for postpartum hemorrhage were also found to be associated with an increased amount of postpartum blood loss.[20-23] The amount of blood loss was higher in nulliparous women and women with a history of postpartum hemorrhage in previous pregnancies, premature rupture of membranes, and episiotomy. Nulliparity was found to be a risk factor as reported in the literature. The higher episiotomy rate can be speculated as the cause of increased postpartum bleeding in the nulliparous women. In a study evaluating different oxytocin protocols for active management of the 3rd stage of labor, higher postpartum blood loss was reported in women who had an episiotomy.[23] Based on these findings, as recommended in the latest Cochrane Review, selective episiotomy should be considered instead of routine use.[24]

The major strength of our study was the homogeneity of our study population. To eliminate other confounding factors, the study population included only low-risk pregnancies who gave birth vaginally. High-risk pregnancies and operative deliveries were excluded. The same labor induction and augmentation protocol were also administered in all participants. Higher severe postpartum hemorrhage rate was reported in women who underwent labor induction with low-dose oxytocin regimen than with high-dose previously.[25] The other strength of the study is the objective measurement of the amount of postpartum blood loss by a calibrated drape as visual estimation of blood loss is often inaccurate.[26,27] To the best of our knowledge, this study is one of the pioneering studies using the change in BMI to evaluate its association with the amount of postpartum bleeding. Observational design is a limitation of the study. Consecutive cases were collected and the number of obese cases was found to be much lower than cases with BMI <30 kg/m^2 during the study period. Studies including more obese women are needed to be able to generalize our results to the obese patients' groups.

CONCLUSION

There was no relationship between the amount of postpartum blood loss and the gestational weight gain in women with low-risk pregnancy who gave birth vaginally. Nulliparity, previous history of postpartum hemorrhage, premature rupture of membranes, and episiotomy were found to be the risk factors increasing postpartum blood loss.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was carried out with the permission of Etlik Zubeyde Hanim Women's Health Training and Research Hospital Ethical Committee (2018/16).

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Orjinal Araştırma / Original Article

The Effect of Socio-Demographic and Cultural Features on Traditional, Complementary and Alternative Medicine in Healthcare Students

Sağlık Öğrencilerinde Sosyo-Demografik ve Kültürel Özelliklerin Geleneksel, Tamamlayıcı ve Alternatif Tıp Üzerine Etkisi

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Abstract

Objective: The aim of the research is to determine the impact of socio-demographic-cultural characteristics and educational background on the approach to Traditional, Complementary and Alternative Medicine (TCAM) practices among healthcare students.

Material and Method: The research was designed as a quantitative and descriptive-cross-sectional study and carried out with health educated students from two different universities.

Results: 59.4% of the participants reported using TCAM; 21.2% reported having experienced problems with the practices they applied, while 68.8% advice this method to others. The variables of age, university, marital status, long-term location of residence, perceived income, chronic disease status, smoking, source of traditional, complementary and alternative medicine information, any problems following TCAM use and post- TCAM experience were found effective.

Conclusion: TCAM training should be included in the education programs of students receiving health education so as to provide them with accurate information on the matter.

Keywords: Complementary therapies, alternative medicine, cultural characteristics, health education

Öz

Amaç: Sağlık eğitimi alan öğrencilerde, sosyodemografik-kültürel ve konuya ilişkin eğitim alıp almamaya yönelik özelliklerin Geleneksel Tamamlayıcı Alternatif Tıp (GETAT) uygulamalarına yaklaşımlarındaki etkisini belirlemektir.

Gereç ve Yöntem: Nicel ve tanımlayıcı-kesitsel tipte olan araştırma iki farklı üniversitenin sağlık eğitimi alan öğrencileriyle gerçekleştirilmiştir.

Bulgular: Katılımcıların %59.4'ü GETAT kullandığını, %21.2'si yaptığı uygulamadan dolayı sorun yaşadığını, %68.8'i başkalarına da bu yöntemleri tavsiye ettiğini belirtmiştir. Yaş, üniversite, medeni durum, hayatının uzun süre ile geçtiği yer, gelir düzeyi algısı, kronik hastalık durumu, sigara alışkanlığı, GETAT konusundaki bilgi kaynağı, GETAT nedeniyle sorun yaşayıp yaşamama durumu ve GETAT sonrası deneyim değişkenleri etkili bulunmuştur.

Sonuç: GETAT eğitimleri konuya ilişkin doğru bilgilerin kazanımı için sağlık eğitimi alan öğrencilerin eğitim programlarında olmalıdır.

Anahtar Kelimeler: Geleneksel tıp, tamamlayıcı tıp, alternatif tıp, sağlık eğitimi

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INTRODUCTION

Complementary, traditional, conventional, or alternative methods that are defined under the main heading of Traditional and Complementary Alternative Medicine (TCAM) have existed for centuries.[1,2] However, TCAM practices are still debated in many countries around the world by policymakers, health professionals and public with regard to matters such as security, effectiveness, availability, protection and organization.[3] The World Health Organization (WHO) defines Traditional Medicine (TM) as the sum total of knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures.[4] While complementary/alternative medicine (CM) is defined as a broad set of healthcare practices that are not part of that country's own tradition or conventional medicine and are not fully integrated into the dominant healthcare system.[5] Their union is defined as traditional and complementary medicine (T&CM). In mid-2017, WHO's T&CM unit was renamed to include the term "Integrative Medicine", to cover the integrative approaches of both T&CM and conventional medicine regarding policy, information and practices.[6]

T&CM is becoming more popular in all stages of health, especially in the preventive and therapeutic areas.[7,8] TCAM is widely used worldwide for various reasons such as accessibility, suitability, home-use, cultural compatibility, cost-effectiveness, and as a way of dealing with non-communicable chronic diseases. The report published in 2012 by WHO Traditional Medicine Strategy touched upon issues such as the limited number of research on the subject, absence of control and regulatory mechanisms for advertisements, absence of product-related control mechanisms, inadequate financial support for research, lack of communication between the health authorities on the subject, and inadequate training received by those applying these methods,3 emphasizing the need for improvements.[9]

The rate of TCAM use at least once a year is above 40% in countries such as America, Germany, Switzerland, Cuba, Japan and Chile.[10] Some countries have included T&CM practices in their curricula. The use of T&CM in regions such as Asia, Africa, Australia and North America is much higher than European countries that frequently opt to these methods.[3]

The rate of TCAM use is 48.2% in Australia, 49.3% in France, and 70.4% in Canada; while, among developing countries, it is around 70.0% in China, 40.0% in Colombia and 80.0% in African countries.[11]

Turkey is a country with national policies, regulations, research institution and an application hospital on TCAM. Only a physician is given the authority to apply TCAM. However, there is no data regarding the percentage of physicians performing these practices and their ratio to the total share of traditional medicines. Individuals often seek non-physician healthcare professionals for counseling, which is a widely accepted concept in Turkey. In this context, it is important to identify individuals' perceptions, awareness and practices towards the matter.

Participating students, who will take part in health services as non-physician healthcare personnel in the future, from two different universities who receive and do not receive elective courses on TCAM were compared with the aim to determine their approaches within the scope of their socio-demographic and cultural characteristics.

MATERIAL AND METHODS

The research was designed as a quantitative, descriptive and cross-sectional study. Study data were collected through a questionnaire during the 2018-2019 academic year. Ethical and institutional permissions were obtained prior to the research and voluntary participation was sought. The establishment year and academic structure of the universities where the research was conducted were similar. A University is located in the Eastern Black Sea region on Turkey, whereas B University is located in the Eastern Anatolia region. A University exhibits similar cultural characteristics with the countries in the west of Turkey, whereas B university exhibits similar cultural characteristics with the countries in the east of Turkey The majority of university students consisted of those coming from cities in the vicinity of the region where the university is located. These universities were purposefully selected for easy sampling. A university has a population of 690 students studying healthcare. A total of 588 people participated in the study (response rate: 85.21%). B University has a population of 675 students studying healthcare. A total of 570 people participated in the study (Response rate: 84.44%).

Data Collection Tools

Data were collected using a questionnaire form developed by the researchers. The questionnaire form included questions investigating the socio-demographic and cultural characteristics of the participants such as which university they attended, class, department, age, gender, marital status, family type, mother and father's educational background and occupation, habits, disease history, previous knowledge about TCAM methods, previous applications, familiarity with TCAM methods, history of usage, any associated problems experienced, and recommendations if any.

Data Collection

Prior to the study, approval was obtained from the Research Ethics Committee of Bingöl University (26/03/2018:10) and the deanships of the schools where students were enrolled. Participating students were given an Informed Consent Form attached to the questionnaire for the explanation of the scope of the study. The study data were collected by the researchers in the first 20 minutes of any lesson.

Informed Consent Form: The form explains that all individuals are completely free to decide whether to participate in the research and they can withdraw from the research at any time and that their identity will be kept confidential at all stages of the research, but the information obtained will be used.

Statistical Analysis

The SPSS-22 package software was used to evaluate the study data and perform error checks, tables and statistical analyses. TCAM questions were the dependent variables of the study, whereas the independent variables were the socio-demographic-cultural characteristics. Descriptive statistics were expressed as number, percentage, median and min-max values. In the study, binary logistic regression analysis was performed; the means were presented with standard deviation (Mean ± SD), and the value of $p < 0.05$ was considered statistically significant.

RESULTS

The mean age of the participants was 20.83 ± 1.67 (min-max: 18-30, Median: 21). Descriptive characteristics of the participants are shown in **Table 1**. In the study, 31.4% of the participants were female. This rate is similar to the ratio of faculty students in Turkey where three out of every four people studying in fields such as nursing and midwifery are female. The rate of smokers is 17.4%, while the rate of those who drink alcohol is 3.1%. The participants were asked which TCAM methods they used. Out of all participants, 34.6% reported not having previously heard about prolotherapy, 31.6% about larvae application, 31.5% about ozone therapy, 31.4% about homeopathy, 30.2% about mesotherapy, 27.3% about osteopatia, 26.2% about chiropractic, 21.6% about acupuncture, 21.5% about phytotherapy, 20.7% about leech therapy and reflexology, 19.6% about cupping, 16.5% about meditation, 17.4% about yoga, and 5.5% about breathing exercises. On the other hand, 51.6% of the participants reported using breathing exercises, 45.5% prayer, 44.8% massages, 39.3% music therapy, 37.9% aerobics, 33.9% meditation, 33.0% nutrition therapy, 32.0% thermal spring, 30.0% yoga, 28.7% reflexology, 28.2% cupping, 27.9% phytotherapy, 27.2% aromotherapy, 26.5% leech therapy, 25.0% chiropractic, 24.6% acupuncture, 23.8% hypnosis, 21.9% osteopatia, 20.6% mesotherapy, 19.9% homeopathy, 18.0% ozone treatment, 17.9% larval treatment, and 16.3% prolotherapy.

As can be seen in **Table 2**, the upmost reasons for using TCAM practices were; believing it will provide additional benefit to the medical method (84.2%), believing it will prevent the progression of the disease (72.9) and believing that it will promote health/well-being and provide physical relief (72.8%).

Table 3 demonstrates the participants' TCAM practices. The rate of those who use TCAM is 59.4%, and the rate of those receiving this training as an elective course is 5.3%. It was observed that the participants picked “seeing users benefit from it” as the upmost reason for using TCAM methods. On the other hand, 33.7% stated that “acknowledged specialists should be preferred" for TCAM. The rate of those experiencing problems due to the use of TCAM is 21.2%. The rate of those saying "I would give up medical treatment and use TCAM alone if I believed it was necessary" is 8.1%.

Table 1. Distribution of descriptive features of participants (N = 1158)

Characteristics		Number	%
University	A University	588	50.8
	B University	570	49.2
Age (Median: 21)	Under 20 years of age	517	44.6
	Above 21 years of age	641	55.4
Gender	Female	764	31.4
	Male	364	68.6
Marital status	Married	68	5.9
	Single	1090	94.1
Family type	Nuclear	879	750.9
	Extended	269	23.2
	Broken	10	0.9
Long-term location of residence	Rural setting	370	32.0
	Urban setting	788	68.0
Mother's Level of Education	Literate, did not finish school	288	24.9
	Primary school graduate	534	46.1
	Secondary school graduate	143	12.3
	Highschool graduate	153	13.2
	University graduate	40	3.5
Father's Level of Education	Literate, did not finish school	84	7.3
	Primary school graduate	442	38.2
	Secondary school graduate	217	18.7
	Highschool graduate	329	28.4
	University graduate	86	7.4
Smoking	No	957	82.6
	Yes	201	17.4
Alcohol	No	1122	96.9
	Yes	36	3.1
Drug addiction	No	904	78.1
	Yes	254	21.9
Chronic disease	No	1069	92.3
	Yes	89	7.7

As seen in **Table 4**; the participants' age, university, marital status, long-term location of residence, perceived income, chronic diseases, smoking habit, source of TCAM information, whether or not experiencing problems due to TCAM, and post-TCAM experience were all found effective, independently from each other ($p < 0.05$). The evaluation of the one-unit increase showed that having experienced problems due to TCAM use was 11.6 times; being at A university was 4.94 times; being single was 2.96 times; high expenses was 2.1 times; chronic disease was 2.0 times; not experiencing any improvements in previous experiences was 1.9 times, not noticing any results was 1.7 times; long-term residence in urban settings was 1.5 times and age was 1.4 times effective in not using TCAM ($p < 0.05$). The evaluation of the one-unit increase in using TCAM showed that the means of the internet as a source of TCAM information and previous education were 0.4 times; newspaper-book-magazine as the source of information was 0.2 times; and previous negative experience following TCAM practice was 0.3 times effective ($p < 0.05$).

Table 2. Distribution of participants' responses to reasons for TCAM use (N = 1158)

Reasons for TCAM use	No n (%)	Yes n (%)
It provides additional benefits to medical methods (n=1092)	172 (15.8)	920 (84.2)
I believe it prevents the progression of the disease/has benefits (n=1070)	290 (27.1)	780 (72.9)
It promotes health/well-being (n=1083)	295 (27.2)	788 (72.8)
It provides physical relief (n=1079)	293 (27.2)	786 (72.8)
It improves the symptoms of the disease before medical treatment (n=1050)	317 (30.2)	733 (69.8)
I pay attention to the recommendations of friends and relatives (n=1057)	331 (31.3)	726 (68.7)
It may work, there is no harm in trying (n=1047)	341 (32.6)	706 (67.4)
It helps to get rid of the feeling of hopelessness and despair (n=1051)	347 (33.0)	704 (67.0)
It strengthens the immune system (n=1053)	351 (33.3)	702 (66.7)
Medicinal treatment methods have side effects (n=1044)	349 (33.4)	695 (66.6)
Any treatment that can cure the disease should be given a chance (n=1042)	367 (35.2)	675 (64.8)
It improves the quality of life (n=1078)	479 (44.4)	599 (55.6)
Means of communication promote it (n=1035)	390 (37.7)	645 (62.3)
Current methods are not useful (n=1023)	407 (39.8)	616 (60.2)
Medicinal treatment methods are difficult, painful or expensive (n=1027)	540 (52.6)	487 (47.4)

Table 3. Distribution of participants' TCAM practices (N = 1158)

Characteristics		n	%
Previous history of TCAM use	No	688	59.4
	Yes	470	40.6
Source of TCAM information (n=952)	Healthcare professionals	119	12.5
	Close circle (such as family, friends)	631	66.3
	Internet	100	10.5
	Newspaper, book, magazine	33	3.5
	TV, radio	19	2.0
	Education	50	5.2
Would he/she consider using TCAM in the future? (n=748)	Yes	221	29.5
	No	178	23.8
	Undecided	349	46.7
In what case would he/she use TCAM? (n=785)	Having knowledge about it	415	2.9
	Seeing that users benefit from it	211	26.9
	Upon a healthcare professional's recommendation	159	20.2
Who to apply for TCAM (n=1076)	Those with a document/certificate	424	39.4
	Acknowledged specialists in the relevant field	363	33.7
	No feature is required	289	26.9
Problems associated with TCAM use (n=1155)	No	910	78.8
	Yes	245	21.2
In which case does he/she resort to TCAM practices? (n=1126)	Before visiting the doctor	405	36.0
	After visiting the doctor	382	33.9
	In the case of medical complaints	339	30.1
General application of TCAM practices (n=1119)	Alone by stopping the current treatment	91	8.1
	With treatment	523	46.7
	After treatment	505	45.1
Post-TCAM experience	Positive outcomes	783	71.6
	Negative outcomes	65	5.9
	No change	130	11.9
	Did not notice	116	10.6
Did he/she recommend TCAM methods to others? (n=1100)	Yes	757	68.8
	No	343	31.2

Table 4. Factors Affecting TCAM Use Among Participants* (N = 1158)

Variable		β	p	OR	95% CI
Age (Numerical)		0.387	0.001	1.473	1.309-1.658
University	B University			1.00	
	A University	1.598	0.001	4.942	3.297-7.408
Gender	Male			1.00	
	Female	-0.154	0.421	0.857	0.588-1.248
Marital status	Married			1.00	
	Single	1.085	0.018	2.961	1.206-7.272
Location of long-term residence	Rural Setting			1.00	
	Urban Setting	0.439	0.017	1.551	1.081-2.225
Perceived income	Higher income		0.096	1.00	
	Higher Expenses	0.758	0.042	2.135	1.026-4.440
	Income equal to expenses	0.519	0.153	1.681	0.825-3.424
Chronic disease	No			1.00	
	Yes	0.726	0.021	2.067	1.114-3.836
Smoking	No			1.00	
	Yes	-1.828	0.001	0.161	0.095-0.273
Use of over-the-counter medicines	No			1.00	
	Yes	0.057	0.770	1.059	0.720-1.558
Source of TCAM information	Healthcare professionals		0.012	1.00	
	Close circle	-0.275	0.304	0.760	0.450-1.283
	Internet	-0.706	0.043	0.493	0.249-0.979
	Newspaper, book, magazine	-1.526	0.004	0.217	0.077-0.616
	TV, radio	-1.252	0.058	0.286	0.078-1.046
	Education	-0.869	0.042	0.419	0.181-0.970
Problems following TCAM use	No			1.00	
	Yes	2.454	0.001	11.630	7.489-18.059
Post-TCAM experience	Positive outcomes		0.001	1.00	
	Negative outcomes	-1.166	0.004	0.312	0.140-0.693
	No change	0.650	0.015	1.916	1.132-3.241
	Did not notice	0.547	0.044	1.728	1.016-2.939

* Nagelkerke R Square: 395, Omnibus Test of Model Coefficients p=0.001

DISCUSSION

In 2012, the Traditional and Complementary Medicine Department was founded in Turkey and some regulations were included in the 2013-2017 Strategic Action Plan. In 2014, acupuncture, phytotherapy, apitherapy, homeopathy, hypnosis, leech therapy, cupping therapy, osteopathy, chiropractic, reflexology, musicotherapie, prolotherapy, maggot therapy and ozone therapy were legalized but not covered by public health insurance. Irelated training programs were allowed in educational research hospitals and universities under the scope of the Ministry of Health. Although TCAM methods are used nationally and have been under medical record for the past 30 years, there is no data on the rates of TCAM users on a country level.[12] Consequently, the research data were compared with other researches conducted in the country on a local basis. The aim of the research is to determine the impact of relevant socio-demographic and cultural characteristics on TCAM practices among undergraduate healthcare students from two different cities with different cultures.

According to the WHO, more than three-quarters of the world's population trust complementary health approaches.[11] 59.4% of the participants reported using TCAM. The rate of TCAM use was found 60.5% in the study conducted in seven geographical regions of Turkey, while another study reported a rate of 28.7%.[11,13] A study conducted at a university in the United Arab Emirates found the rate of TCAM users as 34%, whereas another study from Uganda found that 59% of the participants used TCAM.[14,15] The rate of TCAM use varies from country to country and even in different regions of the same country.

In this research, the upmost TCAM methods of preference were praying, massage, aerobics and meditation. The participants reported not having previously heard of methods such as prolotherapy, homeopathy, ozone therapy and reflexology. Another domestic study demonstrated that cupping, acupuncture and hypnosis were the most preferred method among the participants, whereas chiropractic care and prolotherapy were the least.[16] A study conducted in Indonesia reported spiritual-religious therapy, dietary supplements,

music therapy and meditation as the most preferred TCAM methods among the participants, respectively.[17] TCAM therapies provide an optimistic outlook and touch individuals' feelings and spirituality, going beyond the 'symptoms' defined by conventional medicine.[18]

The reasons for TCAM use vary depending on many factors. The reasons for TCAM use among the individuals included factors such as insufficient health assurance, side effects of some medications, complications and fees of medical interventions, belief in the insufficiency of medical interventions to improve immunity or provide treatment, and health promotion.[19] In this study, the reasons for TCAM use among the participants included believing that it would provide additional benefit to the medical method, believing that the progression of the disease would be prevented and that it would promote health/well-being and provide physical relief. The reasons for not using TCAM included believing that medication treatment would be expensive or difficult; believing that it would not affect the quality of life or that it would not provide benefit to current methods. In another domestic study, the participants reported applying TCAM methods because they believed it would improve overall health and well-being; they saw that those who did were satisfied; and they were not satisfied with medical treatment, respectively.[11] A study conducted in India demonstrated that approximately half of the participants used Ayurvedic and herbal therapies.[20]

In this study, the proportion of those receiving TCAM training as an elective course was 5.3%, and the upmost reason for using TCAM methods was “seeing other users benefit from it”. On the other hand, 33.7% stated that “acknowledged specialists should be preferred" for TCAM. While the rate of those who experienced “negative outcomes” due to TCAM use was 21.2%, the rate of those picking “I will stop using treatment alone if I believe that TCAM is necessary” was 8.1%. Although the participants in the study of Ozyıldırım et al. stated that they wanted to take elective courses on TCAM, 40.% stated that they did not need medical training for applying such medical treatment methods.[21] TCAM trainings vary from country to country, even within the same country. It is noteworthy that TCAM trainings are very common in medical schools in Thailand where almost half of the schools offer TCAM training.[22] In another study, 39% of the participants reported finding TCAM practices beneficial. The study by Liem demonstrated that personal experience, recommendations and referrals were effective in the participants' TCAM preference, respectively.[17] An Australian study reported that students receiving education in different segments of healthcare differed from each other in terms of their preferred TCAM method of use, with the most preferred methods being massage, meditation, yoga and praying.[23] A study conducted with pharmacists in Lebanon revealed a much higher rate of educational background on TCAM at the undergraduate level among the participants than in this study, reporting that more than half of the participants found TCAM practices beneficial and they believed they had fewer side effects than medical practices.[24]

In present study, the reasons for not using TCAM were as follows, respectively; a negative experience associated with TCAM practices, studying at A university, being single, high expenses, chronic illness, not having experienced any benefits in previous experiences, not having noticed the results and living mostly in urban settings; whereas sources of TCAM information such as internet, newspaper, book, and magazine, along with an educational background were effective reasons for using TCAM. The study conducted by Aktas[25] did not find the difference in gender and location of residence significant, whereas the results of the study of Sahin et al. were contradictory to theirs.[26] The study conducted by Armson[23] reported that cultural characteristics were effective in TCAM use. The study conducted by Attyiat et al.[18] similarly reported that background of a previous training received by participants played a role in TCAM preference. Another available study found an association between education and gender variables and TCAM, in which the participants recommended the use of TCAM to others.[14] The research of Mederious found that, out of all socio-demographic variables, only the female gender was an influencing factor,whereas Mwaka et al.[15] reported the class of participants as the influencing factor.[27] On the other hand, Samara et al.[28] found the class, long-term location of residence and income level effective. Values and beliefs regarding religion, politics, and health affect the use of traditional treatment among individuals.[15]

It is important that health professionals know different approaches as they are the ones to moderate TCAM practices. The results of the study demonstrate that socio-demographic and educational characteristics are effective in use of TCAM methods among the undergraduate healthcare students from two different cities. It may be important to conduct research among students and healthcare professionals with different levels of health education for evaluating the impact of professional characteristics on TCAM.

ETHICAL DECLARATIONS

Ethics Committee Approval: Prior to the study, approval was obtained from the Research Ethics Committee of Bingöl University (26/03/2018:10) and the deanships of the schools where students were enrolled.

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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Orjinal Araştırma / Original Article

The Effect of Planned Training Regarding Breast Self-Examination on Women's Health Beliefs

Kendi Kendine Meme Muayenesi ile İlgili Verilen Planlı Eğitimin Kadınların Sağlık İnançlarına Etkisi

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Abstract

Aim: This study was conducted quasi-experimentally to determine the effect of planned training regarding breast self-examination on women's health beliefs.

Material and Method: The research group consisted of 108 women from the Semi-Open Women's Prison, the Public Training Center, and the Evening Art School and from the Quran Course in the Family Health Center region. Data were collected using a sociodemographic characteristics questionnaire and the Turkish version of the Champion's Health Belief Model Scale. A control group was not used in this study; women's before the training evaluations were used as a control for their evaluations eight weeks after the training.

Results: In this study, it was determined that 32.4% of the women had training on breast self-examination and knew to perform breast self-examination. For the recent year, 15.7% of the women have performed breast self-examination, 10.2% have had a clinical breast examination and 10.4% have had mammography. After the training, it was determined that there was a significant positive increase in the perceptions of susceptibility, seriousness, benefit, confidence and health motivation subscales of the Champion's Health Belief Model Scale. In addition, the perception of barriers declined significantly in a positive direction ($p<0.05$).

Conclusion: It was determined that the rate of women performing breast self-examination and having a mammogram was low and that there was a significant increase in the Champion's Health Belief Model Scale subscales after the training compared to before the training evaluations. It is recommended that midwives and nurses should consider the health beliefs of women in breast examination training and prepare their training programs accordingly.

Keywords: Breast self-examination, health belief model, midwife, nurse, training

Öz

Amaç: Araştırma, kadınlara kendi kendine meme muayenesi ile ilgili verilen planlı eğitimin sağlık inançlarına etkisini belirlemek amacıyla yarı deneysel olarak yapılmıştır.

Gereç ve Yöntem: Araştırma grubunu, Yarı Açık Kadın Cezaevi'nde bulunan Halk Eğitim Merkezi ve Akşam Sanat Okulu'ndan seçilen ile Aile Sağlığı Merkezi Bölgesi'ndeki Kur'an kursuna devam eden kadınlar olmak üzere toplam 108 kadın oluşturmuştur. Araştırmanın verileri, kadınlara yönelik sosyo-demografik soru formu ve Türkçe Champion'un Sağlık İnanç Modeli Ölçeği ile toplanmıştır. Araştırmada kontrol grubu kullanılmamış, kadınların eğitim verilmeden önceki değerlendirmeleri, eğitimden sekiz hafta sonraki değerlendirmelerinin kontrolü olarak alınmıştır.

Bulgular: Araştırmada, kadınların %32.4'ünün kendi kendine meme muayenesi eğitimi aldığı ve kendi kendine meme muayenesi yapmayı bildiği saptanmıştır. Son bir yıl içerisinde kadınların %15.7'sinin kendi kendine meme muayenesi yaptığı, %10.2'sinin klinik meme muayenesi yaptırdığı ve %10.4'ünün ise mamografi çektirdiği bulunmuştur. Eğitim faaliyeti sonrasında, Champion'un Sağlık İnanç Modeli Ölçeği alt boyutlarından olan duyarlılık, ciddiyet, yarar, güven ve sağlık motivasyonu algılarında olumlu yönde anlamlı bir artış olduğu saptanırken, engel algısının da olumlu yönde değişerek önemli ölçüde azaldığı belirlenmiştir ($p<0.05$).

Sonuç: Kadınların kendi kendine meme muayenesi yapma ve mamografi çektirme oranlarının düşük düzeyde olduğu, eğitim öncesi değerlendirmelere göre eğitim sonrasında Champion'un Sağlık İnanç Modeli Ölçeği alt boyutlarında olumlu yönde anlamlı bir artış olduğu belirlenmiştir. Ebe ve hemşirelerin meme muayenesi ile ilgili eğitimlerde kadınların sağlık inançlarını göz önünde bulundurmaları ve eğitim programlarını bu doğrultuda hazırlanmaları önerilmektedir.

Anahtar Sözcükler: Kendi kendine meme muayenesi, sağlık inanç modeli, ebe, hemşire, eğitim

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INTRODUCTION

Breast cancer is one of the most common cancers diagnosed in women in Turkey and in the world. In our country, 24.8% of cancers diagnosed in women constitute breast cancer.[1–3] Early diagnosis and treatment of breast cancer are effective in prolonging the life span, in reducing mortality and in increasing quality of life.[4] The main methods recommended for early diagnosis are breast self-examination (BSE), clinical breast examination (CBE) and mammography.[5]

Breast self-examination is a method that does not require the use of any tools, is cheap, advantageous and can be routinely applied effectively by the woman herself. It is stated that there will be an opportunity to identify some signs with BSE that may indicate breast cancer due to masses detected in the breast.[6] However, studies show that women do not have enough knowledge about breast cancer prevention.[6–8] In previous studies, while the knowledge of women regarding BSE is between 8-80%,[6,7,9–17] their rate of performing monthly regular BSE ranges between 6-22%.[7,9,11–13,16,17] In our country, 19.7% of women aged 15 and over perform monthly BSE.[1]

Various interventions have been developed to increase the rates of BSE screening in Turkish women. These interventions include training programs organized by midwives and nurses, training initiatives with written materials, mass media and training activities. Although it is not clear which of these initiatives is strategically effective, the need for further education is clear.[18] Although randomized controlled trials have reported that BSE is not effective in early diagnosis in recent years, many organizations indicate that BSE is an important screening method for increasing women's awareness.[19] According to the "National Standards for Breast Cancer Screening Program" in Turkey, while the main screening method is for women aged 40-69 years to have a mammogram every two years, it is recommended that women participating in screening also perform CBE in order to increase the effectiveness of mammography. In addition, counseling services are provided for women to perform BSE after the age of 20 to raise awareness in society. Breast cancer screening is carried out by Cancer Early Diagnosis, Screening and Training Centers within the Family Health Centers (FHC) and Community Health Centers.[20] Although BSE alone has a limited effect in reducing the mortality of breast cancer, BSE has an important place for early detection of breast cancer in developing countries,[19] such as Turkey, where rates of women having regular mammograms are low (9%).[1] At the same time, since there is a relationship between women having CBE and having BSE on a regular basis, it is recommended to teach BSE by linking with other diagnostic methods and to reinforce the information provided.[21]

Providing early detection of breast cancer depends on increasing the awareness of breast cancer.[3] The Health Belief Model (HBM) created in this framework has been designed by adding cognitive-perceptual variables such as control perception, self-efficacy perception, health definition, and health perception that affect the decision-making process for behavior formation.[22] In these studies, HBM is used in training and evaluations about BSE and breast health screening behaviors of women are tried to be based on more solid foundations.[23–29] Situations that prevent breast health protection behaviors, perceived susceptibility to disease, and health motivations are described. When these studies are examined, it is seen that the educational contents are specific for breast cancer and BSE. It is thought that, besides BSE, the content and use of different teaching techniques can positively affect the attitudes and behaviors of women regarding the BSE. The findings obtained will be important while planning training and in evaluations regarding BSE. The aim of this study was to determine the effect of the planned training regarding BSE on women's health beliefs.

Research Questions

- What is the level of breast cancer screening practices of women in the recent year before training?
- Does the planned training given to women about breast self-examination have an impact on their health beliefs?

MATERIAL AND METHOD

Design

This study was conducted quasi-experimentally based on a single group with a pretest-posttest design.

Participants

The population of the study consisted of women from the Semi-Open Women's Prison (39), the Public Training Center and the Evening Art School (37), and the Quran Course in Family Health Center region (49) of one province in Central Anatolia in Turkey. The institutions included in the study were selected considering the obstacles women faced in accessing health services, and considering women's socioeconomic and educational status because they represented each level. The number of women in the Semi-Open Women's Prison has been taken into consideration in the formation of the research group. The research group consisted of 108 women from the Semi-Open Women's Prison (31 participants; 8 could not attend the final evaluation because they had been released from prison), the Public Training Center and the Evening Art School (36 participants; 1 could not be reached for the final evaluation) and from the Quran Course in the Family Health Center region (41 participants; final evaluation could not be made for 8 participants who did not attend the course). 17 out of 125 participants were not included in the study as the final evaluation could not be made. In our study, $\alpha = 0.05$ was taken for the sample group of 108, the power of the study was found to be 0.99 as a result of the power analysis calculated based on 0.50 effect size which was obtained using the mean and standard deviation values of the group before and after the training.

Inclusion Criteria

Women who were at least primary school graduates, had no breast cancer, were not involved in pregnancy and lactation processes and agreed to participate in the study were included.

Exclusion Criteria

Women who had breast cancer, were involved in pregnancy and lactation processes were not included in the study.

Instruments

Women's Sociodemographic Characteristics Questionnaire

The questionnaire was developed by researchers and consisted of a total 33 questions, namely, 10 questions assessing the descriptive characteristics of the women (such as age, marital status, educational status, occupation, and social security status), 13 questions about their risk for developing breast cancer, and 10 questions assessing their information, practice and information resources for breast cancer diagnosis.

Champion's Health Belief Model Scale (CHBMS)

The scale was designed by Champion in 1984 to determine women's beliefs and attitudes about breast cancer and BSE and revised in his later studies. In this study, the scale adapted to Turkish by Karayurt and Dramali was used. In the scale, there are 6 subscales which are "susceptibility", "seriousness", "benefits", "barriers", "confidence/self-efficacy" and "health motivation". The five-point likert-type scale format was used to measure responses. "strongly agree" was scored as five, "agree" as four, "undecided" as three, "disagree" as four and "strongly disagree" as one, separately. A single total score was not calculated. In the adaptation study, the scale's time invariance was assessed by test-retest correlation and was found to be between 0.89 and 0.99 for all subscales. The Cronbach Alpha reliability coefficients ranged from 0.58 to 0.89 for the subscales.[30] In this study, the Cronbach Alpha coefficient value for the subscales ranged from 0.58 to 0.86.

Intervention

On the first day of the intervention, the women were informed about the topic of the research, its importance and benefits, and the written consents of the women who agreed to participate in the study were obtained.

On the second day of the intervention, women were asked to fill out the sociodemographic characteristics questionnaire by measuring their body weight and height.

On the third day of the intervention, women were informed about their Body Mass Index (BMI) values, which were calculated using the body weights and heights of the women, the CHBMS was filled out, and the training date was decided.

In planning the training, the advice of two training specialists (educational psychology specialist in the field of educational sciences) was taken. The training consisted of two parts: drama and narration, and demonstration. The training was carried out by the first researcher as a group training. The researcher attended the "Training of the Trainer in Breast Cancer" course before planning the training. It was ensured that the groups had a minimum of 15 and a maximum of 21 people.

On the fourth day of the intervention, training using the drama method was carried out in 5 stages. The first stage, i.e., the warm up stage, consisted of breathing exercises; walking exercises; and neck, shoulder, waist, wrist and leg movements. In the second stage, i.e., the inclusion stage, "who am I", "let's know the hospital", or one of the bingo games were used to allow the group members to get to know each other. In the third stage, the activity part, two prepared breast cancer stories were shared with the group and turned into a drama. In the fourth stage, the feelings part, achievements and experiences of the group members in the drama process were evaluated. In the last stage, the group was relaxed with physical relaxation and recreational techniques.

On the fifth day of the intervention, the narration and demonstration sections of the training were completed. After the discussion of health and disease concepts with women, a presentation consisting of the structure of the breast, the incidence of breast cancer, the factors causing breast cancer, the types of breast cancer, signs and symptoms of breast cancer and prevention from breast cancer was made. In the demonstration part of the training, demonstrations were made on breast models according to BSE steps and they were carried out until all the women could do it properly. After the training, the brochure prepared by the Turkey Breast Foundation and the "American Cancer Society Breast Cancer Screening Guideline" were distributed to all women.

The final assessment of the CHBMS was made 8 weeks after the training on the sixth day of the intervention.

Data Collection

Data of the study were collected between April 2 and June 26, 2008 with the sociodemographic characteristics questionnaire and the Turkish version of the Champion's Health Belief Model Scale. The questionnaires were completed by the face-to-face interviewing method and took 15-20 minutes, on average.

Ethical Considerations

To collect the data, ethical approval (Decision No. 2007-10/2) was obtained from the Ethics Committee of Sivas Cumhuriyet University Faculty of Medicine; approval was also obtained from the institutions in which the study was conducted. The study was conducted in accordance with the Declaration of Helsinki. The women who were approached for participation in the study were informed that the decision about participating in the study was completely their own, that no name would be written on the questionnaire form and that the data obtained from the study would only be used within the scope of the research. It was stated that the collected information would be confidential, identifying information was not requested, and participation was voluntary. Written consents were obtained from those who agreed to participate in the study.

Data Analysis

The analysis of the data was done using the Statistical Package for the Social Sciences version 22.0 program in a computer environment. The percentage tests were used in the evaluation of the data and the Kolmogorov-Smirnov test was used in determining the normality of the data distribution. The data obtained from the CHBMS were seen to be normally distributed. A paired t test was used in the evaluation of the scale when the research group used before the training evaluations as a control for after the training evaluations. The data were assessed with 95% confidence intervals and using a 0.05 significance level.

RESULTS

The mean age of the 108 women in the study was 34.4±11.7. It was determined that 67.6% of the women in the study were 40 years old below, 61.1% were married, 51.9% were primary school graduates, 91.7% did not work, 77.8% had social security and 55.6% perceived their financial situation as moderate level. When the women in the study group were evaluated in terms of some breast cancer risk factors, 83.3% of them had menarche at the age of 13 and over, 98.7% of them had their first birth at the age of 30 and below, 14.8% of them went through menopause, 71.3% of them had children, 92.2% breastfed their children, 8.3% had breast cancer history in their family, 22.2% smoked, 4.6% consumed alcohol, and 45.4% were obese (**Table 1**).

Table 1. Sociodemographic and other characteristics according to groups of women (n=108)

Characteristics	Prison (n=31)		PTC (n=36)		FHC (n=41)		Total (n=108)	
	n	%	n	%	n	%	n	%
Age (Mean = 34.4 ± 11.7)								
29 and below	11	35.5	22	61.1	8	19.5	41	38.0
30-39	14	45.2	2	5.6	16	39.0	32	29.6
40-49	5	16.1	7	19.4	9	22.0	21	19.4
50 and above	1	3.2	5	13.9	8	19.5	14	13.0
Marital status								
Married	15	48.4	17	47.2	34	82.9	66	61.1
Single	16	51.6	19	52.8	7	17.1	42	38.9
Educational status								
Primary school	19	61.3	9	25.0	28	68.3	56	51.9
Secondary school	8	25.8	12	33.3	7	17.1	27	25.0
High school and above	4	12.9	15	41.7	6	14.6	25	23.1
Employment status								
Working	5	16.1	3	8.3	1	2.4	9	8.3
Not working	26	83.9	33	91.7	40	97.6	99	91.7
Social security								
Yes	9	29.0	35	97.2	40	97.6	84	77.8
No	22	71.0	1	2.8	1	2.4	24	22.2
Perceived monthly income								
Good	8	25.8	13	36.1	7	17.1	28	25.9
Moderate	10	32.3	20	55.6	30	73.1	60	55.6
Bad	13	41.9	3	8.3	4	9.8	20	18.5
Age of menarche								
12 and ↓	7	22.6	6	16.7	5	12.2	18	16.7
13 and ↑	24	77.4	30	83.3	36	87.8	90	83.3
Age of first birth (n=77)								
30 and ↓	27	100.0	14	93.3	35	100.0	76	98.7
31 and ↑	0	0.0	1	6.7	0	0.0	1	1.3
Going through menopause								
Yes	1	3.2	6	16.7	9	22.0	16	14.8
No	30	96.8	30	83.3	32	78.0	92	85.2
Breastfeeding (n=77)								
Yes	22	81.5	15	100.0	34	97.1	71	92.2
No	5	18.5	0	0.0	1	2.9	6	7.8
Breast cancer history in the family								
Yes	1	3.2	1	2.8	7	17.1	9	8.3
No	30	96.8	35	97.2	34	82.9	99	91.7
Smoking								
Yes	20	64.5	3	8.3	1	2.4	24	22.2
No	11	35.5	33	91.7	40	97.6	84	77.8
Consuming alcohol								
Yes	4	12.9	1	2.8	0	0.0	5	4.6
No	27	87.1	35	97.2	41	100.0	103	95.4
Body mass index								
Thin	0	0.0	2	5.6	0	0.0	2	1.8
Normal	11	35.5	16	44.4	4	9.8	31	28.7
Little fat	8	25.8	6	16.7	12	29.2	26	24.1
Obese	12	38.7	12	33.3	25	61.0	49	45.4

PTC: Public Training Center, FHC: Family Health Center

It was determined that 32.4% of the women had already had BSE training and 67.6% had not had training (**Table 2**); 54.3% were informed by health professionals and 36.7% were informed by media and written materials.

Table 2. Prior BSE training according to groups of women (n=108)

Prior BSE Training	Prison (n=31)		PTC (n=36)		FHC (n=41)		Total (n=108)	
	n	%	n	%	n	%	n	%
Yes	16	51.6	12	33.3	7	17.1	35	32.4
No	15	48.4	24	66.7	34	82.9	73	67.6

BSE: Breast Self-Examination, PTC: Public Training Center, FHC: Family Health Center

When we look at women's BSE performance, which is one of the behaviors related to early diagnosis, it is seen that 15.7% of the women performed BSE in the recent year and 84.3% did not. It is seen that 82.4% performed BSE once a year and 17.6% of them did so twice a year. When the women's behaviors related to the early diagnosis of breast cancer was examined within the recent year, 10.2% had a CBE, and 10.4% had a mammogram (**Table 3**).

A significant positive increase was seen in the susceptibility, seriousness, benefit, confidence and health motivation subscales after the training ($p<0.05$). At the end of the training, the perceived barrier subscale changed positively by decreased significantly ($p<0.05$, **Table 4**).

Table 4. Distribution of the women's CHBMS subscale mean scores before and after training (n=108)

CHBMS Subscales	Mean Score		Test Value	
	Before Mean ± SD	After Mean ± SD	t	p
Susceptibility	7.67 ± 2.19	9.39 ± 1.46	9.08	0.001*
Seriousness	20.70 ± 6.15	24.72 ± 4.26	6.66	0.001*
Benefit	17.47 ± 4.50	21.02 ± 2.20	8.25	0.001*
Barrier	29.08 ± 6.85	21.57 ± 3.69	11.73	0.001*
Confidence	30.70 ± 7.87	40.20 ± 3.60	12.82	0.001*
Health Motivation	23.45 ± 6.36	26.96 ± 3.46	5.96	0.001*

CHBMS: Champion's Health Belief Model Scale, SD: Standard deviation, t: Paired T test, * Significant

DISCUSSION

The American Cancer Society reports that women should be aware of changes in their breasts.[31] Although BSE alone has a limited effect in reducing the mortality of breast cancer, BSE has an important place for early detection of breast cancer in developing countries, such as Turkey, where the rates of women having regular mammograms are low.[19] In the current study, 32.4% of the women were found to have prior BSE training and knew how to do a BSE (**Table 2**). When the BSE information sources were examined, it was seen that 54.3% of women were informed by health professionals and 36.7% were informed by the media and written materials. In previous studies, women's knowledge of BSE varied between 8-80%.[6,7,9–17] Although the results obtained from the research are in line with the results of many studies, the rate of women receiving BSE training was quite low. This is thought to be due to the inadequacy of training and awareness-raising activities. In the studies conducted in terms of information sources, the rate of being informed by the media and written materials is between 16% and 62%, and the rate of being informed by health professionals is between 2% and 46%.[9–11,14,16,17,23] In the vast majority of these studies, the main source of information about BSE is the media and written materials, and the secondary source is health professionals. In this study, receiving information from health professionals is dominant. This is thought to be due to the training of healthcare professionals and, especially in the prison group, due to the high availability of information. At the same time, the proportion of women in prison who have access to media and written materials is also low.

When we look at the women's BSE performance, which is one of the behaviors related to early diagnosis, it was determined that 15.7% of the women performed a BSE in the last year and 84.3% did not. It was seen that 82.4% of the women performed BSE once a year and 17.6% of them twice a year (**Table 3**). In similar studies, while 8-28% of women performed BSE,[6,10,14–17] only 6-22% of them performed it once a month

Table 3. Breast cancer screening practices in the recent year before the training according to groups of women (n=108)

Variables	Prison (n=31)		PTC (n=36)		FHC (n=41)		Total (n=108)	
	n	%	n	%	n	%	n	%
Performed BSE								
Yes	6	19.4	6	16.7	5	12.2	17	15.7
No	25	80.6	30	83.3	36	87.8	91	84.3
BSE frequency (n=17)								
Once a year	5	83.3	5	83.3	4	80.0	14	82.4
Twice a year	1	16.7	1	16.7	1	20.0	3	17.6
Reported CBE								
Yes	3	9.7	3	8.3	5	12.2	11	10.2
No	28	90.3	33	91.7	36	87.8	97	89.8
Reported mammography* (n=67)								
Yes	1	5.0	3	21.4	3	9.1	7	10.4
No	19	95.0	11	78.6	30	90.9	60	89.6

PTC: Public Training Center, FHC: Family Health Center, BSE: Breast Self-Examination, CBE: Clinical Breast Examination
* Women who had mammography and were over 30 years of age were evaluated.

on a regular basis.[7,9,11–13,16,17] The rate obtained in this study is lower than the values in other studies. It is also interesting that women did not perform BSE even though they know how to do it. A wide range of interventions has been implemented to promote breast cancer screening behaviors in Turkish women. These include training with breast models, use of audiovisual materials, and oral training sessions.[24] Although these training methods have effects on information, their effects on awareness are not clear. The result of the current research is thought to be related to the fact that the aim is only to provide information and not to raise awareness. In addition, women's beliefs about BSE may not be taken into consideration during the information process.

When the women's behaviors toward early diagnosis of breast cancer within the recent year were examined, it was seen that 10.2% had a CBE and 10.4% had a mammogram (**Table 3**). In previous studies, it was seen that 8-49% of women had a CBE and 5-54% had a mammogram.[9,11,12,16,29,32–34] The rate of women having CBE was low and similar to that found in previous studies. It was seen that the rate of having mammography was low compared to other studies. The fact that both early diagnosis methods are used when women have complaints rather than for screening may be influential in the emergence of this result. In our country, it is thought that women may have experienced obstacles due to lack of information, neglect, lack of necessity, anxiety, lack of interest, shame and financial problems that impact their access to CBE and mammography.

In this study, the effect of the training on the subscales of the CHBMS was investigated after evaluating BSE training and early diagnosis methods in breast cancer. A significant positive increase was seen in the perception of susceptibility subscale and seriousness subscale mean scores after the BSE training (**Table 4**, $p<0.05$). In previous studies, there was a significant increase in women's perception of susceptibility to breast cancer after BSE training.[17,24,26,28,34–38] In the current study, giving the training to at least 15 and at most 21 people with drama, narration and demonstration methods is likely to have affected our results. However, the process of drama-related narration may have brought women closer to the idea of breast cancer and increased their susceptibility scores. In previous studies, there was a significant increase in women's perception of seriousness after the BSE training;[17,24,26,29,34–36] the findings of these studies support the result of this study. It is thought that women putting themselves in place of the patients during the drama method caused empathy and the story evaluations caused an increase in the perception of seriousness.

While a significant positive increase was seen in the perception of benefit subscale mean score after the training, the perceived barrier subscale mean score decreased significantly (**Table 4**, $p<0.05$). In previous studies, there was a significant increase in women's perception of benefit after BSE training.[17,24–26,28,29,35–37,39] The findings of this study are consistent with those of previous studies. In the method of narration used in training, it is thought that informing the women about the benefits of BSE has a positive effect on the result. In previous studies, a significant decrease was seen in the women's perceived barrier subscale after the BSE training.[17,26,28,29,35,36,39] In a study conducted by Masoudiyekta et al.[24] a significant increase was found in the women's perceived barrier subscale after the training. The findings of this study are consistent with the findings of previous studies. It is thought that the repetition of the BSE until the correct technique was used during the demonstration method, and the information given on the importance of BSE in early detection of breast cancer during narration method affect the results positively. At the same time, as demonstrated by Açıkgöz et al.[9] giving positive feedback to women and changing their perception regarding BSE (such as lack of information, negligence and not believing in the necessity) in our country may also be effective in reducing the perception of barriers.

The perception of confidence and health perception subscales mean scores increased significantly after the BSE training (**Table 4**, $p<0.05$). When previous studies were evaluated, a significant increase was seen in the perception of confidence after the BSE training.[17,24,26,28,29,35–37,39] Previous studies support the result of this study. One-to-one training sessions with the demonstration method, CBE administration to women during the research process, informing women about how to seek help from institutions in case of risk and cooperation with health professionals are all thought to be influential on the increase in the perception of confidence. In previous studies, a significant increase was seen in women's perception of health motivation after BSE.[17,24,26,28,29,34–36] The result of this study is consistent with previous studies. This result is thought to be due to information given to assess women's risk factors prior to training to protect against breast cancer and for calculation of their BMI. In addition, it may be due to health-related interventions that do not affect a single aspect of the individual because they concern the whole.

CONCLUSION

It was determined that the rates of women performing BSE, having a CBE and having mammograms was low, and there was a significant increase in the CHBMS subscales after the training compared to before the training evaluations. It is recommended that midwives and nurses should consider the health beliefs of women in breast examination training and prepare their training programs accordingly. In the implementation of this recommendation, it is very important to share the current information and practices in the literature whose effectiveness has been determined in order to increase the awareness of women about their health beliefs and breast examination with health professionals working in the provision of primary healthcare through in-service trainings. The aim of the training sessions on breast examination in primary

health care services in our country is not only to provide information but also to raise awareness. Giving BSE training sessions together with other diagnostic methods used in the early diagnosis of breast cancer, using different teaching techniques in education (drama, narration, demonstration, etc.), effectively repeating the breast examination with women until the correct BSE technique is learned, and periodic follow-ups are recommended for the elimination of obstacles to breast examination and other early diagnosis methods.

Limitations: The research groups in the study were related to each other and were similar in terms of age and working status. However, as the results of the study cannot represent all of the women in the FHC region and the Public Education Center, they cannot be generalized. The results obtained from women in prison will not represent women in other prisons.

ETHICAL DECLARATIONS

Ethics Committee Approval: To collect the data, ethical approval (Decision No. 2007-10/2) was obtained from the Ethics Committee of Sivas Cumhuriyet University Faculty of Medicine.

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Determination of Mothers' Postpartum Comfort Levels and Affecting Factors

Annelerin Doğum Sonu Konfor Düzeyleri ve Etkileyen Faktörlerin Belirlenmesi

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Abstract

Aim: The study was conducted as a descriptive study in order to determine mothers' postpartum comfort levels and the affecting factors.

Materials and Method: The sample of the study consisted of 526 postpartum mothers in two hospitals in a province of Turkey and who accepted to participate in the study. Data were collected using face-to-face interview method by Personal Information Form and Postpartum Comfort Scale (PCS).

Results: In this study, it was detemined that the mean score of the mothers from PCS was 122.88 (SD 15.02), 46.27 (SD 7.66) in physical comfort, 43.48 (SD 5.10) in psychospritual comfort and 33.09 (SD 6.59) in sociocultural comfort, and the mothers' comfort was found to be at moderate level. Physical, psychospiritual, sociocultural comfort and total mean scores of the mothers who planned their pregnancy, who described health professionals' behaviors as quite gentle, who had education during hospitalization, who were satisfied with the care, who expressed their general health condition as very good and who felt relieved thanks to postpartum care were significantly higher than the other groups ($p<0.05$).

Conclusion: It was determined that planning of pregnancy, perception of birth, general health status, behaviors of health professionals, having education during hospitalization and satisfaction with the care affected the mothers' comfort levels. Mothers should be informed and supported during the prenatal, delivery and postpartum periods, delivery services should be arranged in a way to increase comfort and health professionals should behave gently to mothers and their families.

Keywords: Postpartum comfort, affecting factors, mother, midwifery, nursing.

Öz

Amaç: Araştırma, annelerin doğum sonu konfor düzeyleri ve etkileyen faktörlerin belirlenmesi amacıyla tanımlayıcı olarak yapılmıştır.

Gereç ve Yöntem: Araştırmanın örneklemini, Türkiye'de bir il merkezindeki iki hastanede doğum sonu dönemde bulunan ve araştırmaya katılmayı kabul eden 526 anne oluşturmuştur. Araştırmanın verileri, Kişisel Bilgi Formu ve Doğum Sonu Konfor Ölçeği (DSKÖ) kullanılarak yüz yüze görüşme yöntemiyle toplanmıştır.

Bulgular: Araştırmada, annelerin DSKÖ'den aldıkları puan ortalamasının 122,88 (SS 15,02), fiziksel konforda 46,27 (SS 7,66), psikospritüel konforda 43,48 (SS 5,10), sosyokültürel konforda 33,09 (SS 6,59) olduğu saptanmış olup, annelerin konforlarının orta düzeyde olduğu belirlenmiştir. İsteyerek gebe kalan, sağlık personelinin davranış şeklini oldukça nazik olarak nitelendiren, hastanede yatış süresince eğitim alan, verilen bakımdan memnun olan, genel sağlık durumunu çok iyi olarak ifade eden ve verilen bakım ile doğum sonu rahatladığını ifade eden annelerin fiziksel, psikospritüel, sosyokültürel konfor ve toplam ölçek puan ortalamalarının diğer gruplara göre anlamlı şekilde daha yüksek olduğu bulunmuştur ($p<0,05$).

Sonuç: Gebeliği isteme durumu, doğumu algılama şekli, genel sağlık durumu, sağlık personelinin davranış şekli, hastanede yatış süreci içerisinde eğitim alma ve verilen bakımdan memnun olma durumunun annelerin konfor düzeyini etkilediği belirlenmiştir. Annelerin doğum öncesi, doğum ve doğum sonrası dönemde bilgilendirilerek desteklenmesi, doğum servislerinin konforu artıracak şekilde düzenlenmesi ve sağlık personelinin annelere ve ailelerine nazik yaklaşımlar sergilemesi önerilebilir.

Anahtar Sözcükler: Doğum sonu konfor, etkileyen faktörler, anne, ebelik, hemşirelik.

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INTRODUCTION

While each period is a developmental crisis for mother and her family, it is accepted that the postpartum period has a distinct place.[1] Besides physiological changes, postpartum period carry a risk for the mother and baby because of the transition to parenting and the difficult process in which new roles and responsibilities are assumed.[2] The mother and the newborn need quality and thorough care, rest, support, encouragement in order to spend this period in a healthy way.[3] In this respect, postpartum is the period when the disease and the health come closer, which necessitates the bio-psycho-social adjustment of the women and their families.[4]

The purpose of postpartum care is to improve family and community support in order to protect and develop the health of baby and mother, and to meet their health and social needs.[5] In the postpartum period, care and education can provide a smooth, comfortable postpartum period and a safer future. Providing comfort in the postpartum period facilitates the adaptation of the mother to this period and accelerates the adaptation process.[1] The care given for the mother and the baby is very important to facilitate the adaptation of the mother to the postpartum period, the early onset and continuation of lactation, to provide the mother-baby interaction, to accelerate the healing process, to prevent complications and to provide postpartum comfort. Midwives and nurses are key people in this process.[6,7] Midwives and nurses should be able to evaluate the characteristics of the postpartum period and deviations from normal, make necessary interventions, take precautions, inform and support people according to their needs. This is because the future health of the woman is closely related to the quality of care she receives in this period.[6]

Kolcaba describes comfort as "the expected outcome having a complex structure in physical, psycho-spiritual, social and environmental integrity to provide assistance and comfort for the individual's needs and to overcome problems".[8,9] An individual whose comfort is not met feels deficiency, when his/her needs are met, he/she feels safer and more comfortable. Although comfort oriented practices are frequently discussed in pain management, the number of studies performed in the postpartum period is limited.[1,3,6,10-15] As a result of the studies, it was determined that mothers' comfort was affected by education, mode of delivery, planning of pregnancy, postpartum problems, meeting of expectations, midwifery care and the environmental conditions of the hospital.[3,13,15,16]

Mother and newborn health affect the family health in particular and the comunity health in general, and postpartum comfort is crucial in this process. Thus, it is important to determine mothers' postpartum comfort levels and affecting factors. Accordingly, this study was conducted to determine mothers' postpartum comfort levels and affecting factors.

Research Questions

- What is the postpartum comfort level of mothers?
- What is the mothers' evaluation about environmental comfort?
- Are the postpartum comfort levels of mothers related to their obstetric characteristics?

MATERIAL AND METHOD

Design and Participants

This descriptive study was carried out with mothers who gave birth in maternity ward of university hospital and private hospital of a province in Central Anatolia Region of Turkey. The population of the study consisted of all mothers giving birth in these two hospitals within one year (N=2947). 526 mothers were included in the study with the sampling method in which the number of individuals in the population was known and the incidence of comfort (average 60%) was taken into consideration.[13]

Inclusion Criteria

The women who gave birth in these two hospitals, gave birth at 37-42 weeks of gestation, had alive baby, at least primary school graduate, agreed to participate in the study were included to the research as participants.

Exclusion Criteria

Mothers who had an anomaly in their babies, who had a complication after birth, and whose baby had an important and chronic health problem were not included in the research.

Instruments and Data Collection

The data were collected by face-to-face interview method using Personal Information Form and Postpartum Comfort Scale in 8-16 hours after delivery. The interviews lasted 10-15 minutes on average.

Personal Information Form

The Personal Information Form was developed by searching the literature by the researcher.[1,13,14] This form consists of a total of 32 questions, including 20 closed-ended and 9 open-ended, in order to determine the socio-demographic characteristics of the mothers, obstetric histories and environmental comfort levels in postpartum comfort.

Postpartum Comfort Scale (PCS)

Karakaplan et al.[14] developed the PCS from the Turkish version of the scale. PCS evaluates the physical, psychospiritual and sociocultural comforts of mothers who had a cesarean or vaginal delivery. These comfort areas also constitute the sub-scales of the scale. The scale is likert type and consists of 34 items. The Cronbach Alpha for this study was found to be 0.78 and the scale was found to be reliable in terms of internal. For each item, it is scored between "I strongly agree" (5 points) and "I strongly disagree" (1 point). "I strongly agree" expresses the best comfort (5 points) in positive sentences

and low comfort in negative sentences (1 point). In negative (negative) expressions, since the reverse coding is done, "I strongly agree" signifies low comfort, and 1 point, "I strongly disagree" signifies high comfort and 5 points. In this direction, the lowest score can be taken from the scale is 34, the highest score is 170. If the values obtained as a result of the study are close to 170, it indicates that comfort is high.[14] In this study, the Cronbach Alpha value for the total PCS was 0.80.

Ethics

Prior to the research, Sivas Cumhuriyet University Non-Interventional Clinical Research Ethics Committee approval was obtained from the author's university ethics review board (Decision no: 2012-12/27). The study was carried out according to the principles of the Helsinki Declaration. Mothers were informed about the purpose and scope of the study and written informed consent was obtained from those who accepted to participate in the research.

Statistical Analysis

The data obtained from the study was evaluated using Statistical Package for Social Sciences (SPSS 22.0) for Windows package program. Mean and standard deviation were used for dependent variables, and number and percentage values were used for independent variables in defining the data. The distribution of the data was evaluated by the Kolmogorov Smirnov and Shapiro-Wilk tests. Comparisons between groups were evaluated using the Mann Whitney U test and Kruskal Wallis test. In the cases where there is a statistically significant difference between independent and dependent variables, searching for the variable that caused difference was conducted with Bonferroni test. Regression analysis (enter) was used to determine the relationship and direction between the variables. The error level was accepted as 0.05 for the significance of the statistical results.

RESULTS

It was determined that 79.7% (n=419) of the mothers were in the 20-34 age group (mean 27.07 (SD 5.63), 62% (n=326) were primary school graduates, 82.5% (n=434) were housewives and 64.1% (n=59) were civil servants.

When the obstetric characteristics of the mothers were examined, it was determined that 65.2% gave birth in the university hospital, 46% gave birth with episiotomy, 84.4% had planned pregnancy, 11.2% had a very smooth birth and 73% had postpartum pain. Health professionals behaved gently to 68.4% of them, 72.8% had education during the hospitalization period, 83.5% were satisfied with the care, 47% of them were in good health and 57.6% were relieved after the given care (**Table 1**).

Table 1. Obstetric characteristics of mothers (n=526)

Obstetric characteristics	n	%
Place of delivery		
University hospital	343	65.2
Private hospital	183	34.8
Mode of delivery		
Caesarean section	178	33.8
With episiotomy	242	46.0
Without episiotomy	106	20.2
Planned pregnancy		
Yes	444	84.4
No	82	15.6
Description of birth		
Quite easy	59	11.2
Easy	102	19.4
Difficult	223	42.4
Quite difficult	142	27.0
Postpartum pain		
Yes	384	73.0
No	142	27.0
Behaviors of health professionals		
Quite gentle	360	68.4
Partly gentle	139	26.4
Not gentle	27	5.2
Having education during hospitalization		
Yes	383	72.8
Partly	104	19.8
No	39	7.4
Satisfaction with the care		
Yes	439	83.5
Partly	71	13.5
No	16	3.0
General health status		
Very good	74	14.0
Good	247	47.0
Not bad	186	35.4
Bad	19	3.6
Effect of care on postpartum comfort		
Relieved	303	57.6
Partly relieved	197	37.5
Not relieved	8	1.5
Not relieved at all	18	3.4

When the expressions of mothers regarding environmental comfort were examined, 59.1% of mothers stated that environment was not noisy, 93.9% stated that heating was sufficient and 49.4% stated that the ventilation was sufficient. 90.3% of mothers felt safe in the hospital, 69.2% stated that their beds were comfortable and 77.6% stated that their relatives were able to visit them (**Table 2**).

Table 2. Mothers' expressions regarding environmental comfort (n=526)

Expressions	n	%
Noise		
Yes	120	22.8
Partly	95	18.1
No	311	59.1
Sufficiency of heating		
Sufficient	494	93.9
Partly sufficient	24	4.6
Insufficient	8	1.5
Sufficiency of ventilation		
Sufficient	260	49.4
Partly sufficient	154	29.3
Insufficient	112	21.3
Feeling safe		
Yes	475	90.3
Partly	41	7.8
No	10	1.9
Comfort of the bed		
Yes	364	69.2
Partly	114	21.7
No	48	9.1
Visit of relatives		
Yes	408	77.6
Partly	84	16.0
No	34	6.4

When the PCS mean scores of the mothers were examined, total mean score was 122.88 (SD 15.02), sub-scale mean scores were 46.27 (SD 7.66) in physical comfort, 43.48 (SD 5.10) in psychospiritual comfort and 33.09 (SD 6.59) in sociocultural comfort (**Table 3**).

Table 3. PCS mean scores of mothers

PCS Subscales	n	Min-max score possible from the scale	Min-max score taken from the scale	Mean±SD
Physical	526	14-70	18-70	46.27±7.66
Psychospiritual	526	10-50	22-50	43.48±5.10
Sociocultural	526	10-50	16-50	33.09±6.59
Total	526	34-170	62-170	122.88±15.02

PCS: Postpartum Comfort Scale, SD: Standard deviation

When distribution of mothers' PCS mean scores according to their obstetric characteristics were examined, physical, psychospiritual and sociocultural comfort and total scale mean scores of mothers who planned their pregnancy, found behaviors of health professionals quite gentle, had education during hospitalization, satisfied with the care, expressed their health condition as very good, relieved with the postpartum care were found to be higher than other groups, and the difference was found to be statistically significant. The physical comfort mean scores of mothers who described their birth as easy and psychospiritual and total scale mean scores of mothers who described their birth as quite easy were higher than other groups, and the difference was found to be statistically significant. In addition, physical comfort and total mean scores of mothers without postpartum pain were found to be significantly high (**Table 4,** $p<0.05$).

In the model examining the relationship between some obstetric characteristics and PCS scores of the mothers, there was no autocorrelation between the variables (Durbin-Watson=1.920). While there was a positive significant relationship between mothers' PCS scores and their planned pregnancy, having education during hospitalization, expressing general health status very good/good, effect of care on postpartum comfort ($p<0.05$), there was no significant relationship in terms of other variables ($p>0.05$). It was found that the variables in the model explained 21% of the total variance (**Table 5**).

Table 5. The relationship between some obstetric characteristics and PCS scores of mothers (multiple linear regression analysis)

Model	B	SE	β	t	p
Constant	104.122	2.060		50.541	0.001*
Planned pregnancy (yes)	5.541	1.620	0.135	3.421	0.001*
Description of birth (quite easy/easy)	1.289	1.299	0.040	0.993	0.321
Postpartum pain (no)	1.221	1.350	0.036	0.904	0.366
Behaviors of health professionals (quite gentle)	1.899	1.466	0.059	1.295	0.196
Having education during hospitalization (yes)	5.911	1.518	0.177	3.894	0.001*
Satisfaction with the care (yes)	2.028	1.858	0.051	1.091	0.276
General health status (very good/good)	4.557	1.302	0.150	3.499	0.001*
Effect of care on postpartum comfort (relieved)	5.766	1.337	0.192	4.314	0.001*

Model: Enter, R=0.458, R^2=0.210, Adjusted R^2=0.198, F=17.185, p=0.001
PCS: Postpartum Comfort Scale, F: ANOVA test, SE: Standard error, β: Beta, t: t test, * Significant

Table 4. Distribution of mothers' PCS mean scores according to their obstetric characteristics

Characteristics Test / p	n	Physical Mean±SD	Psychospiritual Mean±SD	Sociocultural Mean±SD	Total Mean±SD
Planned pregnancy					
Yes	444	46.59±7.83*	43.86±4.98*	33.52±6.56*	124.00±15.18*
No	82	44.53±6.46	41.45±5.29	30.80±6.30	116.79±12.51
MWU		15284.500	13051.500	13819.500	12739.000
p		0.021*	0.001*	0.001*	0.001*
Description of birth					
Quite easy	59	46.30±7.60	45.37±3.79*	34.96±6.46	126.64±13.78*
Easy	102	48.64±7.62*	43.21±5.19	33.57±6.54	125.44±15.12
Difficult	223	45.96±7.66	43.30±5.26	32.91±6.66	122.21±15.33
Quite difficult	142	45.05±7.43	43.19±5.14	32.26±6.44	120.51±14.52
KW		11.312	9.597	6.723	11.687
p		0.010*	0.022*	0.081	0.009*
Postpartum pain					
Yes	384	45.23±7.46	43.44±5.04	33.35±6.67	122.05±15.04
No	142	49.09±7.52*	43.59±5.28	32.41±6.33	125.11±14.7*
MWU		18969.500	26463.000	25286.000	24023.000
p		0.001*	0.604	0.201	0.036*
Behaviors of health professionals					
Quite gentle	360	46.88±7.57*	44.19±4.73*	34.27±6.47*	125.37±14.52*
Partly gentle	139	45.93±7.08	42.05±5.38	30.94±6.09	118.93±13.78
Not gentle	27	28.48±5.98	41.44±6.32	28.48±5.98	109.92±17.12
KW		15.630	20.710	39.719	35.342
p		0.001*	0.001*	0.001*	0.001*
Having education during hospitalization					
Yes	383	47.03±7.52*	44.10±4.90*	34.20±6.72*	125.00±14.85*
Partly	104	44.76±6.97	41.68±4.88	29.88±4.87	116.33±12.25
No	39	42.84±9.36	42.23±6.20	30.79±5.86	115.87±16.19
KW		9.514	25.581	44.563	36.515
p		0.009*	0.001*	0.001*	0.001*
Satisfaction with the care					
Yes	439	46.73±7.47*	44.00±4.72*	33.79±6.47*	124.55±14.36*
Partly	71	45.42±7.07	42.07±4.94	29.87±6.07	117.36±12.43
No	16	37.56±10.19	35.68±7.98	28.18±5.90	101.43±20.84
KW		12.091	26.677	30.331	31.229
p		0.002*	0.001*	0.001*	0.001*
General health status					
Very good	74	51.79±8.26*	46.02±4.04*	35.55±6.55*	133.37±14.72*
Good	247	46.86±7.12	43.78±4.70	33.16 ±6 .33	123.84±13.66
Not bad	186	44.21±6.34	42.31±5.39	32.30±6.62	118.83±13.80
Bad	19	37.36±8.57	41.26±6.67	30.47±7.29	109.10±18.86
KW		31.229	35.553	14.275	58.442
p		0.001*	0.001*	0.003*	0.001*
Effect of care on postpartum comfort					
Relieved	303	48.06±7.69*	44.66±4.35*	34.29±6.38*	127.04±13.96*
Partly relieved	197	44.10±6.56	42.07±5.40	31.79±6.46	117.97±13.85
Not relieved	8	40.50±9.97	37.12±8.20	32.25±7.20	109.87±23.38
Not relieved at all	18	42.50±9.14	41.94±5.79	27.72±6.06	112.16±16.64
KW		34.307	37.878	29.398	53.437
p		0.001*	0.001*	0.001*	0.001*

PCS: Postpartum Comfort Scale, SD: Standard deviation, MWU: Mann Whitney U test, KW: Kruskal Wallis test, * Significant

DISCUSSION

Obstetric characteristics of mothers can affect postpartum process positively or negatively. For this reason, obstetric characteristics of the mothers were evaluated according to the literature. In the study, it was determined that 66.2% of the mothers gave vaginal birth and 46% of them gave birth with episiotomy. In a study conducted at a university hospital, 41.5% of the mothers were found to give vaginal birth and 85.5% of them gave birth with episiotomy.[17] In a study conducted at a state hospital, 50.4% of mothers were found to give vaginal birth and 80% of them gave birth with episiotomy.[18] In a study conducted at a maternity hospital, 40.5% of mothers were found to give vaginal birth and 29.7% of them gave birth with episiotomy.[6] In Turkey, while caserean section rate was 53.1% in the same year, vaginal childbirth rate was higher in the study when compared to literature.[19] This is thought to be due to efforts to reduce cesarean delivery rates in the institutions where the study was conducted. The findings of the study are similar in terms of episiotomy rates.

84.4% of the mothers in the study planned their pregnancy. In similar studies, this rate was 78-80%.[20,21]

It was found that 11.2% of mothers had a quite easy birth, 73% had postpartum pain and 47% had good general health. In the study of Topçu Özer,[1] it was determined that 24% of mothers who gave vaginal birth and 22.7% of mothers who did cesarean section described their births as quaite easy. In the study of Aksoy Derya and Pasinlioğlu,[11] 48% of the mothers in the control group and 44% in the experimental group described the birth as good. In the study, the rate of mothers who described birth as difficult and quite difficult, and who had postpartum pain was high. It is thought to be due to the meaning assigned to birth in Turkish society. The beliefs in our society such as the more pain experienced during birth, the more woman will be considered a good mother, the belief that the baby's value will be understood more and the belief that the body will be cleaned as a result of these pains can increase the perception of pain during delivery and in postpartum period.[22]

In the study, it was found that 68.4% of the mothers stated that health professionals behaved quite gently, 72.8% had education during hospitalization, 83.5% were satisfied with the care and 57.6% were relieved after the given care. Similar to the results of the study in the literature, 90% of the midwives and nurses were satisfied with the care they gave during postpartum in the study of Gürcüoğlu and Vural,[17] 88% of them were satisfied in the study of Pınar et al.[3] 80% of them were satisfied-very satisfied in the study of Topçu Özer,[1] 92% of them were satisfied in the study of Mirzaei et al.[23] and different from our study findings, 39% of the mothers were moderately satisfied in the study of Varghese.[24]

Environmental comfort is a premise that can contribute to the healing process of the woman positively, which makes her feel better and can be considered as an indicator of postpartum health care and social support. In the study, more than half of the mothers (59.1%) stated that there was no noise in the environment, almost all (93.9%) stated that heating was sufficient and almost half of them (49.4%) stated that the ventilation was sufficient. Moreover, a significant number of mothers (90.3%) felt safe, more than half (69.2%) stated that their bed was comfortable, and most mothers (77.6%) stated that their relatives could easily visit. In the study of Pınar et al.[3] mothers stated that cleaning (96%) and privacy (92%) were good in the environment, in the study of Karakaplan[13] mothers stated that heating (77.3%), privacy (94.7%) and safety (90.7%) were good in the environment. Aksoy Derya and Pasinlioğlu[11] found that 68% of the mothers in the control group felt safe, 76% had comfortable beds, and 78% were satisfied with the environment (heat, sound, light, air and cleaning). The findings of our study are in parallel with most of the findings in the literature. Among the factors that reduce environmental comfort in the literature are cold environment, noise, crowd, bright light, bad smell, not respecting the privacy of the patient, stretchers and beds which are not comfortable.[1,13]

Postpartum period is a period of crisis in which significant physiological, emotional, social changes are experienced for many women, adaptation and comfort levels are impaired and family experience intense stress.[25] Therefore, it is important to determine the comfort levels of puerperants in the postpartum period, to determine the problems experienced by the mothers regarding the postpartum period, to plan and implement the appropriate care. The mean total score of the mothers from the PCS was 122.88 (SD 15.02) in the study, the minimum possible score from the PCS was 34 and the maximum score was 170. In other studies carried out in Turkey, it was determined that the comfort of mothers at birth was between 82-131 on average.[6,11,12,15,16] Although the research findings are similar to the literature, it can be said that mothers' postpartum comfort levels are at moderate level.

Mothers' mean scores from PCS subscales were 46.27 (SD 7.66) in physical comfort, 43.48 (SD 5.10) in psychospiritual comfort and 33.09 (SD 6.59) in sociocultural comfort. In the study of Karakaplan,[13] physical comfort was found to be 68.18 (SD 7.45) in mothers who gave vaginal birth, 61.65 (SD 4.22) in psychospiritual comfort, and 27.34 (SD 4.67) in sociocultural comfort. Çapık et al.[16] reported that mothers who gave vaginal birth received 45.61 (SD 7.65) from physical comfort, 38.20 (SD 4.66) from psychospiritual comfort, and 31.86 (SD 5.11) from sociocultural comfort. In the study of Aksoy Derya and Pasinlioğlu,[11] it was found that the mean score of the mothers in the control group was 52.38 (SD 5.19) in physical comfort, 43.92 (SD 4.78) in psychospiritual comfort and 34.76 (SD 2.70) in sociocultural comfort. In the study of Kartal et al.[6] the mean scores of mothers were 46.20 (SD 7.82) in physical comfort, 40.58 (SD 4.50) in psychospiritual comfort and 31.27 (SD 5.80) in sociocultural comfort. It can be said that physical, psychospiritual and sociocultural comfort levels of the mothers who participated in the study were at a moderate level and were similar to the literature.

Many factors affect the comfort level of mothers before and after delivery. Pregnancy is a source of happiness for parents when it takes place in the best possible time. Unwanted pregnancy and the increase in the number of children may cause psychological problems in pregnancy and postpartum periods, make it difficult for mothers to adapt to the postpartum period and affect the psychological dimension of their comfort.[16] Mothers who planned their pregnancy in the study had higher PCS mean scores. Similar to our study results, Çapık et al.[16] found the psychospiritual comfort levels of mothers who planned their pregnancy higher, whereas Topçu Özer[1] found that planning or not planning pregnancy did not have any effect on postpartum comfort level. In the study of Azizi et al.[26] it was found that the quality of life of the mothers who planned their pregnancy was higher. It is considered that planning of pregnancy is important for the acceptance of motherhood, positive maternal infant attachment and for coping with symptoms, and therefore the comfort level of the women who plan their pregnancy is higher than other women.

Postpartum pain is one of the most common complaints negatively affecting the comfort level of women. Bilgin and Kömürcü[27] reported that 62% of mothers who received only standard care without any additional intervention experienced pain in postpartum period. Francisco et al.[28] reported that 18.2% of mothers experienced perineal pain. Postpartum pain adversely affected the maternal well-being. Thus, physical comfort and total mean scores of mothers without postpartum pain were found to be higher.

The physical comfort mean scores of mothers who described their birth as easy and psychospiritual and total scale mean scores of mothers who described their birth as quite easy were higher than other groups. In the study of Karakaplan,[13] it was stated that the comfort scores of the mothers who defined their births in other ways were close to each other except for the mothers who defined their births as "a little difficult". This may be due to the fact that birth is considered as easy and postpartum complaints are less.

It was emphasized that caregivers were important in providing the comfort of women who gave birth.[29] In the study of Karakaplan.[13] it was stated that mothers' expectations from the midwives and nurses were positive attitudes and approaches, psychological support, being more concerned, being cheerful and respectful during the postpartum period. In the study, the physical, psychospiritual, sociocultural comfort and total scale scores of the mothers, who described health professionals' attitudes as quite gentle, were found to be higher.

Informing about postpartum process and providing timely and effective trainings for mothers are very important for them to feel safe, to experience less stress, to adapt more easily to the postpartum process and to better manage the problems that may arise. In the study, mothers who received education during the hospitalization period had higher psychospiritual, sociocultural comfort and total scale scores than the other mothers. In the study of Altuntuğ and Ege,[30] it was determined that education affected the readiness for discharge, reduced the possible difficulties that could be experienced in self care and infant care and increased postpartum quality of life. In the study of Takehara et al.[31] it was found that the spouses who were informed during the delivery and postpartum period had higher mental health and quality of life at the end of the birth. Çapık et al.[16] found that informing did not have any effect on postpartum comfort.

In order for the mother to feel comfortable, it is necessary to eliminate and control the pain in the early period, to meet the needs of the mother, to gain the normal eating habits, and to satisfy the needs of the baby.[3,16,32] Physical, psychospiritual, sociocultural comfort and total mean scores of the mothers who were satisfied with the care and who felt relieved thanks to postpartum care were significantly higher than the other groups. In the study of Topçu Özer,[1] it was found that the physical comfort levels of the mothers who were very satisfied with the care were higher. In the study of Karakaplan,[13] it was found that 38% of mothers stated that the care they received had a positive effect on their comfort and comfort levels of these women were higher than the other women. The research results are similar to the literature.

As a result of the regression analysis conducted in the study, it was found that there was a positive significant relationship between the mothers' PCS scores and their planned pregnancy. In studies, it has been found that planned pregnancy has affected the psychospritual comfort and quality of life of mothers in the postpartum period, but planned pregnancy positively affects the postpartum process in general.[13,16,26,33] Thus, mothers can have a more compatible and comfortable postpartum period.[34]

It is very important to meet the educational needs of the mother in order for them to adapt to the new situation physically and psychosocially in the postpartum period.[6] In the study, there was a positive significant relationship between mothers' having education during hospitalization and their PCS scores. In the study of Çelik et al.[35] mothers who had information about postpartum period were found to have better postpartum quality of life than other mothers, and in the study of Erkaya et al.[12] mothers who gave birth by cesarean and had education about postpartum care were found to have higher postpartum comfort levels.

In the study, there was a significant positive relationship between mothers' expressing their general health status very good/good and PCS scores. It is reported that mothers experience many health problems in the postpartum period depending on the labor. These problems prevent a healthy postpartum period, affect postpartum quality of life and postpartum compliance.[36] Since health is one of the most important values along with life satisfaction and well-being, it is thought that mothers expressing their health status good in the postpartum period also had a positive effect on their comfort.[37]

It is expected that initiatives to meet the health care needs that will provide the comfort of the individual in the provision of health services will increase the perception of comfort and decrease the tension of the individual.[38] In the study, it was determined that there was a significant positive relationship between the postpartum comfort of the care given to mothers and PCS scores. In the study of Aksoy Derya and Pasinlioğlu,[11] it was found that the care given to the puerperant in line with the comfort theory increased the comfort level by meeting their comfort needs. In line with our research findings, it is seen that providing midwifery care to the mother in the postpartum period facilitates compliance with this period, supports individual needs and increases postpartum comfort.[12]

CONCLUSION

As a result, evaluating mothers' comfort during the postpartum period and determining the affecting factors are important in terms of planning, implementing and evaluating midwifery services. In this respect, it can be recommended to inform and support the mothers during the prenatal, delivery and postpartum periods, to arrange the birth services in a way to increase comfort, and to show gentle approaches to mothers and their families.

Limitations

The items of environmental comfort are included in the sociocultural subscale in the development of PCS. Thus, PCS is limited in measuring environmental comfort. For this reason, questions related to environmental comfort have been added to the Personal Information Form.

A state hospital was requested to be included in the study but it could not be included since institutional permission could not be granted. This caused a decrease in the number of the population and sample, and reflects the province in a limited number.

ETHICAL CONSIDERATIONS

Ethics Comittee Approval: Prior to the research, Sivas Cumhuriyet University Non-Interventional Clinical Research Ethics Committee approval was obtained from the author's university ethics review board (Decision no: 2012-12/27). The study was carried out according to the principles of the Helsinki Declaration. Mothers were informed about the purpose and scope of the study and written informed consent was obtained from those who accepted to participate in the research

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

Status of Peer-review: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Orjinal Araştırma / Original Article

Knowledge Level and Attitude for Human Papillomavirus (HPV) Infection and HPV Vaccines Among Medical School Students

Tıp Fakültesi Öğrencilerinin Human Papillomavirüs (HPV) Enfeksiyonu ve HPV Aşıları Hakkında Bilgi Düzeyi ve Tutumları

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Abstract

Objective: Cervical cancer is a major health issue among women worldwide. Unlike other common cancers, it is almost completely preventable by human papillomavirus (HPV) based screening strategies. The aim of this study was to analyze the knowledge levels of medical students for HPV infection and some of their thoughts regarding HPV vaccine.

Material and Methods: The study was conducted on medical students in the first 3 years of education and their first-degree relatives. The basic data of the questionnaire included 29 multiple-choice questions about the level of knowledge of HPV infection and associated diseases, the level of knowledge of HPV vaccine, and attitude towards HPV vaccine.

Results: Of the study participants, it was found that 158 (82.7%) of the 191 students heard of HPV infection, while 38 (57.6%) of the 66 student relatives heard of HPV infection, and there was a significant difference between the two groups (p≤ 0.005). While 120 (62.8%) of the 191 students stated that they heard of HPV vaccine, 30 (45.5%) of the 66 student relatives stated that they heard of HPV vaccine. Although the level of knowledge of the medical school students was higher compared to their first-degree relatives, there was no significant difference between the two groups in terms of the rates of willingness to get vaccinated.

Conclusion: Education and orientation efforts for both HPV and HPV vaccine should be emphasized more in order to increase the awareness among both university students and society.

Keywords: Human papillomavirus, HPV vaccine, students, knowledge

Öz

Amaç: Serviks kanseri dünya çapında kadınlar arasında önemli bir sağlık sorunudur. Diğer yaygın kanserlerin aksine, insan papilloma virüsü (HPV) tabanlı tarama stratejileri ile neredeyse tamamen önlenebilir. Bu çalışmanın amacı tıp fakültesi öğrencilerinin HPV enfeksiyonu ile ilgili bilgi düzeylerini ve HPV aşısı ile ilgili düşüncelerini analiz etmektir.

Gereç ve Yöntemler: Çalışma, eğitimlerinin ilk 3 yılındaki tıp fakültesi öğrencileri ve birinci derece yakınları üzerinde yürütüldü. Yapılan anketin temel verileri arasında HPV enfeksiyonu ve ilişkili hastalıklar hakkındaki bilgi düzeyi, HPV aşısı hakkındaki bilgi düzeyi ve HPV aşısına karşı tutum hakkında 29 çoktan seçmeli soru bulunmaktaydı.

Bulgular: Çalışmaya katılan 191 öğrenciden 158 (% 82.7)' inin HPV enfeksiyonunu duyduğu, 66 öğrenci yakınının 38 (% 57.6)' inin HPV enfeksiyonunu duyduğu ve bu iki grup arasında anlamlı fark bulunduğu saptandı (p <0.005). 191 öğrenciden 120 (%62.8)' sinin HPV aşısını duyduğu, 66 öğrenci yakınından ise 30 (% 45.5)'unun HPV aşısını duydukları saptandı. Tıp fakültesi öğrencilerinin bilgi düzeyi birinci derece yakınlarına göre daha yüksek olmasına rağmen, iki grup arasında aşı olma isteği oranları arasında anlamlı fark saptanmadı.

Sonuç: Hem üniversite öğrencileri arasındaki hem de toplumdaki farkındalığı arttırmak için HPV ve HPV aşısı ile ilgili eğitim ve yönlendirme çabalarına daha fazla önem verilmelidir.

Anahtar Kelimeler: İnsan papilloma virüsü, HPV aşısı, öğrenciler, bilgi düzeyi

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INTRODUCTION

Cervical cancer is the fourth most common major health issue among women worldwide. Unlike other common cancers, it is one of the few types of cancer that is almost completely preventable.[1] The relationship of human papillomavirus (HPV) with cervical cancer has been well established, and the presence of persistent HPV infection in 99.9% of patients with cervical cancer has been shown to play a primary role in the etiology.[2,3]

The addition of the HPV DNA test to the screening program has significantly increased the sensitivity of the conventional Pap-smear test.[4-7] Accordingly, many professional associations including World Health Organization (WHO), European Union and US Preventive Services Task Force (USPSTF) recommend including the HPV infection test in the primary screening program.[8,9] The HPV-based screening program has been implemented in Turkey since 2014 so as to be among the leading countries in the world. According to the new early cancer diagnosis program that has been put into practice, all cases of HPV 16 and HPV 18 infections or all cases of cytological abnormalities with other high-risk HPV infections are referred for colposcopy.[4,5]

In addition to the screening program, 3 types of HPV vaccines, including bivalent, quadrivalent and nine-valent, were developed against HPV infection. Although these three vaccines are protective against HPV types 16 and 18, which are responsible for 70% of cervical cancers, the quadrivalent vaccine has also protective effect against HPV types 6 and 11 and the nine-valent vaccine against HPV types 6, 11, 31, 33, 45, 52 and 58.[10-13] Thus, they also have protective effects against genitoanal warts. Vaccine administration at an early age before exposure to HPV and infection will provide effective protection. HPV vaccination is recommended for all children aged 11 and 12 years, including 9 through 26 years of age, regardless of gender.[12,13]

Young adults and university students are at higher risk of genital HPV infection in terms of both risky sexual behaviors, unprotected sex, and HPV-related diseases.[14,15] Among university students, medical students are expected to have the highest level of knowledge of cervical cancer and contribute to the level of awareness in society. The aim of this study was to analyze the knowledge levels of medical students who have not yet started clinical internships and completed their medical education and of their first-degree relatives with whom they are in close contact in the social environment about cervical cancer and HPV vaccine, and some of their thoughts regarding HPV vaccine.

MATERIAL AND METHOD

The ethical approval for the survey study was obtained from the non-interventional clinical research ethics committee before the study was initiated. The study was conducted on medical students in the first 3 years of education and their first-degree relatives. The study included 257 females who accepted the questionnaire were included in the study between May 2017 and May 2019 at a medical faculty. Of the study participants, 196 were medical students, while 66 were the first-degree relatives of the students.

The questionnaire on cervical cancer screening program, HPV infection, and HPV vaccine was developed using the literature and constituted the data source of the study. The basic data of the questionnaire included 29 multiple-choice questions about the level of knowledge of HPV infection and associated diseases, the level of knowledge of HPV vaccine, and attitude towards HPV vaccine.

All statistical analyses were carried out using the PSPP and R statistical software. The chi-square test and Fisher's exact test were used in the comparisons with categorical variables. Descriptive analysis of the data of the study was conducted by calculating the percentage distributions, central tendency and prevalence measures, maximum and minimum values, and the differences between variables were evaluated using the chi-square, Fisher's exact, Mann-Whitney U and Kruskal Wallis tests. Continuous variables were expressed as mean ± standard deviation, while categorical variables were expressed as numbers and percentages. A p-value of <0.05 was considered statistically significant.

RESULTS

The questionnaire was administered to a total of 257 individuals within the scope of the study. In general, the mean age of the participants was 25.6 (± 8.8) years. When their educational levels were analyzed, it was found that 210 (81.7%) individuals were university graduates. In addition, it was determined that of those administered the questionnaire, 151 (58.5%) had a monthly income above 3000 TL, 106 (41.2%) had a monthly income below 3000 TL, and 52 (20.2%) of the individuals were regular smokers.

In evaluating the level of knowledge of the participants, only 99 (38.5%) of all participants responded to the question of why smear test is performed as cervical cancer, while 142 (55.3%) stated that they did not have knowledge. When the question of hearing about a virus called HPV is asked, 196 (76.3%) of the individuals responded positively. Since the next questions were put only to the individuals who stated that they had heard of HPV, the evaluation was carried out with only these 196 individuals. The choices of cervical cancer, ovarian cancer, AIDS and I do not know regarding what diseases the HPV vaccine protects from were marked by 132 (67.3%), 1 (0.5%), 17 (8.7%) and 46 (23.5%) participants, respectively. The status of the individuals' willingness to get themselves, their daughters and sons vaccinated against HPV is shown in **Table 1**.

Table 1. Individuals' willingness to get themselves, their daughters and sons vaccinated against HPV

	Willing	Not willing
Getting vaccinated for herself	117 (59.7%)	79 (40.3%)
Getting vaccinated for her daughter	124 (63.3%)	72 (36.7%)
Getting vaccinated for her son	87 (44.4%)	109 (45.6%)

The responses to the questions regarding that HPV is sexually transmitted, HPV can cause AIDS, HPV can cause cervical cancer, HPV can cause genital warts, HPV-related diseases can be prevented by vaccination, HPV vaccine is not necessary for individuals who are not sexually active, which were given as true, false or I don't know, are shown in **Table 2**.

Table 2. Responses to the questions about the level of knowledge of HPV and HPV vaccine

	True	False	I do not have any idea/I do not know
HPV is sexually transmitted	141 (71.9%)	14 (7.1%)	41 (20.9%)
HPV can cause AIDS	51 (26%)	71 (36.2%)	74 (37.8%)
HPV can cause cervical cancer	149 (76%)	9 (4.6%)	38 (19.4%)
HPV can cause genital warts	128 (65.3%)	16 (8.2%)	52 (26.5%)
HPV-related diseases can be prevented by vaccination	129 (65.8%)	11 (5.6%)	56 (28.6%)
HPV vaccination is not necessary for those who are not sexually active	11 (5.6%)	132 (67.3%)	53 (27%)

Of those who participated in the survey study, 191 were medical students, while 66 were the first-degree female relatives of the medical students. When these two sub-groups were analyzed separately, it was found that 158 (82.7%) of the 191 students heard of HPV infection, while 38 (57.6%) of the 66 student relatives heard of HPV infection, and there was a significant difference between the two groups ($p \leq 0.005$). While 120 (62.8%) of the 191 students stated that they heard of HPV vaccine, 30 (45.5%) of the 66 student relatives stated that they heard of HPV vaccine. Among those who heard of HPV infection and HPV vaccine in these groups, the status of the individuals' willingness to get themselves, their daughters and sons vaccinated against HPV is summarized in **Table 3**.

Table 3. Medical students and student relatives' willingness to get themselves, their daughters and sons vaccinated against HPV

		Student	Relative	Total
Getting vaccinated for herself	Yes	98 (62%)	19 (50%)	117 (59.7%)
	No	60 (38%)	19 (50%)	79 (40.3%)
Getting vaccinated for her daughter	Yes	106 (67.1%)	18 (47.4%)	124 (63.3%)
	No	52 (32.9%)	20 (52.6%)	72 (36.7%)
Getting vaccinated for her son	Yes	76 (48.1%)	11 (28.9%)	87 (44.4%)
	No	82 (51.9%)	27 (71.1%)	109 (55.6%)

Although the level of knowledge of the medical school students was higher compared to their first-degree relatives, there was no significant difference between the two groups in terms of the rates of willingness to get vaccinated. When the reason for not willing to get vaccinated was questioned, of the individuals, 162 (82.7%) stated that they did not want to get vaccinated because of insufficient knowledge, 8 (4.1%) because of side effect concern, 7 (3.6%) because of the price, 1 (0.5%) because of fear of vaccination, 12 (6.1%) because of finding it unnecessary, and 6 (3.1%) reported that they did not want to get vaccinated for other reasons.

Table 4. Responses of medical students and their relatives to the level of knowledge questions about HPV and HPV vaccine

		True	False	I do not have any idea/I do not know
HPV is sexually transmitted	Student	125 (65.4%)	7 (3.7%)	59 (30.9%)
	Relative	28 (42.4%)	7 (%10.6)	31 (47.0%)
HPV can cause AIDS	Student	40 (20.9%)	64 (33.5%)	87 (45.5%)
	Relative	17 (25.8%)	10 (15.2%)	39 (59.1%)
HPV can cause cervical cancer	Student	128 (67%)	8 (4.2%)	55 (28.8%)
	Relative	32 (48.5%)	2 (3%)	32 (48.5%)
HPV can cause genital warts	Student	110 (57.6%)	17 (8.9%)	64 (33.5%)
	Relative	26 (39.4%)	1 (1.5%)	39 (59.1%)
HPV-related diseases can be prevented by vaccination	Student	112 (58.6%)	12 (6.3%)	67 (35.1%)
	Relative	29 (43.9%)	0 (0%)	37 (56.1%)
HPV vaccination is not necessary for those who are not sexually active	Student	7 (3.7%)	120 (62.8%)	64 (33.5%)
	Relative	7 (%10.6)	21 (31.8%)	38 (57.6%)

DISCUSSION

Although 196 participants heard of HPV in our study, 40.3% of these patients did not want to get vaccinated. It was found that of the participants, 36.7% did not want to get their daughters vaccinated and 45.5% did not want to get their sons vaccinated. In addition, only 71.9% of the participants knew that HPV was a sexually transmitted disease. Interestingly, only 36.2% of the participants stated that HPV was not associated with AIDS. On the other hand, it was observed that 76% of the participants knew that HPV was associated with cervical cancer, while only 65.8% of the participants knew that HPV virus could be prevented by vaccination.

Unfortunately, the level of knowledge of HPV and HPV vaccine is quite low, especially in developing countries.[16,17] In a 2009 study conducted in Turkey, Onan et al. reported that 24.8% of women heard of HPV infection and 24.3% of them heard of HPV vaccine.[18] Likewise, a survey study conducted on 525 Turkish women on similar dates reported that 56% of women never heard of HPV infection.[19] However, since then, the cervical cancer screening program has changed in our country and the HPV-based screening system has been put into practice. In our study, it is still seen that the level of knowledge of both HPV infection and HPV vaccine is not at the desired level. When we analyzed the students and their relatives separately, only 62% of the students whose level of knowledge was expected to be higher, stated that they would like to get vaccinated, while 50% of their relatives did not want to get vaccinated. In fact, the results of the survey revealed that the level of knowledge of HPV was higher in the students, but no significant difference was found between the two groups when it comes to vaccination. In our study, 65.8% of the students stated that they wanted to get their daughters vaccinated, while 48.1% of them stated that they wanted to get their sons vaccinated. Of the student relatives, 47.4% stated they wanted to get their daughters vaccinated, while 28.9% stated that they wanted to get their sons vaccinated.

Unlike our study, Cesmeci et al.[20] evaluated the knowledge, opinions, and behaviors of the senior medical students towards HPV infection and vaccine in their study. When the level of knowledge of the participants was analyzed in that study, the most known issue was that HPV was the cause of cervical cancer in most cases. However, a significant difference was found between the economic status of the participants and their status of not getting vaccinated and not recommending HPV vaccine to their male patients and gender. As a result, although the level of the participants was high, the percentage of getting vaccinated was found to be quite low. Several studies have reported that the awareness of HPV infection among university students is not high, although it varies on the basis of race, gender, and country.[15,21-23] However, because of their sexual behaviors, university students also constitute a high-risk group in terms of HPV infection.[24,25] In our study, it is interesting data that only 65.4% of the students knew that HPV was a sexually transmitted disease and only 33.5% of the students stated that they knew that HPV was not a virus associated with AIDS. Based on this, it can be concluded that even medical students confuse HPV with HIV. Of the students, 67% knew that HPV was associated with cervical cancer. While only 58.6% of the students knew that HPV virus could be prevented by vaccination. The rate of willingness to get vaccinated was 62%, which is a relatively low rate, even considering the students who knew that HPV virus could be prevented by vaccination.

When the reason for not wanting to get vaccinated was questioned, it was found that the vast majority did not want to get vaccinated due to insufficient knowledge. Obviously, this suggests that prejudice against the vaccine may have developed due to lack of knowledge. The results show that both university students and their relatives have a lack of knowledge, especially about that males can be vaccinated. In addition, this suggests that sufficient awareness of the requirement to get their sons vaccinated could not have been created in the participants who knew that HPV was associated with cervical cancer (76%). In the study by Cesmeci et al., the high cost of vaccination, the fact that the participants did not prefer to get vaccinated against HPV because they were male and that the participants did not find HPV vaccine necessary in general were the main reasons why participants did not prefer to get vaccinated against HPV.[20] Similarly, other studies conducted on girls and their families in different regions were about what HPV is, how HPV is transmitted, and the association between HPV and cervical cancer. It has been reported that there is a lack of knowledge about HPV vaccine, what the vaccine protects against, how the vaccine works, the recommendations about HPV vaccine, the link between the vaccine and Pap smear, and the legends about HPV vaccine.[26,27]

Some of the most important limitations of our study are the sample size and not being able to reach the first-degree relatives of all students. At the same time, another limitation to consider when interpreting this study is that the information obtained was collected using a self-administered questionnaire and therefore some participants may have provided false information.

CONCLUSION

Although the high compliance to HPV based cancer screening program in Turkey, knowledge level and attitude of HPV infection and HPV vaccines are low even in medical students. In the light of these results, education and orientation efforts for both HPV and HPV vaccine should be emphasized more in order to increase the awareness among both university students and society. Increasing the level of knowledge and correcting incomplete and incorrect knowledge should be a part of the cervical cancer prevention program.

ETHICAL DECLARATIONS

Ethics Committee Approval: This study was approved by Pamukkale University Ethics Committee (Referans Number: 60116787-020/90570).

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Orjinal Araştırma / Original Article

Rectal Vancomycin-Resistant Enterococcus Colonization Before Admission to Neonatal Intensive Care Unit

Yenidoğan Yoğun Bakım Ünitesine Yatış Öncesinde Saptanan Vankomisine Dirençli Enterokok Kolonizasyonu

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Abstract

Aim: Vancomycin resistant enterococci (VRE) colonization is an important issue for healthcare recipients. The aim of this study is to determine the prevalence of VRE colonization in patients at the admission to the neonatal intensive care unit (NICU).

Material and Method: In this retrospective study the medical records of patients who hospitalized to NICU between January 2010 to December 2019 were analyzed. At the admission, patients whose rectal cultures were detected as VRE colonization were evaluated for demographic characteristics for the risk factors of colonization.

Results: One thousand three hundred twenty-three patients were admitted to our NICU from different centers were enrolled. Rectal VRE colonization was observed in 60 of 1323 (4.54%) patients. Sixty-five percent (39/60) of patients with rectal VRE colonization had no previous hospitalization history. Among these 60 patients 28 of them were admitted to our NICU in the first week of their life.

Conclusion: Although hospitalization still remains an important risk factor for VRE colonization, we found that there is also a high rate of VRE colonization in newborns without a history of hospitalization or frequent outpatient admissions to pediatrics departments. That is a worrisome status that suggests that colonization may be developed in low risk areas of the hospital such as delivery room, operating room or recovery room.

Keywords: Colonization, Enterococcus, neonatal intensive care unit, vancomycin resistance

Öz

Amaç: Vankomisine dirençli enterokok (VRE) kolonizasyonu sağlık hizmeti alanlar açısından önemli bir konudur. Bu çalışmanın amacı yenidoğan yoğun bakım ünitesine (NICU) başvuru sırasında hastalarda VRE kolonizasyonu prevalansını belirlemektir.

Gereç ve Yöntem: Bu retrospektif çalışmada, Ocak 2010 - Aralık 2019 tarihleri arasında NICU'ya yatan hastaların tıbbi kayıtları incelendi. Başvuruda rektal kültürleri VRE kolonizasyonu olarak tespit edilen hastalar kolonizasyonun risk faktörleri açısından demografik özellikler açısından değerlendirildi.

Bulgular: Hastanemiz yenidoğan yoğun bakım servisine bur süreçte 1323 hastanın değişik merkezlerden kabul edildiği görülmüştür. 1323 hastanın 60'ında (% 4.54) rektal VRE kolonizasyonu gözlenmiştir. Rektal VRE kolonizasyonu olan hastaların %65'inde (39/60) hastaneye yatış öyküsüne rastlanmamıştır. Rektal VRE kolonizasyonu saptanan 60 hastanın 18'inin (%46) yaşamlarının ilk haftasında yoğun bakım ünitemize başvurduğu saptanmıştır.

Sonuç: Hastane ortamlarının VRE kolonizasyonu için önemli bir risk faktörü olduğu bilinmektedir. Çalışmamızda hastanede yatış öyküsü bulunmayan veya pediatri bölümlerine çok sayıda poliklinik başvurusu yapmamış yenidoğanlarda da yüksek VRE kolonizasyonuna rastlanmıştır. Bu durum hastanenin doğumhane, ameliyathane veya dinlenme odası gibi düşük riskli bölgelerinin de kolonizasyonun kaynağı olabileceğini düşündüren endişe verici bir durumdur.

Anahtar Kelimeler: Enterococcus, kolonizasyon, yenidoğan yoğun bakım, vankomisin direnci

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INTRODUCTION

Commensal Enterococcus spp. bacteria, although have low virulence, appears to be an important nosocomial agent especially in intensive care units of hospitals especially among immunosuppressed patients due to their resistance to environmental conditions, intrinsic resistance to various antibiotics and their ability to develop new resistance. Enterococci have been shown to cause bacteremia, surgical wound infections, peritonitis and endocarditis in every age group.[1-3] Enterococcus faecalis (80-90%) and Enterococcus faecium (10-15%) are the most common agents which cause clinical infections in human.[4] Enterococci can colonize the gastrointestinal system, respiratory system and urinary tract, skin and mucous membranes and show resistance due to excessive antibiotic use in the hospitals.[5] Services such as pediatrics wards, neonatal intensive care units (NICU), and pediatric hematology and oncology departments are high risk areas for Vancomycin resistant enterococci (VRE) colonization. Insufficient immune system of the neonates, wide spectrum antibiotic use due to nosocomial infections and prolonged hospital stay are the most important factors that increase the colonization of VRE strains among patients in NICU.[3,6]

In this study, the medical records of patients who hospitalized to NICU were analyzed in terms of rectal VRE colonization and demographic characteristics such as gestational week (GW), birth weight (BW), gender, previous admissions, days of hospitalization. The authors aimed to determine the prevalence of VRE colonization at the admission, the demographic characteristics of the VRE colonized patients, and the distribution of VRE colonization according to the years.

MATERIAL AND METHOD

Medical records of 2439 patients who admitted to NICU of Bahcesehir University School of Medicine between January 2010 and December 2019 for various medical problems were examined. The medical records of 1323 patients who were admitted to NICU from other centers were evaluated in terms of demographic characteristics such as age, gender, GW, BW, previous admissions to any centers and hospitalization. Our study was approved by Bahcesehir University Clinical Research Ethics Committee (Protocol number 2020/06-01).

Microbiological analysis

Rectal swab samples were collected on Stuart transport medium. Swab samples inoculated on the VRE Agar Base, which was containing 6 µg/ml vancomycin. After 24-48 hours of incubation at 37 °C, the petri dishes were evaluated in terms of growing colonies. Gram positive cocci shaped, catalase test negative colonies were identified at the species level and antibiotic susceptibility tests performed by VITEK 2 automated system (bioMerieux, France).

RESULTS

One thousand three hundred twenty-three patients who were admitted to NICU from other centers and did not have any contact with our center previously were enrolled. Vancomycin resistant enterococci colonization was found in 60 out of 1323 patients in standard rectal VRE cultures performed at the admission to NICU. Of the 60 patients with VRE colonization, 39 had no previous hospitalizations history, but each of these patients had different outpatient visits (1-5 times). The characteristics of the patients are shown in **Table 1**.

Table 1. Characteristics of patients admitted to NICU

Characteristics		VRE (+) n:60	VRE (-) n:1263
		Mean±SD or n(%)	Mean±SD or n(%)
Gestation week		37.3±3	32±4
Birth weight (g)		2917±671.3	2340±465.2
Gender	Female	28 (46.6)	703 (55.6)
	Male	32 (53.4)	560 (44.3)
Birth type	Caesarean	41 (68.3)	976 (77.3)
	Normal delivery	19 (31.7)	287 (22.7)
Age at the time of hospitalization	<24 hours	1 (1.67)	754 (59.7)
	1-7 days	27 (45)	293 (23.2)
	<7 days	32 (53.3)	216 (17.1)
NICU admission route	Other centers	21 (35)	387 (30.6)
	Home	39 (65)	876 (69.4)

We found a significant rise in VRE colonization in every year which is shown in **Figure 1**.

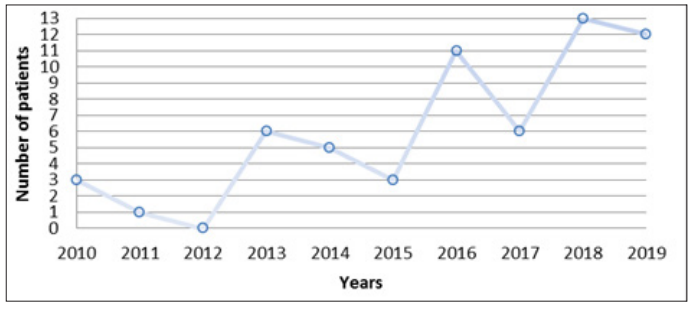

Figure 1. Distribution of VRE colonization in patients according to years

DISCUSSION

This study aims to determine the prevalence and risk factors of VRE colonization in patients who were hospitalized to NICU from other centers or home. According to our results, rectal VRE colonization was found in 60 of 1323 (4.54%). It is noteworthy that 65% (39/60) of patients with rectal VRE colonization had no previous hospitalization history. We also found that, 28 (46%) patients with rectal VRE colonization were admitted to NICU in the first 7 days of life.

Wide spectrum antimicrobial use, severe underlying diseases or long hospital stays are known to be the major risk factors for carriage of drug resistant organisms such as VRE.[7] According to a meta-analysis conducted by Ziakas et al.[8] the frequency of VRE colonization which was observed during hospitalization in different intensive care units was 6.3-9.6%. In the same study, the frequency of infection due to VRE colonization was 0-45%, whereas it was consistently <2% in patients without colonization. VRE colonization during hospitalization was found as 12.3% in US studies, 2.7% in European and 5.3% in Asian studies.These geographical differences of drug resistant bacteria can be explained by the different antibiotic usage policies of countries, compliance with isolation and infection control practices, and the cultural differences in the behavior of health care workers.[9,10] In our study we determined the rate of VRE colonization among neonates at admission in order to rule out the colonization during our NICU. As our knowledge, there is a large set of data on outbreaks or colonization rates in intensive care units but to a lesser extent in community-derived ones. Landete et al.[11] collected 41 fecal samples from 21 breastfed healthy infants younger than 6 months who had no perinatal problems and prescribed antibiotics at least 3 months from the study. Of the 41 isolates, which showed gram-positive and catalase-negative morphology, 26 (from 15 infants) were identified as *E. faecalis* and 15 (from 7 infants) as *E. Faecium*. None of the isolates showed resistance to vancomycin. Thacker et al.[12] conducted a study with 618 patients at admission to the pediatric oncology unit or pediatric ward, which included 528 children with hematological malignancies and 90 children with solid tumors. Rectal swabs were sent to determine the colonization with multidrug-resistant organisms. Sixty-five (11.4%) had vancomycin-resistant enterococci in baseline cultures. In our study, we found that of 1323 neonates, 60 were colonized with VRE and 65% patients had no history of hospitalization which means there is always high risk for VRE colonization even though the neonates are not hospitalized.

In a review study containing data from 74 published studies about nosocomial colonization and infection by multiresistant organisms, the common risk factors were found as underlying severe disease and high severity of illness, inter-institutional transfer of the patient, long hospital stay, exposure to invasive devices and exposure to wide spectrum antimicrobial drugs. None of our patients had history of exposure to invasive devices or wide spectrum antibiotics use, moreover 46.6% of them were in the first week of their life. It is known that long hospitalization duration is an important risk factor for VRE colonization.[13] In our study, 35% of patients with VRE colonization were transferred to our NICU from different centers. Among those patients, 12 of them (57%) were in the first week of their lives. Although 65% of the patients had no previous hospitalization history (admitted from home), each of them had different numbers of outpatient visit history. Moreover one neonate was admitted to our NICU because of neonatal sepsis in the first day of life and VRE colonization was detected. This neonate was born via normal vaginal delivery at 40 weeks of gestation. It is known that enterococci is one of the first few bacteria that colonize primarily in the neonatal digestive system via originating from the mother's vaginal or gastrointestinal flora.[14] Subramanya et al.[15] reported one early onset septicemia case by vankomisin resistant *Enterococcus faecium*. They found the same VRE strain from blood samples of the neonate and stool speciemens of the mother at the same time and indicated that maternal gut colonization caused neonatal sepsis. We did not investigate the origin of the VRE strain via taking samples from mother or from the center where the birth took place. In our opinion, VRE colonization among our objects, which was detected very early of their lives, may be caused by colonization of the mother or the environment such as delivery room.

Some VRE colonizations may cause severe VRE infections, while some remain as asymptomatic carriers. Akturk et al.[16] found that rectal VRE colonization was detected in 12% (200/1671) of patients who hospitalized in NICU and systemic VRE infection developed in 3% (6/200) of patients with VRE colonization for an average of 9 days (range: 3-58 days). Benzer et al.[6] performed rectal VRE cultures in hospitalized neonates after they diagnosed urinary tract infection in a preterm infant due to VRE in NICU and showed that of 133 patients, 40% had VRE colonization without any infection. Symptom-free colonization may last for a long time and serve as a reservoir for the transmission of VRE to other patients.[17] It is known that one of the most important cause of spreading VRE in hospitals is associated with unrecognized prolonged fecal carriage.[18] The asymptomatic carriage of VRE and the absence of an effective decolonization procedure maintain the endemicity of VRE in health care facilities.[19] It is also known that this colonization may be a reservoir for transmission to other patients and play an important role in increased morbidity, mortality and healthcare costs.[20]

This study had some limitations. Firstly, it is a retrospective study and we did not have a possibility to access to the previous data of the patients prior to admission to our NICU. Therefore, we were not able to reach reliable causes about the origin of VRE colonization. Secondly, we were not able to take specimens from mother to determine the origin of VRE colonization.

Although VRE colonization rate was 4.54% in patients admitted to our NICU, we found that the number of patients with VRE colonization were increased year after year. Moreover, 65% of patients with rectal VRE colonization had no previous hospitalization history but they had several times outpatient visit history and 46% of them were in the first week of their lives. That is a worrisome status that suggests colonization may be developed in delivery room, operating room or recovery room which are not known as high risk areas of the health care facilities or from the already colonized mother. In our opinion, although our study does not reflect the status of the health care facility induced VRE colonization or the community induced VRE colonization, multicenter studies should be done in order to determine more reliable rates of early VRE colonization during neonatal period.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was approved by Bahcesehir University Clinical Research Ethics Committee (Protocol number 2020/06-01).

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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Orjinal Araştırma / Original Article

Dalak Yerleşimli Kist Hidatik Tedavisinde Minimal İnvaziv Perkütan Tedavi Tekniklerinin Etkinliği

Efficacy of Minimally Invasive Percutaneous Treatment Techniques in Hydatid Cyst of the Spleen

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Öz

Amaç: Bu çalışmanın amacı dalak kist hidatiği tedavisinde uygulanan perkütan tedavi yöntemlerinin uzun dönem sonuçlarını değerlendirmektir.
Yöntemler: Haziran 2015 ve Ocak 2020 tarihleri arasında, perkütan tedavi uygulanmış olan hastaların dosya kayıtları geriye dönük olarak tarandı. Tedavi öncesi uygulanan ultrasonografi raporları incelendi ve kist tipi, kist boyutu ve lokalizasyonu listelendi. Perkütan tedavi türü, komplikasyonlar, hastanede yatış süresi listelendi. Takip ultrasonografi raporları değerlendirildi, takip süresi ve kistin son kontroldeki boyutu kayıt edildi.
Bulgular: PAİR ve standart kateterizasyon yöntemi ile tedavi edilen dokuz CE1 ,CE3a ve CE3b dalak kist hidatik hastasının verileri çalışmaya dahil edildi. Periprosedüral komplikasyon izlenmedi. Hastaların hastanede yatış süresi ortalama 1,67±1,73 gün oldu. Tedavi öncesindeki ortalama kist boyutu 8,11±3,55 cm olmuştur. Son takip kist boyutu 6,46±3,57 cm olup ilk boyutuna kıyasla anlamlı olarak boyut azalması oldu (p=0,050). Ortalama takip süresi 9,56 (±11,08) ay olmuştur. Takip süresince iki hastada nüks oldu. Sadece bir hastada ikinci nüks nedeni ile cerrahi tedavi ihtiyacı olmuştur.
Sonuç: Perkütan tedavi yöntemleri dalak kist hidatik tedavisinde etkin ve güvenli bir yöntemdir.

Anahtar Kelimeler: Kist hidatik, dalak kist hidatik, PAİR, ekinokokuz granulosus

Abstract

Aim: The aim of this study was to evaluate the long-term results of percutaneous treatment methods in the treatment of splenic hydatid cyst.
Methods: Between June 2015 and January 2020, records of patients who underwent percutaneous treatment were retrospectively reviewed. Before the treatment, ultrasonography reports were reviewed and cyst type, cyst size and localization were listed. Percutaneous treatment type, complications, duration of hospitalization were listed. Follow-up ultrasonography reports were evaluated and the follow-up period, the size of the cyst at the last follow-up, were recorded.
Results: Data of nine patients with CE1, CE3a and CE3b splenic hydatid cyst treated with PAIR and standard catheterization were included in the study. No periprocedural complication was observed. The mean duration of hospitalization was 1.67±1.73 days. The mean pretreatment cyst size was 8.11±3.55 cm. The final follow-up cyst size was 6.46±3.57 cm and there was a significant decrease in size compared to the initial size (p=0.050). The mean follow-up period was 9.56±11.08 months. Recurrence occurred in two patients during the follow-up period. Only one patient required surgical treatment due to the second relapse.
Conclusion: Percutaneous treatment methods are an effective and safe method in the treatment of splenic hydatid cyst.

Keywords: Hydatid cyst, splenic hydatid cyst, PAIR, echinococcus granulosus

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GİRİŞ

Kist hidatik, sıklıkla echinococcus granulosus' un neden olduğu eski çağlardan beri bilinen parazitik bir hastalık ve önemli bir halk sağlığı sorunudur.[1] Afrika, Güney Amerika, Avustralya'nın bazı bölgeleri, Asyada ve Türkiye'nin de içinde bulunduğu bazı Akdeniz ülkelerinde endemik bir sağlık sorunudur.[2-4]

Hastalık en sık karaciğerde (%55-70), ikinci sıklıkta akciğerde (%18-35) yerleşmektedir.[5] Dalak üçüncü sıklıkta tutulan organ olsa da, dalak tutulumu endemik bölgelerde bile az görülen bir durumdur. Yapılan çeşitli çalışmalarda dalak tutulum oranları %0,9-8 arasında gösterilmekte, sadece dalağın tutulduğu izole vakaların oranının ise %1 ve %8'ini oluşturduğu bilinmektedir.[6-8]

Dalak kist hidatiklerinin komşu yapılara etkileri, ikincil enfeksiyona bağlı oluşabilecek komplikasyonlar, rüptür ve buna bağlı anafilaksi riski nedeni ile tedavi endikasyonu vardır. Bu iyi huylu hastalık, ciddi morbidite ve mortaliteye neden olabilir.[9]

Hidatik hastalık için benzimidazol bileşikleri (mebendazol, albendazol) ile tıbbi tedavi önerilmiştir, ancak sonuçlar kistlerin çoğunluğunda tartışmalıdır ve genellikle küratif değildir.[10] Splenektomi, uzun yıllar boyunca uygulanan tek cerrahi tedavi şekli olmuştur.[11] Fakat splenektomi tedavi esnasında ve tedavi sonrasında ciddi komplikasyonlara sebep olabilir. Bu durum cerrahi tedavi açısından dezavantaj olarak bilinir. Dalağın korunması noktasında son yıllarda perkütan tedavi uygulamaları devreye girmiş ve etkin sonuçları ile uygulanmaya başlanmıştır.[12,13] Bu minimal invaziv yöntemin tüm yönleri ile okuyuculara sunulmasının, tedavinin bilinirliğinin artırılmasına ve splenik kist hidatik tedavisinin gelişimine katkısı olacağı düşüncesindeyiz.

Bu çalışmanın amacı dalak kist hidatiği tedavisinde uygulanan perkütan tekniklerin etkinlik, komplikasyon, nüks ve hastanede yatış parametreleri üzerinden uzun dönem sonuçlarını paylaşmaktır.

GEREÇ VE YÖNTEM

Etik kurul onay

Çalışmadaki tüm prosedürler insan katılımcılara, ulusal araştırma komitesi standartlarına ve 1964 Helsinki Deklarasyonu ve sonraki baskılarına ilişkin etik kurallara uygun olarak yapılmıştır. Bu çalışma Necmettin Erbakan Üniversitesi Meram Tip Fakültesi İlaç ve Tıbbi Cihaz Dışı Araştırmalar Etik Kurulu tarafından onaylandı (Yıl/sayı :2020/2315).

Çalışma planı ve hasta seçimi

Haziran 2015 ve Ocak 2020 tarihleri arasında kurumda dalak yerleşimli kist hidatik perkütan tedavi uygulanmış olan hastaların dosya kayıtları geriye dönük olarak tarandı. Perkütan tedavi uygulanan bu hastaların, tedavi öncesindeki ve sonrasındaki takiplerde 1-3-6-9-12-24-36 aylarda yapılmış olan USG raporları değerlendirildi. Kistik ekinokokuz (CE) kistleri World Health Organization Informal Working Group on Echinococcosis (WHO-IWGE) ultrason (USG) sınıflandırılmasına göre aktif (CE1, CE2), geçiş/transizyonel (CE3a ve CE3b) ve inaktif (CE4, CE5) formlarda evrelendirildi.

Yaş ve cinsiyet bilgileri kayıt edildi. Girişimsel radyoloji uzmanı tarafından tedavi öncesinde yapılmış olan ultrasonografi raporları taranarak kist tipi, kist boyutu ve lokalizasyonu listelendi. Kayıtlı olan perkütan tedavi bilgileri ve raporları değerlendirilerek uygulanan tedavi türü, komplikasyonlar, hastanede yatış süresi listelendi. Takip ultrasonografi raporları değerlendirilerek takip süresi, kistin son kontroldeki boyutu, kayıt edildi. PAİR (Puncture, aspiration, injection ve reaspiration) ve standart kateterizasyon tedavisi uygulanmış dokuz CE1 ,CE3a ve CE3b dalak kist hidatik hastasının verileri çalışmaya dahil edildi.

Perkütan tedavi öncesi değerlendirme;

Tedaviyi uygulayacak olan girişimsel radyolog tarafından, tedavi öncesinde hastadan laboratuvar tahlilleri elde edildi ve USG uygulandı. Tam kan sayımı, protrombin ve parsiyel tromboplastin süreleri, uluslararası normalleştirilmiş oran (INR) ve trombosit sayısı belirlendi. INR<1,5 ve trombosit sayısı >100.000/ml olanlar perkütan tedaviye uygun kabul edildi. İkincil yayılma riskini azaltmak için profilaksi amaçlı olarak perkütan tedaviden 10 gün önce 10 mg/kg/gün dozunda oral Albendazol verildi.

Perkütan tedavi ve takip prosedürleri :

Tüm perkütan tedavi işlemler, en az 2 yıllık deneyime sahip girişimsel radyolog tarafından gerçekleştirildi. Tedavi prosedürleri USG ve floroskopi rehberliğinde tam sterilize edilmiş koşullarda uygulandı. Alerjik reaksiyonları önlemek ve anafilaksi riskini azaltmak için işlem hemen öncesinde tüm hastalara difenhidramin HC1 (20 mg) ve metilprednizolon (1 mg/kg) intravenöz olarak anestezi uzmanı tarafından verildi. Tüm hastalar perkütan tedavi aşamasında girişimsel radyoloji ünitesindeki bir anestezi uzmanı tarafından anafilaksi açısından kontrol edildi ve bilinçli sedasyon uygulandı.

CE3a ve boyutu 10 cm altında olan CE1 kistlere PAİR tedavisi, CE3b ve boyutu 10 cm üzerinde olan CE1 kistlere standart kateterizasyon tedavisi uygulandı.

PAİR tekniğinde ilk olarak transsplenik yaklaşım ile USG rehberliğinde 18 G 15 cm chiba iğne ile kist içerisine girildi. Kist iç basıncının azaltılması amaçlı görsel olarak kist içeriğinin yaklaşık %50'si boşaltıldı. Kist bütünlüğü ve bitişik yapılarla olan ilişkilerin değerlendirilmesi amaçlı kist konturları belirgin hale gelinceye kadar ½ noniyonik kontrast madde ve ½ %0,9 NaCl kist içerisine floroskopi klavuzluğunda verildi. Burada verilen kontrast madde ve tuz çözeltisi miktarı aspire edilen kist sıvısı içeriğinin yarısı kadar oldu. Kistografide çevre yapılar ile ilişki olmadığı doğrulandı. Kist boşluğunun içeriği hacminin yarısına gelinceye kadar tekrar aspire edildi. Sonrasında yapılan aspirat hacminin üçte ikisine eşit bir hacimde mutlak skolosidal ajan (%30 hipertonik salin) kist içerisine verildi. Perikistten endokist tabakasının kopmasını gözlemlemek için en az 10 dakika bekledikten sonra, enjekte edilen sıvı tamamı tekrak aspire edildi. PAİR tedavisi uygulanan hastalarda işlem burada sonlandırıldı. Kateter takılması gerekli ise kist içeriği aspire edildikten sonra kist kavitesi hacminin yaklaşık %50 sini geri kazanıncaya kadar kist içerisine ½ noniyonik kontrast madde ve ½ %0,9 NaCl karışımı yeniden verildi. 18 G iğne içerisinde

0,035 75 cm sert klavuz tel kist içerisine ilerletildi. Uygun trakt dilatasyonu sonrasında tel üzerinden 8 F kateter (Flexima Quickstick drenaj kateteter sistemi, Boston Scientific, UK) kist içerisine yerleştirildi. Kateter ucuna torba bağlandı.

Tedavi sonrası hastalar gözlem yatağına alındı. Kateter kullanılan hastalarda, kateter kavitede en az 24 saat tutuldu. 24 saat sonra günlük torbaya gelen 10 cc'nin altında olduğu görülünce kateter çıkarıldı. Tüm hastalarda perkütan tedaviden sonra 2 hafta süresince 10 mg/kg/gün dozunda oral Albendazol devam edildi.

İstatiksel analiz

Araştırma verileri "SPSS (Statistical Package for Social Sciences) for Windows 22.0 (SPSS Inc, Chicago, IL)" aracılığıyla bilgisayar ortamına yüklendi ve değerlendirildi. Tanımlayıcı istatistikler ortalama, standart deviation ve yüzde olarak sunuldu. Nicel değişkenlerin normal dağılıma uygunluğu görsel (histogram ve olasılık grafikleri) ve analitik yöntemler (Kolmogorov-Smirnov/ Shapiro-Wilk Testi) kullanılarak incelendi. Kist son boyutunun tedavi öncesi boyutu ile karşılaştırılmasında Paired Samples t Test kullanıldı. İstatistiksel anlamlılık düzeyi $p<0,05$ olarak kabul edildi.

BULGULAR

Çalışmaya bir (11,1%) erkek, sekiz kadın (%89,9) olmak üzere toplamda dokuz hastanın verileri dahil edildi. Bu hastaların bir tanesinde eş zamanlı karaciğer kist hidatiği eşlik ediyordu. Diğer sekiz (%88,9) hastada izole dalak kist hidatiği mevcuttu. Hastaların ortalama yaş 51,11±20,51 (14-83 yaş arası) oldu. Tedavi öncesindeki ortalama kist boyutu 8,11±3,55 (4-16 arası) cm olmuştur. CE1 kist sayısı altı (%66,7), CE3a kist sayısı bir (%11,1) ve CE3b kist sayısı iki (%22,2) oldu. CE3b ve boyutu 10 cm üzerinde olan kistler standart kateterizasyon yöntemi ile tedavi edildi. 10 cm altındaki CE1 ve CE3a kistlere PAİR yöntemi ile tedavi uygulandı. PAİR yöntemi ile beş hasta (%55,6), standart kateterizasyon yöntemi ile dört hasta (%44,4) tedavi edildi. Kist içeriği yedi (%77,8) hastada kaya suyu, iki (%22,2) hastada pürülan özellikte bulundu. Standart katetetrizasyon tedavisinde kullanılan kateteter kalınlığı 8 F idi. Periprosedüral komplikasyon izlenmedi. Hastaların hastanede yatış süresi ortalama 1,67±1,73 (0-5) gün oldu. Son takip kist boyutu 6,46±3,57 cm olup ilk boyutuna kıyasla anlamlı olarak boyut azalması oldu ($p=0,045$). Ortalama takip süresi 9,56±11,08 ay olmuştur. En uzun takip süresi 36 ay olarak gerçekleşti. Tedavi sonrasında bir hasta herhangi bir dönemde takibe gelmemiştir. Takip kayıp oranı % 11,1 oldu. Takip süresince iki (%22,2) hastada nüks oldu. Bir hasta 2. ay kontrolünde kist sıvı içeriğinin azalmaması ve germinatif membranın büzülüp çökmemesi nedeni ile nüks olarak kabul edildi. Bu kontrol döneminde ikinci seans perkütan tedavi uygulandı ve sonraki takiplerinde nüks gözlenmedi. Nüks gelişen diğer hastada 1. ayda benzer bulgular görüldü. Aynı şekilde ikinci seans perkütan tedavi uygulandı. Bu hastanın 3. ay kontrolünde kist morfolojisinde herhangi bir değişiklik olmaması üzerine cerrahi tedavi kararı verildi. Sadece bir (%11,1) hastada nüks nedeni ile cerrahi tedavi ihtiyacı olmuştur.

TARTIŞMA

Bu çalışmada perkütan tedavilerin, dalak kist hidatik lezyonları tedavisinde cerrahi yöntemlere alternatif olabilecek etkin ve güvenli minimal invaziv yaklaşım olduğu bulguları elde edildi. Ortalama 9,5 ay takip süresi perkütan tedavisi sonuçları paylaşıldı. Perkütan tedavi teknik başarı oranı %100 oldu. Uzun dönem sonucu perkütan tedavi etkinliği %88,9 oldu. Komplikasyon ve komplikasyona bağlı mortalite görülmedi. Son takip kist boyutu tedavi öncesi boyutuna kıyasla anlamlı olarak azaldığı görüldü.

Splenik kist hidatikler enfeksiyon, rüptür, lokal bası etkisi riskleri nedeni ile tedavi edilmesi gerekmektedir. Splenik kist hidatik tedavisinde temel prensibin, sadece primer cerrahi tedavi yöntemi olduğu bilinirdi.[14-16] Bu cerrahi tedavi yöntemi splenektomi esasına dayanmaktadır. Splenektominin genel mortalite oaranının %3,8-%7 arasında ve hastanede yatış süresinin 2,3-47 gün arasında geniş bir aralıkta olduğu bilinir.[17-25] Dalak kist hidatiği perkütan tedavisi sonuçlarımıza göre periprosedüral ve uzun dönem komplikasyon görülmedi. Ek olarak mortalite olmadı. Bu çalışmada hastanede kalış süresi ortalama 1,67 gün oldu. Perkütan tedavilerin cerrahi tedavilere kıyasla mortalitesi düşük ve hastanede yatış süresi daha azdır. Bu durum hasta konforunu artırmakta ve sağlık sistemi yükünü azaltmaktadır.

Total splenektomi nüks oranının düşük olması veya hiç olmaması nedeniyle çoğu cerrah tarafından tercih edilmektedir. Son zamanlarda yapılan bir çalışmada splenektomi tedavi sonrası splenik kist hidatik olan 26 hastada %3,8 gibi düşük bir oranda nüks olduğunu bildirdiler.[17] Total splenektomi sonrası nüks oranının düşük olması veya hiç olmaması cerrahi tedavi lehine olumlu bir durumdur. Fakat splenektominin yüksek mortalite ve morbidite ilişkisi, dalak koruyucu cerrahi tedavi lehine olan cerrah sayısını da artırdı.[26] Bu çalışmada perkütan tedavi nüks oranı %22,2 gibi yüksek bir rakam bulundu. Bu gelişen nüksler mortalite sebebi olmadı. Perkütan tedavi sonucunda nüks gelişen hastalar yeniden perkütan tedavi veya splenektomi uygulanması şansını kaybetmemektedir. Nitekim bizim nüks gelişen hastalarımıza ikinci seans perkütan tedavi uygulandı. Sonrasında bir hastada ikinci nüks gelişince sadece bu hasta splenektomi tedavisine yönlendirildi. Uzun dönem etkinlik oranımız %88,9 oldu.

Splenektomi komplikasyonları arasında, transfüzyon ihtiyacı olabilecek kanama, mide yaralanması, pankreas fistülü, diyafram yaralanması, tromboembolik komplikasyonlar vardır.[17,27,28] Splenektomi immunizasyonu zayıflatma potansiyeline sahiptir ve bu hastalarda sepsis önemli bir sorundur.[29] Splenektomiyi takiben post-splenektomi sepsisten korunmak için pnömokok aşısı uygulanması önerilir.[30] Bu nedenle postsplenektomi enfeksiyonlarından korunmak amacıyla özellikle çocuklarda dalak koruyucu ameliyatlar tercih edilmesi önerilmektedir.[21] Bu çalışmada uygulanan minimal invaziv perkütan tedavilerin sonucunda dalak korunmuş olmaktadır. Bu sayede hastaya splenektomi sonrasındaki komplikasyon riskleri yüklenmez. Pnömokok aşısı uygulanması ihtiyacı gerekmez. Tedavi sonrasında hasta konforu daha iyi olmaktadır.

Yakın zamanda hasta sayısı ve hazırlanma mantığı bu çalışmaya benzer cerrahi tedavi sonuçlarının açıklandığı bir makale yayınlandı. Bu yayınlanan çalışma splenik kist hidatik tanılı ortalama kist çapı 10,1 cm olan 11 hastayı içermekte idi. Hasta grupları ve veri dağılımları bizim hasta grubumuza çoğunlukla benzerdi. Hastalarının %81 (9/11)' ini cerrahi girişim olarak splenektomi, %18 (2/11)'sine dalak koruyucu cerrahi olarak kistotomi, parsiyel kistektomi ve tüp drenaj işlemleri uygulamışlardır. Ortalama hastanede yatış süreleri 3,9 gün olan sonuçlarında, dalak kist hidatiklerinin tedavisini cerrahi olarak yapılması gerektiğini bildirdiler. Genel olarak kabul edildiği gibi hastalarında nüks görülmemiştir. Fakat sonuçlarına göre, bir hastaları postoperatif birinci günde pulmoner emboli nedeniyle hayatını kaybetmiş, diğer bir hastalarında ise diyafram rüptürü ve ardından pnömotoraks gibi ciddi bir komplikasyon gelişmiştir. Yani %18 major komplikasyon ve %9 mortalite oranları olmuştur. [32] Sunduğumuz ortalama 1,67 gün hastanede yatış süresi olan bu çalışmada, major komplikasyon ve mortalite olmadı. Hastanede yatış süresi daha kısa oldu. Komplikasyon oranının ve hastenede yatış süresinin az olması perkütan tedavi lehine önemli bir avantajdır. Aynı zamanda sağlık sigorta sistemine ek bir yük getirmemektedir. Bu sonuçlar ile dalak kist hidatiğinde perkütan tedavi yöntemlerinin önemli bir yere sahip olduğu bilgisi kanıtlanmış oldu.

Çalışmamızın bir kısıtlılığı olarak okuyucuda hasta sayımızın az olduğu yönünde düşünce oluşabilir. Kist hidatik dalak yerleşimini nadir olduğu bilinmektedir. Bu nadir olan hastaların büyük çoğunluğu cerrahi tedaviye yönlendirilmektedir. Kist hidatik perkütan tedavisinde aktif bir klinik olmamıza ve geniş bir zaman aralığını taramamıza rağmen hasta sayımız bu kadar oldu. Hasta sayımız perkütan tedavi açısından literatür yayın ortalamasındadır.

Dalak kist hidatik hastalığında perkütan tedavi yöntemi; düşük komplikasyon oranı, düşük mortalite oranı ve daha az hastanede yatış süresi ile cerrahi tedaviye alternatif olan etkin bir yöntemdir.

ETİK BEYANLAR

Etik Kurul Onayı: Bu çalışma Necmettin Erbakan Üniversitesi Meram Tip Fakültesi İlaç ve Tıbbi Cihaz Dışı Araştırmalar Etik Kurulu tarafından onaylandı (Yıl/sayı :2020/2315).

Aydınlatılmış Onam: Çalışma retrospektif olarak dizayn edildiği için hastalardan aydınlatılmış onam alınmamıştır.

Hakem Değerlendirme Süreci: Harici çift kör hakem değerlendirmesi.

Çıkar Çatışması Durumu: Yazarlar bu çalışmada herhangi bir çıkara dayalı ilişki olmadığını beyan etmişlerdir.

Finansal Destek: Yazarlar bu çalışmada finansal destek almadıklarını beyan etmişlerdir.

Yazar Katkıları: Yazarların tümü; makalenin tasarımına, yürütülmesine, analizine katıldığını ve son sürümünü onayladıklarını beyan etmişlerdir.

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Nöropsikiyatrik Semptom Bilinirliği Üzerinden Sağlık Okur Yazarlığı

Health Literacy on Neuropsychiatric Symptom Awareness

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Öz

Amaç: Sağlık okur-yazarlığı; sağlığın korunması ve sürdürülmesi için bireyin sağlık bilgisine ulaşma, anlama ve kullanma becerisi olarak tanımlanır. Bu çalışmada, kişilerin psikiyatri ve nöroloji polikliniklerine başvurma konusundaki bilgi düzeylerini ölçmek ve sosyodemografik verilerle ilişkisini değerlendirmek amaçlanmıştır.

Gereç ve Yöntem: Araştırmaya 2020 Mart ayında Sakarya ilinde merkez ilçedeki aile hekimliği polikliniklerine başvuran 118 hasta dahil edildi. Bu çalışma kesitsel tanımlayıcı tipte planlanmıştır. Aile hekimleri tarafından katılımcılardan onay alındıktan sonra okur-yazar olan katılımcılara yazılı anket yöntemiyle, olmayanlara ise yüz yüze görüşme yöntemiyle uygulandı. Literatürdeki yayımlanmış sağlık okur-yazarlığı ölçme yöntemlerinden faydalanılarak ankette sorulacak sorular belirlendi. Anket sorularının ilk 8 tanesi sosyodemografik özelliklerle ilgili olup, sonraki 15 soruda hastanemiz psikiyatri ve nöroloji polikliniklerinde en sık rastlanılan 15 semptom sıralanarak "Bu semptomların varlığında psikiyatriye mi yoksa nörolojiye mi başvurursunuz?" şeklinde iki seçenekli sorular soruldu. Ağlama, uykusuzluk, evham/endişe, isteksizlik, hayal görme, unutkanlık, sinirlilik, korku semptomları "psikiyatrik semptomlar" olarak kabul edildi. Baş dönmesi, titreme, denge bozukluğu, baş ağrısı, konuşma bozukluğu semptomları varlığında cevap olarak "nörolojik semptomlar" cevabı doğru seçenek olarak kabul edildi. Dikkat bozukluğu ve unutkanlık bölümlerin ortak semptomları olarak kabul edildi.

Bulgular: Katılımcıların ortalama yaşı 37,45±11,31, %68,6'sı kadın, %53,4'ü üniversite mezunu, %89,8 i şehirde yaşıyordu. Ağlama, evham, endişe, hayal görme, korku şikayeti olanların %90 dan fazlası psikiyatri bölümüne başvuracağını belirtirken, Baş dönmesi, yürüme güçlüğü, baş ağrısı belirtilerinin varlığında katılımcılar %90'nının üzerinde nöroloji seçeneğini işaretledi. Çalışmamızda kadın cinsiyet, genç yaş, yüksek eğitim seviyesine sahip, şehirde yaşayan ve çalışan, kendisinde ve ailesinde psikiyatrik hastalık olan kişilerin nöropsikiyatrik semptom farkındalığı anlamlı şekilde daha yüksekti (p<0,05).

Tartışma: Sık karşılaşılan, kaybedilen zaman, yanlış tanı ve tedavi, daha fazla hastane başvurusu, daha fazla sağlık harcamasına sebep olan yanlış bölüme başvuru düşük sağlık okuryazarlığının bir sonucudur.

Anahtar kelimeler: psikiyatri, nöroloji, nöropsikiyatrik semptom, sağlık okur-yazarlığı

Abstract

Aim: Health literacy is defined as an individual's ability to access, comprehend, and utilize health information for the preservation and maintenance of health. This study aimed to measure individuals' level of knowledge of applying to psychiatry and neurology outpatient clinics and to evaluate its relationship with sociodemographic data.

Material and Method: The study included 118 patients who applied to family physician outpatient clinics in March 2020 at the central district of the Sakarya province. After consent was obtained from the participants, literate participants were administered written questionnaires by the family physicians, while face-to-face interviews were conducted with the participants who were illiterate. The first eight questions in the questionnaire were related to sociodemographic characteristics and the next fifteen questions listed the fifteen most common symptoms encountered in psychiatry and neurology outpatient clinics and the yes-no question of, "If you had these symptoms, would you apply to psychiatry or neurology?" was asked for each symptom. The symptoms of crying, insomnia, anxiety, lack of motivation, hallucinations, forgetfulness, irritability, fear were accepted as "psychiatric symptoms". In the presence of dizziness, tremor, balance disorder, headache, speech disorder symptoms, the answer to "neurological symptoms" was accepted as the correct option. Attention disorder and forgetfulness were considered as common symptoms of the departments.

Results: Mean age of the participants was 37.45±11.31 years, 68.6% were female, 53.4% were university graduates, and 89.8% were living in the city. While over 90% of participants indicated they would apply to psychiatry for symptoms of crying, anxiety, worry, hallucinations, and fear, 90% indicated they would apply to neurology for symptoms of dizziness, difficulty walking, and headache. Rate of Neuropsychiatric symptom awareness was significantly higher in patients who were female gender, at a young age, had high education level, living and working in the city, or who had psychiatric illness in themselves or in family (p<0,05)..

Conclusion: Admission to the incorrect hospital department occurs often and is one of the consequences of low health literacy leading to loss of time, misdiagnosis and incorrect treatment, more hospital admissions, and higher health expenditure.

Keywords: Psychiatry, neurology, neuropsychiatric symptom, health literacy

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GİRİŞ

Türkiye'de zorunlu sevk zinciri uygulaması son on yıldır kaldırılmıştır. Aile hekimine uğrama zorunluluğu olmadan 3. basamak hastaneler dahil alanında uzman doktorlara doğrudan ulaşmak mümkündür. Bu durumda hastalardan verilen sağlık hizmetleri hakkında bilgi sahibi olmaları, kendi sağlıkları ile ilgili haklarını bilmeleri ve karar verebilmeleri beklenir hale gelmiştir. Bireylerin eğitim düzeyi, kültürel farklılıkları, yaşa bağlı fiziksel ve bilişsel değişiklikler gibi etkenler sunulan hizmetlerin kullanımını, sağlık ekibi ile iletişimi etkileyebilmektedir. Son yıllarda bu alanda oluşan sorunların üstesinden gelebilmek için sağlık okul yazarlığı kavramının üzerinde durulmaktadır.[1] Sağlık okuryazarlığı kavramı ilk kez Simond tarafından 1974 yılında "Health Education as Social Policy" adlı bir makalede kullanılmıştır.[2] Dünya Sağlık Örgütü sağlık okuryazarlığını;"sağlığın korunması ve sürdürülmesi için bireyin sağlık bilgisine ulaşma, anlama ve kullanma becerisi" olarak tanımlamıştır.[3] Daha kapsamlı tanımı ile "insanların sağlık durumlarıyla ilgili olarak günlük yaşamlarında kararlar almak, yaşam kalitelerini arttırmak için sağlıklarını geliştirme ve hastalıkları önleme amacıyla gerekli sağlık bilgisine erişme, anlama, bilgiyi kullanmayı sağlayacak bilgi ve yeterlilik" olarak ifade edilmiştir.[4] Günlük yaşamda insanlar hastalık durumunda ilgili sağlık birimine başvurma, ilaçların doğru kullanımı, tedavi sürecinde riskleri ve sonuçları hesaplama, aile bireylerinin sağlık bakımlarıyla ilgili kararlar almak durumunda kalmaktadır. Bireylerin bu konularda etkili bir sağlık bakım yönetimini yürütebilmeleri için temel düzeyde sağlık okuryazarlığına sahip olmaları gereklidir.[5] Sağlık okur-yazarlığı düşük olan toplumlarda; kronik hastalıklar ve koruyucu sağlık hizmetlerini ile ilgili bilgi eksikliği, verilen eğitimleri anlayamama, artmış acil servis kullanımı ve hastane yatışları, tedavi uyum sorunları, hatalı ilaç kullanımı, artmış sağlık harcamaları, artmış mortalite oranları saptanmaktadır.[6] Ülkemizde üzerinde çok çalışılan bir alan olmasa da geçmiş ve şimdiki bilgilerimize göre; pozitif ruhsal sağlığın nasıl elde edileceği ve sürdürüleceğini anlamak, ruhsal hastalıkları ve tedavi seçeneklerini anlamak, ruhsal hastalıklara bağlı damgalanmayı azaltmak, kişilerin ne zaman ve nerede yardım arayacağını bilmesi gibi öz yeterliliklerini geliştirmek ruhsal sağlık okuryazarlığının tanımları arasındadır.[7]

Psikiyatri uzmanı; ruhsal rahatsızlıkların önlenmesi, tanınması, tedavi edilmesinde ve rehabilitasyonunda çalışan hekimdir. Nöroloji uzmanları; merkezi ve periferik sinir sisteminin hastalıkları ve bu sistemin hastalıkları sonucu bozulan diğer sistem ya da organ hastalıkları ile uğraşır. Ülkemizde 1973 yılına kadar nöropsikiyatri uzmanlığı olarak tek bünyedeyken daha sonra iki ayrı uzmanlık dalı haline gelmiştir.[8] Psikiyatri ve nöroloji aynı organ üzerinde çalışan iki ayrı branştır. Klinik pratiğimizde hastalar nörolojik ve psikiyatrik şikâyetleri olması durumunda bu iki bölümü karıştırmakta ve bunun sonucu olarak da tanı ve tedavi sürecinde gecikme, ekonomik yükün artması gibi durumlar oluşmaktadır. Bu çalışmanın birincil amacı nöroloji ve psikiyatri polikliniklerinde en sık rastlanan semptomların varlığında hastaların nereye başvuracakları konusundaki bilgi düzeylerini ölçmektir. İkincil amacımız ise yapılan bölüm tercihi ile sosyodemografik verilerin ilişkisini değerlendirmektedir.

GEREÇ VE YÖNTEM

Örneklem

Bu çalışma kesitsel tanımlayıcı tipte planlanmıştır ve örneklemi Sakarya'da çeşitli aile sağlığı merkezlerine başvuran kişilerden oluşturulmuştur. Örneklem büyüklüğünü belirlemek için Minitab 17.0 yazılımı kullanılmıştır. Örneklem büyüklüğü, benzer çalışmalar incelenerek (%11.0) %5 tip 1 hat ve %95 çalışma gücüne göre hesaplanmış ve alınması gereken hasta sayısı 115 bulunmuştur. Araştırma projesi Üsküdar Üniversitesi Girişimsel Olmayan Uygulamalar Etik Kurulu tarafından onaylandı (27.02.2020-61351342 sayılı onaylıyla). Anketler katılımcılara yüz yüze görüşme yöntemiyle uygulanmıştır. Literatürdeki yayımlanmış sağlık okur-yazarlığı ölçme yöntemlerinden faydalanılarak ankette sorulacak sorular belirlendi.[9-12]

Araştırmaya dahil edilme kriterleri: Okuma yazma bilen, çalışmaya katılmaya gönüllü olan, 18-65 yaş arası kişiler çalışmaya dahil edildi.

Araştırmadan dışlanma kriterleri: Mental retardasyonu olan, bilişsel işlevleri etkileyecek nörolojik ya da sistemik hastalığa sahip olan kişiler, çalışmaya katılmaya gönüllü olmayan kişiler çalışmaya alınmadı.

Değerlendirme Araçları

Bu araştırmada anket tekniği kullanılmış, tüm katılımcılara 23 sorudan oluşan, araştırmacılar tarafından yapılandırılmış bir anket uygulandı. Anket sorularının ilk 8 tanesi sosyodemografik özelliklerle ilgili olup yaş, cinsiyet, medeni durumu, eğitim durumu, çalışma durumu, yaşadığı yer, geçmişte psikiyatrik hastalık, ailede psikiyatrik hastalık varlığı soruldu. Sonraki 15 soruda hastanemiz psikiyatri ve nöroloji polikliniklerinde en sık rastlanılan 15 semptom (Baş dönmesi, ağlama, uykusuzluk, titreme, denge bozukluğu, evham/endişe, isteksizlik, yürüme güçlüğü, hayal görme, baş ağrısı, dikkat bozukluğu, unutkanlık, sinirlilik, korku, konuşma bozukluğu) sıralanarak "Bu semptomların varlığında psikiyatriye mi yoksa nörolojiye mi başvurursunuz?" şeklinde iki seçenekli sorular soruldu.

Ağlama, uykusuzluk, evham/endişe, isteksizlik, hayal görme, unutkanlık, sinirlilik, korku semptomları "psikiyatrik semptomlar" olarak kabul edildi. Baş dönmesi, titreme, denge bozukluğu, baş ağrısı, konuşma bozukluğu semptomları varlığında cevap olarak "nörolojik semptomlar" cevabı doğru seçenek olarak kabul edildi. Dikkat bozukluğu ve unutkanlık bölümlerin ortak semptomları olarak kabul edildi.

İstatistiksel Yöntem

Kategorik değişkenler arasındaki ilişkiler Ki-kare testi ile test edilmiştir. Tanımlayıcı istatistik olarak sayısal değişkenler için ortalama±standart sapma, kategorik değişkenler için ise sayı ve % değerleri verilmiştir. İstatistiksel analizler için SPSS Windows version 24.0 paket programı kullanılmış ve $p<0.05$ istatistiksel olarak anlamlı kabul edilmiştir.

BULGULAR

Çalışmaya katılan 118 kişinin ortalama yaş 37,45±11,31 idi. Katılımcıların %68,6'sı kadın, %53,4'ü üniversite mezunu idi. %89,8 i şehirde yaşıyordu. Çalışma grubu ile ilişkili genel tanımlayıcı istatistikler **Tablo 1**'de gösterilmiştir.

Tablo 1. Çalışmaya katılanlar ile ilgili genel tanımlayıcı istatistikler

		Sayı	%
Yaş grupları	18-25	20	16,9
	26-35	38	32,2
	36-45	31	26,3
	46-55	19	16,1
	56 ve üstü	10	8,5
Eğitim	İlköğretim	32	27,1
	Lise	23	19,5
	Üniversite	63	53,4
Cinsiyet	Kadın	81	68,6
	Erkek	37	31,4
Medeni durum	Bekar	51	43,2
	Evli	67	56,8
Yaşadığı yer	Şehir	106	89,8
	Köy	12	10,2
Çalışma durumu	Çalışıyor	88	74,6
	Çalışmıyor	30	25,4
Psikiyatrik hastalık	Var	17	14,4
	Yok	101	85,6
Ailede psikiyatrik hastalık hikayesi	Var	13	11,0
	Yok	105	89,0

Çalışmaya alınan örneklemin semptomlara göre psikiyatri veya nöroloji tercih etme oranları değerlendirildi. Ağlama, evham, endişe, hayal görme semptomu olanların %90 dan fazlası psikiyatri bölümüne başvuracağını belirtirken, korku şikayeti varlığında 118 kişinin tümü psikiyatri bölümüne başvuracağını belirtti. Baş dönmesi, yürüme güçlüğü, baş ağrısı belirtilerinin varlığında katılımcılar %90'nın üzerinde nöroloji seçeneğini işaretledi. **Tablo 2'**de semptomlar göre bölüm tercihleri dağılımı gösterilmiştir.

Tablo 2. Semptomlara göre bölüm tercihlerinin dağılımı

Semptomlar	Psikiyatri		Nöroloji	
	Sayı	Yüzde	Sayı	Yüzde
Korku	118	100	0	0
Ağlama	114	96,6	4	3,4
Evham/endişe	110	93,2	8	6,8
Hayal görme	110	93,2	8	6,8
İsteksizlik	104	88,1	14	11,9
Sinirlilik	96	81,4	22	18,6
Uykusuzluk	85	72	33	28
Dikkat bozukluğu	64	54,2	54	45,8
Unutkanlık	47	39,8	71	60,2
Konuşma bozukluğu	34	28,8	84	71,2
Titreme	28	23,7	90	76,3
Denge bozukluğu	16	13,6	102	86,4
Baş dönmesi	6	5,1	112	94,9
Baş ağrısı	6	5,1	112	94,9
Yürüme güçlüğü	4	3,4	114	96,6

Titreme ve denge baş dönmesini nörolojiye atfeden grubun daha çok 18-25 yaş aralığında olduğu gözlenmiştir. Baş ağrısını nörolojiye atfedenlerin çalışma durumunun çalışmamaya göre çoğunlukta olduğu saptanmıştır. Baş ağrısı için psikiyatriye başvuracağını belirten kişilerin ise ağırlıklı olarak çalışmadığı belirlenmiştir. Titreme ve baş dönmesini psikiyatriye atfeden grupta ailede psikiyatrik hastalığı hikayesi olanların yüksek oranda olduğu tespit edilmiştir. **Tablo 3**'de Nörolojik semptomlar varlığında bölüm tercihinin sosyodemografik verilerle ilişkisi gösterilmiştir.

Tablo 3. Nörolojik semptomlar varlığında bölüm tercihinin sosyodemografik verilerle ilişkisi

		Baş dönmesi		Titreme		Denge bozukluğu		Baş Ağrısı		Konuşma bozukluğu	
		Nör. %	p	Nör. %	p	Nör. %	p	Nör. %	p	Nör. %	p
Yaş	18-25	17,9	0,001	20,0	0,01	19,6	0,095	17,9	0,149	21,4	0,040
	26-35	33,9		37,8		33,3		30,4		28,6	
	36-45	22,3		23,3		22,5		27,7		28,6	
	46-55	17,0		12,2		16,7		15,2		16,7	
	>56	8,9		6,7		7,8		8,9		4,8	
Eğitim durumu	İlköğretim	25,9	0,17	23,3	0,03	23,5	0,086	25,0	0,069	23,8	0,398
	Lise	18,8		16,7		20,6		20,5		21,4	
	Üniversite	55,4		60,0		55,9		54,5		54,8	
Cinsiyet	Kadın	68,8	0,91	72,2	0,133	71,6	0,084	67,0	0,089	71,8	0,305
	Erkek	31,2		27,8		28,4		33,0		28,6	
Medeni durumu	Bekar	45,5	0,02	45,6	0,359	46,1	0,114	43,8	0,616	39,3	0,175
	Evli	55,5		54,4		53,9		56,3		60,7	
Yaşadığı yer	Şehir	91,1	0,05	93,3	0,02	92,2	0,035	91,1	0,054	88,1	0,327
	Köy	8,9		6,7		7,8		8,9		11,9	
Çalışma durumu	Çalışıyor	75,0	0,64	75,6	0,66	76,5	0,233	76,8	0,017	76,2	0,527
	Çalışmıyor	25,0		24,4		23,5		23,2		23,8	
Psikiyatrik hastalık	Var	15,2	0,302	16,7	0,21	14,7	0,815	15,2	0,302	13,1	0,527
	Yok	84,8		83,3		85,3		84,8		86,9	
Ailede psikiyatrik Hastalık hikayesi	Var	6,3	0,001	7,8	0,04	10,8	0,839	11,6	0,376	10,7	0,869
	Yok	93,8		92,2		89,2		88,4		89,3	

Ağlama ve uykusuzluk şikayetlerini psikiyatri bölümü ile ilişkilendirmişlerin eğitim durumunun üniversite olduğu belirlenmiştir. Ağlama şikayetini psikiyatri'e atfedenler arasında çalışanlar anlamlı olarak yüksekti. Ağlama şikayetini nörolojiye atfedenler arasında ise çalışmayanlar ve ailesinde psikiyatrik hastalık hikayesi olmayanlar anlamlı olarak yüksekti. **Tablo 4**'de Psikiyatrik semptomlar varlığında bölüm tercihinin sosyodemografik verilerle ilişkisi gösterilmiştir.

Nörolojik ve psikiyatrik ortak semptomlar için bölüm tercihi incelendiğinde dikkat bozukluğu semptomunu nörolojiye atfedenler arasında evlilerin daha çok olduğu gözlenmiştir. **Tablo 5**'de Nörolojik ve psikiyatrik ortak semptomlarının bölüm tercihinin sosyodemografik verilerle ilişkisi gösterilmiştir.

Tablo 4. Psikiyatrik semptomlar varlığında bölüm tercihinin sosyodemografik verilerle ilişkisi

		Ağlama		Uykusuzluk		Hayal görme		Sinirlilik		Evham/ Endişe	
		Psi. %	p	Psi. %	p	Psi. %	p	Psi. %	p	Psi. %	p
Yaş	18-25	17,5	0,017	16,5	0,040	18,2	0,168	18,8	0,130	18,2	0,333
	26-35	33,3		37,6		30,9		35,4		32,7	
	36-45	25,9		18,8		26,4		25,0		24,5	
	46-55	16,7		17,6		17,3		12,5		15,5	
	>56	7,0		9,4		7,3		8,3		9,1	
Eğitim durumu	İlköğretim	24,6	0,004	25,9	0,006	27,3	0,920	30,2	0,014	27,3	0,001
	Lise	20,2		12,9		19,1		14,6		15,5	
	Üniversite	55,3		61,2		53,6		55,2		57,3	
Cinsiyet	Kadın	67,5	0,169	74,1	0,040	71,8	0,006	68,8	0,959	70,0	0,239
	Erkek	32,5		25,9		28,2		31,3		30,0	
Medeni durum	Bekar	44,7	0,076	45,9	0,349	44,5	0,281	44,8	0,742	44,5	0,281
	Evli	55,3		54,1		55,5		55,2		55,5	
Yaşadığı yer	Şehir	91,2	0,007	88,2	0,358	89,1	0,324	89,6	0,853	89,1	0,324
	Köy	8,8		11,8		10,9		10,4		10,9	
Çalışma durumu	Çalışıyor	77,2	0,001	74,1	0,854	74,5	0,977	70,8	0,051	78,2	0,001
	Çalışmıyor	22,8		25,9		25,5		29,2		21,8	
Psikiyatrik hastalık	Var	13,2	0,039	16,5	0,306	15,5	0,229	15,6	0,431	13,6	0,377
	Yok	86,8		83,5		84,5		84,4		86,4	
Ailede psk hastalık hikaye	Var	11,4	0,474	12,9	0,284	10,0	0,191	9,4	0,234	10,0	0,191
	Yok	88,6		87,1		90,0		90,6		90,0	

Tablo 5. Nörolojik ve psikiyatrik ortak semptomlarının bölüm tercihinin sosyodemografik verilerle ilişkisi

		Unutkanlık			Dikkat Bozukluğu		
		Psikiyatri	Noroloji	p	Psikiyatri	Nöroloji	p
Yaş grupları	18-25 yaş	8,5	22,5	0,001	18,8	14,8	0,437
	26-35 yaş	51,1	19,7		37,5	25,9	
	36-45 yaş	19,1	31,0		21,9	31,5	
	46-55	8,5	21,1		12,5	20,4	
	56+	12,8	5,6		9,4	7,4	
Eğitim Durumu	İlköğretim	36,2	21,1	0,198	26,6	27,8	0,449
	Lise	17,0	21,1		15,6	24,1	
	Üniversite	46,8	57,8		57,8	48,1	
Cinsiyet	Kadın	68,1	69,0	0,915	65,6	72,2	0,442
	Erkek	31,9	31,0		34,4	27,8	
Medeni Durum	Bekar	48,9	39,4	0,308	54,7	29,6	0,006
	Evli	51,1	60,6		45,3	70,4	
Yaşadığı Yer	Şehir	91,5	88,7	0,628	93,8	85,2	0,125
	Köy	8,5	11,3		6,2	14,8	
Çalışma Durumu	Çalışıyor	74,5	74,6	0,982	71,9	77,8	0,463
	Çalışmıyor	25,5	25,4		28,1	22,2	
Psikiyatrik Hastalık	Var	17,0	12,7	0,551	14,1	14,8	0,908
	Yok	83,0	87,3		85,9	85,2	
Ailede Psikiyatrik Hastalık Hikayesi	Var	14,9	8,5	0,274	7,8	14,8	0,226
	Yok	85,1	91,5		92,2	85,2	

TARTIŞMA

Bu çalışma, halkın hem psikiyatriye hem nörolojiye ilişkin bilinirliğini, bu bölümlere en fazla başvuru şikâyetlerini kullanarak araştırmaya yönelik toplumumuzda yapılmış ilk araştırmadır. Çalışmamızın ilk amacı klinikte en çok karşılaştığımız semptomları sorgulayarak, kişilerin hangi semptom varlığında nörolojiye, hangi semptom varlığında psikiyatriye başvuracakları konusundaki bilgi düzeylerini ölçmekti. İkincil amacımız da bu tercihleri etkileyen olası sosyodemografik özellikleri belirlemekti. Çalışmamızda katılımcılar ağlama, evham, endişe, hayal görme, korku semptomu varlığında ağırlıklı olarak psikiyatri polikliniğine başvuracağını, Baş dönmesi, yürüme güçlüğü, baş ağrısı belirtilerinin varlığında nöroloji bölümüne başvuracağını belirtmiştir.

Literatürde kişilerin ne zaman, nerede yardım arayacağını bilmesi gibi öz yeterliliklerini geliştirilmesi sağlık okuryazarlığı olarak tartışılmıştır.[7] Ruhsal sağlık okuryazarlığını ölçmek amacıyla ülkemizde kullanılan spesifik bir ölçek sınırlıdır. Kişilerin bilgi düzeyini ölçmek amaçlı literatür taraması yapıldıktan sonra tarafımızca oluşturulan ankete göre uygun semptoma uygun branş seçimi, bu konuda sağlık bilgisinin iyi olduğu yönünde yorumlanmıştır ve sağlık okuryazarlığı literatürüyle tartışılmıştır.

Ruh sağlığı okur-yazarlığında kadınların erkeklerden daha başarılı olduğu bilinmektedir.[13,14] Depresyonun kadınlarda erkeklerden daha sık olması, kadınların ruhsal belirtilere hem öznel yaşantıları hem sosyal çevrelerinde daha fazla şahit olmaları nedeniyle yüksek olabileceği belirtilmiştir.[15] Üniversite öğrencileri ile yapılan çalışmada anksiyete, travma semptomlarını tanımada ve ruhsal sağlık hizmetlerinin farkında olmada kadınların erkeklere oranla anlamlı oranda daha fazla bilgi sahibi olduğu saptanmıştır ve ruh sağlığı hizmetlerinden faydalanma konusunda cinsiyetten ziyade eğitim düzeyinin etkisi olabileceği yönünde tartışılmıştır.[14] Benzer şekilde genç yaş örnekleminde farklı ruhsal hastalıklarla ilgili bilgi içeren anket uygulanmış olup cinsiyetler açısından değerlendirildiğinde kadın cinsiyetin daha iyi bilgi seviyesine sahip olduğu ancak bunun yaş ve eğitim durumunun etkisinde olabileceği tartışılmıştır.[16] Yakın tarihte yapılan anksiyete bozukluklarında sağlık okur-yazarlığının değerlendirildiği bir çalışmada özellikle genç grupta (18-29 yaş) kadınlar erkeklere oranla anlamlı olarak daha fazla bilgi sahibi olarak bulunmuştur.[17] Bizim çalışmamızda da literatürle uyumlu olarak kadınların, erkeklere oranla anlamlı olarak daha yüksek bilgi düzeyine sahip olduğu saptanmıştır. Daha önceki çalışmalarda da belirtildiği gibi çoğu ruhsal hastalığın kadınlarda daha sık görülüyor olması, bizim anketimizde obsesif kompulsif bozukluktaki semptomlar gibi her iki cinsiyette de aynı sıklıkta görülen semptomların veya alkol/madde bağımlılığı, dikkat eksikliği ve aktivite bozukluğu gibi erkek cinsiyette daha sık rastlanan hastalık semptomların sorgulanmıyor olması, ülkemizde toplumsal olarak psikiyatri tedavisine, psikiyatrik hastalıklara karşı önyargı ve damgalayıcı düşüncelerin erkeklerde daha baskın olmasından dolayı bu fark ortaya çıkmış olabilir Bununla birlikte çalışmamızda kadın katılımcıların erkeklere oranla daha genç, daha yüksek eğitim düzeyi sahibi olması da bu sonuca neden olmuş olabilir. Cinsiyetin ruhsal okur-yazarlık üzerine etkisi yaş ve eğitim durumunun etkisi dışlandığı ileri çalışmalarla desteklenmelidir.

Öztürk ve ark.[18] aile hekimine başvuran 480 katılımcıyla yaptıkları bir çalışmada yaş ile sağlık okuryazarlığı arasında ilişki bulunamamıştır. Üniversite öğrencileriyle yapılan çalışmada da benzer şekilde yaş ve cinsiyet ile sağlık okuryazarlığı arasında ilişkili bulunamamıştır.[19] Yakın zamanda yapılan bir çalışmada yaşlı hastalarda azalan kognitif fonksiyonlarla ilişkili olarak sağlık okuryazarlığının daha düşük olduğu öne sürülmüştür.[20] İleri yaş grubunda ise kognitif fonksiyonlardaki azalmaya bağlı olarak yaş arttıkça sağlık okuryazarlığında düşme saptanmış olup başlangıçtaki kognisyonu daha iyi hastalarda sağlık okuryazarlığındaki azalma daha az olarak saptanmıştır.[21] Bizim çalışmamızda ise genç yaş bireylerde doğru yanıt oranı ve yaş ilerledikçe yanlış seçenek seçme oranı anlamlı olarak daha yüksek bulunmuştur. Katılımcıların yaş ilerledikçe kognitif fonksiyonlarının azalmasından dolayı bu düşüş olmuş olabilir. Hastaların bilişsel kapasitelerinin de değerlendirildiği ileri çalışmalara ihtiyaç vardır. Yine bizim çalışma örneklemimizde ileri yaş katılımcıların daha düşük eğitim seviyesine sahip olduğu saptanmıştır. Eğitim durumunun dolaylı etkisiyle de bu sonuca ulaşılmış olabilir. Eğitim durumunun etkisi dışlanarak yapılacak çalışmalara ihtiyaç vardır.

Avrupa sağlık okuryazarlığı çalışmasının raporlarına göre düşük sosyal statü, düşük eğitim seviyesi, gelir azlığı, sağlık hizmetlerinin kötü olması durumlarında sağlık okuryazarlık seviyesinin düşük olduğu bildirilmiştir.[22] Kırsal alanda ve kasabada yaşayan ve eğitim düzeyi düşük bireylerin sağlık okuryazarlığı düzeyleri düşük bulunmuştur.[23] Yüksek eğitim seviyesine sahip ve genç yaş kişilerin sağlık okuryazarlığının daha yüksek olduğu saptanmıştır.[24] Bizim çalışmamızda da literatürle uyumlu olarak yüksek eğitim seviyesine sahip, şehirde yaşayan ve çalışan kişilerin doğru seçeneği seçme oranı anlamlı olarak daha yüksek bulunmuştur. Ancak bizim çalışmamızda katılımcı gönüllülerin %89,8 şehirde yaşıyor ve yine büyük çoğunluğu yüksek gelir seviyesine sahip olmasından dolayı elde edilen bu sonuçların eğitim, yaş, sosyoekonomik seviye açısından daha homojen oluşturulan gruplarla yapılacak çalışmalarla desteklenmesi gerekmektedir.

Üniversite öğrencileri yapılan çalışmada daha önce psikiyatrik hastalık geçiren kişilerin psikiyatrik hastalıklarla ilgili bilgi düzeyi anlamlı olarak yüksek bulunmuştur.[25] Bu durumun herhangi bir sağlık sorunu için sık hastane başvurusunun, öğrencilerin sağlık okuryazarlığının yüksek bulunmasının nedeni olabileceği öne sürülmüştür. Bizim çalışmamızda da katılımcılar kendisinde ve ailesinde psikiyatrik hastalık varlığında, psikiyatrik semptomları tanıma ve başvurma konusunda anlamlı olarak daha doğru tercihler yapmışlardır. Özgeçmiş veya soy geçmişte, psikiyatrik hastalık öyküsü dışında, nöroloji ve başka fiziksel hastalık varlığının da dahil edildiği çalışmalara ihtiyaç vardır.

Kısıtlılıklar

Çalışmamızda ruhsal sağlık okuryazarlığını değerlendiren geçerlik ve güvenirliği yapılmış bir ölçeğin kullanılmaması en büyük kısıtlılığımızdı.[26] Diğer bir kısıtlılığımız örneklem küçüklüğümüzdür. Literatür taraması ve kendi klinik tecrübelerimizle nöroloji ve psikiyatri polikliniklerine en sık başvuru sebebi olan semptomlar ile oluşturduğumuz bilgi formu ile elde edilen bilgilerle ruhsal sağlık okuryazarlığını tartıştık. Sağlık okur-yazarlığı alanında yapılmış çalışmalarla uyumlu sonuçlar elde ettik. Bu semptomlarla psikiyatri ve nöroloji dışında ülkemizde toplumsal olarak sıkça gözlenen hekim olmayan kişilere başvurma durumu ve yine uzman doktordan önce acile, aile hekimlerine başvuru seçeneği eklenmemesi diğer bir kısıtlılığımızdı. Ancak katılımcılarımızın %90'nına yakını şehir merkezinde oturan ve çeşitli sebeplerle aile hekimine başvuran kişiler olduğundan bu kısıtlılığın etkisinin azalmış olduğunu söyleyebiliriz. Psikiyatrik semptom varlığında psikiyatri tercihini etkileyen faktörlerde özgeçmiş veya soy geçmişte psikiyatrik hastalığa sahip olmak sorgulanmakla beraber nörolojik hastalık sorgulanmaması bir diğer kısıtlılığımızdır. Şehirde yaşama ve kırsalda yaşamanın sağlık okur-yazarlığı üzerine farklı farklı etkileri olduğu literatürde tartışılmıştır.[22,23] Yüksek oranda şehir merkezinde yaşayan örneklem ile yapılmış olması bir diğer kısıtlılığımızdı. Ayrıca çalışmamız açık etiketli çalışmaların kısıtlılığını göstermektedir. Açık etiketli çalışmalarda araştırmacı yanılgı payı artmaktadır.[27]

SONUÇ

Tüm bu kısıtlılıklara rağmen çalışmamızın üstünlükleri de mevcuttur. Klinik pratikte sıkça karşılaştığımız bir sorun olan, kaybedilen zaman, yanlış tanı ve tedavi, daha fazla hastane başvurusu, daha fazla yatış, daha fazla sağlık harcamasına sebep olan yanlış bölüme başvuru psikiyatri ve nöroloji kliniklerinde sıkça rastlanılmaktadır. Literatürde toplumumuzda hastaların hangi semptomla psikiyatri bölümüne başvuracakları ve bu tercihleri etkileyen olası sosyodemografik veriler üzerine yapılan bir çalışmaya rastlanmamıştır. Çalışmamız ile bu alanda ilk verilere ulaşılmıştır. Çalışmamız ruhsal sağlık okur-yazarlığı alanındaki veri azlığına da dikkat çekmektedir. Elde edilen sonuçlara göre halkın okur-yazarlık seviyesini yükseltecek etkinliklere ihtiyaç vardır. Sonrasında toplumun ruhsal sağlık okur-yazarlık düzeyini sorgulayan faktörleri saptayan, daha geniş örneklemli ve çok merkezli çalışmalar yapılması gerekmektedir.

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Kayseri İlinde Halkın 112 Acil Yardım Hizmetleri Hakkında Bilgi, Düşünce ve Memnuniyet Düzeyleri

Knowledge, Consideration and Satisfaction Level of People in Kayseri Province About The 112 Emergency Health Services

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Öz

Amaç: Sağlık hizmetlerinde en önemli kalite kriteri hasta memnuniyetidir. Hasta memnuniyetinin belirlenmesi hizmet kalitesinin artırılması ve hastaların beklentisi doğrultusunda daha nitelikli hizmet sunulması açısından önemlidir. Bu çalışma halkın 112 acil sağlık hizmetlerinin yapısı, işleyişi hakkındaki bilgi ve düşüncelerini, hizmetten memnuniyet düzeylerini belirlemek amacıyla yapılmıştır.

Gereç ve Yöntem: Kesitsel nitelikteki çalışma 2013 yılı mayıs ayında Kayseri'deki 18 acil yardım istasyonu arasından rastgele seçilen altı istasyondaki bölge halkından toplam 600 kişiye anket uygulanarak yapılmıştır.

Bulgular: Araştırma grubunun yaş ortalaması 35.25±11.38, %52,7'si kadın, %67,0'ı evli, %64,6'sı lise ve üzerinde eğitim almıştır. Grubun %94,8'i 112 acil yardım çağrı numarasını bilmiş, %87,2'si yalnız acil durumlar için ambulans çağırdığını bildirmiştir. Ambulans çağırıp 112 hizmetlerinden yararlananların oranı %39,0'dır. Hizmetten yararlananların %79,0'ı çağrı merkezi ile iletişimden, %82,9'u ambulansın ve kullanılan malzemenin temizliğinden, %82,5'si ambulans ekibinin tutum ve davranışlarından, %74,8'i sorulara verilen anlaşılır yanıtlardan, %70,9'u hasta hakkında verilen bilgiden, %85,5'i hasta mahremiyetine gösterilen özenden ve %82,9'u hastaya uygulanan tıbbi müdahaleden memnun olduklarını bildirmişlerdir. 112 çağrı merkezine tıbbi yardım için çağrıda bulunulduğunda grubun %90,0'ı "olay yerinin adresi", %86,3'ü "hastanın durumu", %53,3'ü "olay" hakkında bilgi verileceğini bilmektedir.

Sonuç: Personel tutum ve davranışları, güvenirliği, tıbbi müdahale ilkeleri ve hasta mahremiyetine gösterilen özen, ambulans ekipman donanımı ve temizliğinden memnuniyet oldukça yüksek düzeydedir. 112 çağrı merkezi ile iletişim, hastanın durumu ve sorumlu personel hakkında bilgilendirme, etkin yönlendirme, olay yerine ulaşım süresinin kısaltılması, personel tutum ve davranışlarının iyileştirilmesi yoluyla memnuniyet düzeyi daha da yükseltilebilir.

Anahtar Kelimeler: 112 acil yardım hizmetleri, genel popülasyon, memnuniyet düzeyi

Abstract

Aim: The satisfaction of patient is the most important quality criteria in health care organization. Determination of patient satisfaction is important for increasing quality of service and for providing more qualified service in accordance with patient's requirement. This study was carried out to determine the level of knowledge, thoughts and satisfaction of the public about the 112 Emergency Health Services.

Material and Method: This cross-sectional, self-report study was conducted in May 2013 by applying a face-to-face survey to 600 citizens in 6 regions randomly selected among 18 stations providing emergency health services in Kayseri.

Results: The mean age of the study group was 35.25±11.38 and 52.7% of the group were women, 67.0% of the group were married and 64.6% of the participants were trained in high school and above. According to our findings the 94.8% of the population know the emergency call numbers, 87.2% of them were calls for medical help for "emergency situations". 39.0% of the people have called for ambulance. Participants stated that they were very satisfied with contacting to call centre (79%), with cleanliness of ambulance (82.9%), with attitudes and behaviours of the team (82.5%), with the intelligibility of all responses to questions (74.8%), with the given information about the patient (70.9%), with care for patients privacy (85.5%). The majority of population know that the 112-emergency call centre asks for information about "the address of the incident" (90.0%), "performance status" (86.3%) and about the "case" (53.3%).

Conclusion: People are very satisfied with ambulance hygiene and equipment, transportation time, staff's attitude and behaviour, communication, informing, patient confidentiality and medical intervention.

Keywords: 112 emergency health services, general population, satisfaction level

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GİRİŞ

Sağlık hizmetlerinin, diğer hizmet ve sektörlerden önemli bazı farklılıkları vardır. Bunlardan birisi sağlık hizmetlerinin ikame edilemez ve ertelenemez özelliğidir. Hasta olan kişinin önerilen tedavi yöntemini başka mal veya hizmetle değiştirme şansı hemen hemen hiç yoktur ya da çok sınırlıdır. Özellikle acil ve akut, kişiye acı veren ve sağlığını tehlikeye atan sağlık hizmetleri talepleri ertelenemez.[1,2] Acil ve akut sağlık hizmetlerinde ilk profesyonel sağlık hizmetlerini, hastane öncesi acil sağlık hizmetleri yerine getirmektedir. Hastane öncesi acil sağlık hizmetleri; afet, kaza ya da hastalık sonucunda acil yardıma ihtiyaç duyan bireylere olay yerinde acil bakım desteği sağlanıp, güvenli bir şekilde hastaneye transport edilmesini kapsayan bir müdahale zinciridir.[3,4] Bu hizmetlerin esas amacı özellikle büyük travma, kronik hastalık ve ani gelişen sağlık sorunlarına bağlı morbidite ve mortalitenin azaltılmasıdır.[3-5]

Türkiye'de hastane öncesi acil sağlık sisteminin temeli 1985 yılında "077-Hızır Acil Servis" hizmeti ile atılmıştır. 1994 yılında "077" kısa kod çağrı numarası yerini "112 Acil Yardım ve Kurtarma" çağrı sistemine bırakmıştır.[6] Türkiye'de 112 acil sağlık hizmetleri çağrı numarası dışında Yangın İhbar (110), Polis İmdat (155), Jandarma İhbar hattı (156), Sahil Güvenlik (178), AFAD (122) ve Orman Yangın (177) gibi acil hizmet birimlerinin ayrı bir çağrı numarası bulunmaktadır.[7,8] Birden fazla olan acil çağrı numaralarının tek numara altında toplanmasını sağlamak üzere "112 Acil Çağrı Merkezleri Projesi" geliştirilerek, 2005 yılında Antalya ve Isparta pilot uygulama illeri olarak seçilmiş ve 2010 yılında çağrı merkezleri hizmet vermeye başlamıştır. Bugün itibariyle toplam 45 ilde 112 acil çağrı merkezi faaliyete geçmiş bulunmaktadır.[9] Kayseri ilinde Ocak 2019'da 112 acil çağrı merkezi faaliyete geçmiştir.[10] Kalan 36 ilde 112 acil çağrı merkezi sürecine geçiş devam etmekle beraber, süreç tamamlandığında tüm Türkiye'de bütün acil yardım çağrılarına tek numara olarak "112" numarasıyla hizmet sağlanacaktır.[11,12] Ayrıca 112 acil çağrı merkezleri sistemiyle birlikte günümüz teknolojisinin getirdiği fırsatlar kullanılarak "e-çağrı (e-call)" projesi geliştirilmiştir. Bu proje kapsamında, bazı araba firmalarıyla birlikte yürütülen "e-çağrı (e-call)" sistemiyle; kaza anında 112 acil çağrı merkezinin otomatik olarak aranması yoluyla -kazazede bilinçsiz olsa dahi-, kaza yerinin coğrafi koordinatlarının ve ilgili diğer bilgilerin çağrı merkezine iletimi sağlanmaktadır. 112 acil çağrı merkezleri sisteminin getirdiği yeniliklerden biri de engelli bireylere yönelik geliştirilen "Engelsiz 112"dir. Engelli bireylerin, 112 acil çağrı merkezi ile iletişime geçmelerine imkân sağlayan telefon/tabletlerine indirebilecekleri bir uygulama geliştirilmiştir.[8,9]

Acil sağlık hizmetleri süreci, acil durumlarda yardıma gereksinimi olan bireylerin "112" kısa kod çağrı numarasını (cep telefonu, ankesörlü ve sabit hatlı telefonlardan ücretsiz olarak erişimle) aramasıyla başlar.[11-13] Çağrıyı alan 112 acil çağrı merkezi çalışanı hizmet akışını sağlıklı bir iletişim sayesinde üç adımda gerçekleştirmektedir. Birinci adımda gelen çağrı en fazla 30 saniye içinde alınıp gelen çağrı değerlendirilebilmelidir.[14] Sistemde yaşanan sorunlardan en önemlisi asılsız çağrıların çokluğudur. Kayseri'de 2019 Ekim ayı 112 acil çağrı merkezine toplamda 136950 (%52'si sağlık çağrıları) çağrı alınmış, bunların %73'ünü asılsız çağrılar oluşturmuştur.[10] İkinci adımda, 1-3 dakika içerisinde ekiplerin olayın gerçekleştiği yere yönlendirilmesidir.[14] 2017 Sağlık Bakanlığı verilerine göre 2 bin 735 acil yardım istasyonu ve 4 bin 910 ambulansı (acil yardım ve kurtarma) ile 5 milyon 465 bin 503 hastaya tahliye ve sağlık hizmeti sağlanmıştır. Yıllar içerisinde azalmakla beraber 2017 yılında 112 acil yardım istasyonu başına düşen nüfus 30867, 112 acil yardım ambulansı başına düşen nüfus 16418'dir.[15] İstasyon ve ambulans sayıları vakalara ulaşma süresini etkilemektedir. İdeal vakalara ulaşma süresi kentsel alanda 10 dakika, kırsalda 30 dakikadır.[16] Üçüncü ve son adımda ise, olay yerine yönlendirilen ekipler tarafından vatandaşa verilmesi gereken bakım ve müdahalenin eksiksiz yerine getirilmesidir.[14]

Bu çalışma Kayseri ilinde halkın 112 acil yardım hizmetleri hakkında bilgi, düşünce ve memnuniyet düzeylerini değerlendirmek amacıyla yapılmıştır.

GEREÇ VE YÖNTEM

Kesitsel nitelikli, öz bildirime dayalı bu çalışma 2013 yılı mayıs ayında Kayseri ilinde acil sağlık hizmeti sunan 18 acil yardım istasyonu arasından rastgele seçilen 6 bölgede 600 kişiyle yüz-yüze anket uygulanarak yapılmıştır. Anket formu araştırma grubunun sosyo-demografik özellikleri, 112 acil sağlık hizmetlerinin yapılanması, içeriği ve işleyişi ile ilgili düşüncelerini ve hizmetten memnuniyet düzeyini ölçen 34 soru içermektedir. Çalışma Helsinki prensiplerine uygun olarak planlanmıştır.

Memnuniyet düzeyi "memnun değilim" "memnunum" ve "çok memnunum"; düşünceler "katılıyorum", "katılmıyorum" ve "kararsızım" şeklinde değerlendirilmiştir. Araştırmanın verileri bilgisayar ortamında SPSS 15.0 (Chicago, IL, USA) programı ile değerlendirilmiş, istatistiksel analizde yüzde ve frekans dağılımları, aritmetik ortalama, standart sapma hesaplanarak yapılmıştır.

BULGULAR

Araştırmaya katılanların yaş ortalaması 35,25±11,38, %33,7'si (202) 26-35 yaş arasındadır. Katılımcıların %52,7'i (316) kadın ve %67,0'si (402) evlidir. %2,0'ı (12) okuma yazma bilmezken %26,8'i (161) üniversite mezunudur. Katılımcıların %31,3'ü ev hanımı (188), %20,5'i işçidir (123) ve katılımcıların tamamının bir sosyal güvencesi bulunurken, %82,7'si (496) SSK'lıdır (**Tablo 1**).

Araştırma grubundakilerin %94,8'i acil sağlık hizmetlerinin numarasını bildiklerini, %88,3'ü doktorun (530), %69'u hemşirenin (414) ve %32,8'i şoförün (197) ambulanslarda görev alan çalışanlar olduğunu ve %77,5'i hasta/yaralı nakli için 112 acil sağlık hizmetlerinin aranması gerektiğini ifade etmişlerdir. %90'ı adres (540), %86,3'ü hastanın durumu (518) ve %53,3'ü olayın ne olduğunun (320) 112 acil sağlık hizmetleri arandığında söylenmesi gerektiğini ifade

Tablo 1. Araştırma grubunun sosyo-demografik özellikleri

(n=600)	n	%
Yaş		
18 - 25 yaş arası	135	22,5
26 – 35 yaş arası	202	33,7
36 – 45 yaş arası	157	26,2
46 – 55 yaş arası	69	11,5
56 - 72	37	6,1
Cinsiyet		
Erkek	284	47,3
Kadın	316	52,7
Medeni Durum		
Evli	402	67,0
Bekâr	158	26,3
Eşi Ölmüş/Ayrı	40	6,7
Eğitim Durumu		
Okuryazar değil	12	2,0
Okuryazar	7	1,2
İlköğretim (ilkokul ve ortaokul)	193	32,2
Lise	227	37,8
Üniversite	161	26,8
Meslek		
Ev hanımı	188	31,3
İşçi	123	20,5
Memur	121	20,2
Esnaf	82	13,7
Öğrenci	41	6,8
Emekli	26	4,3
Serbest Meslek	19	3,2
Sosyal Güvence		
SSK	496	82,7
BAĞ-KUR	56	9,3
Emekli Sandığı	40	6,7
Yeşil Kart	8	1,3

etmişlerdir. Ambulansların çağrılara geç gelme nedeni olarak, grubun %77,2'si trafiğe ait nedenler (yol çalışması, ışıklar, yoğun trafik), %9,0'ı adresi bulamama ve %6,5'i personele ait faktörleri göstermişlerdir (**Tablo 2**).

Araştırma grubundakilerin %92,1'i ülkemizde 112 ambulans hizmetlerinden kesinlikle ücret alınmadığı, %89,3'ü ambulansın geç gelme nedeninin trafikteki insan davranışları olduğu, %89,8'i hastanın hayati tehlikesi olması durumunda müdahale öncesi izin alınmasına gerek olmadığı düşüncelerine katıldıklarını ifade etmişlerdir. %74,6'sı ambulansların vakaya her zaman geç geldiği ve %39,8'i ambulansa hasta yakınının alınması yasak olduğu düşüncesine katılmadıklarını ifade etmişlerdir (**Tablo 3**).

Araştırma grubunun %79,0'ı 112 acil sağlık hizmetleri çağrı merkezini aradığında iletişimden, %82,9'u ambulansın ve kullanılan malzemelerin temizliğinden ve hasta/yaralıya yapılan tıbbi müdahaleden memnun olduklarını ifade etmişlerdir. %29,1'i hasta/yaralısı hakkında verilen bilgiden ve %25,2'si sorularına ambulans ekibi tarafından anlaşılır cevaplar verilmesinden memnun olmadıklarını ifade etmiştir (**Tablo 4**).

Tablo 2. Araştırma grubunun acil sağlık hizmetlerinin yapısı, içeriği ve işleyişine yönelik bilgi durumları

(n=600)	n	%
Acil sağlık hizmetleri çağrı numarasını bilme		
Evet	569	94,8
Hayır	31	5,2
Ambulansta kimler görev alır? *		
Doktor	530	88,3
Hemşire	414	69,0
Şoför	197	32,8
Acil Tıp Teknisyeni (ATT)	93	15,5
Sağlık Memuru	46	7,7
Paramedik	37	6,2
Hangi durumlarda 112 aranmalı*		
Hasta /Yaralı Nakli	447	77,5
Hasta /Yaralı Tedavisi	400	66,7
Doğum	309	51,5
Acil durum	147	24,5
Cenaze Nakli	124	20,7
112 çağrı merkezi aradığında neler söylenmeli *		
Adres	540	90,0
Hastanın durumu	518	86,3
Olayın ne olduğu	320	53,3
Hastanın yaşı	41	6,8
Yaralı sayısı	16	2,7
Ad/soyadı	27	4,5
Hastaya ait diğer hastalıklar	4	0,7
Diğer halk sağlığı ekiplerinin aranması	4	0,7
Kimlik bilgisi	14	2,3
Telefon numarası	3	0,5
Olayın meydana geldiği zaman	3	0,5
Çevredeki imkanlar hakkında bilgi	3	0,5
Ambulansların geç gelme nedeni		
Trafik	463	77,2
Adresi bulamama	54	9,0
Personele ait nedenler (umursamama, ciddiyetsizlik vb.)	39	6,5
İş yoğunluğu	35	5,8
Asılsız ihbarlar	9	1,5
İhtiyacınız olduğunda 112 çağrı merkezi aradığınızda ulaşamama		
Evet	36	6,0
Hayır	564	94,0
Ambulans (112 çağrı merkezi) çağrısında bulunma		
Evet	234	39,0
Hayır	366	61,0
Çağrıyı kim için yaptınız? (n=234)		
Kendisi	13	5,6
Yakını	96	41,1
Tanımadığı	49	20,9
Arkadaşı	49	20,9
Komşusu	27	11,5
Hangi durum için ambulans çağırdınız? (n=234)		
Acil durum	204	87,2
Devam eden bir hastalık durumunun ağırlaşması	30	12,8

* Birden fazla seçenek işaretlenmiştir.

Tablo 3. Araştırma grubunun acil sağlık hizmetlerinin işleyişine ilişkin düşünceleri

(n=600)	Katılıyorum		Katılmıyorum		Kararsızım		Toplam	
	n	%	n	%	n	%	n	%
Ülkemizde 112 ambulans hizmetlerinden kesinlikle ücret alınmaz	553	92,1	25	4,2	22	3,7	600	100,0
Ambulans hastayı/yakınını istediği sağlık kuruluşuna götürmek zorundadır.	412	68,7	128	21,3	60	10,0	600	100,0
Ambulans vakaya her zaman geç gelir	76	12,7	448	74,6	76	12,7	600	100,0
Ambulansın geç gelme nedeni trafikteki insanların davranışlarıdır.	536	89,3	41	6,9	23	3,8	600	100,0
Ambulanslar çoğu zaman gerekmediği durumlarda da siren çalarak öncelik hakkını suiistimal eder.	269	44,8	211	35,2	120	20,0	600	100,0
Ambulansa hasta yakınının alınması yasaktır.	288	48,0	239	39,8	73	12,2	600	100,0
Hasta yakını şartların uygunluğunda ambulansın ön kabine alınabilir.	510	85,0	57	9,5	33	5,5	600	100,0
Hastanın hayati tehlikesi olması durumunda müdahale öncesi izin almasına gerek yoktur.	539	89,8	45	7,5	16	2,7	600	100,0

Tablo 4. 112 Ambulans Çağrısı Yapan Kişilerin Acil Sağlık Hizmetleri Çalışanlarının Davranışları Hakkında Memnuniyet Düzeyleri

(n=234)	Memnun Değilim		Memnunum		Çok Memnunum		Toplam	
	n	%	n	%	n	%	n	%
Genel olarak 112 ambulans hizmetlerinden memnun kalma (n=600)	57	9,5	385	64,2	158	26,3	600	100,0
Çağrı merkezi arandığında iletişimden memnun kalma	49	21,0	112	47,8	73	31,2	234	100,0
Hasta/yaralıya yapılan tıbbi müdahaleden memnun kalma	40	17,1	104	44,4	90	38,5	234	100,0
Ambulans ve kullanılan malzemelerin temizliğinden memnun kalma	40	17,1	88	37,6	106	45,3	234	100,0
Ambulans ekibinin genel olarak tutum ve davranışlarından memnun kalma	41	17,5	106	45,3	87	37,2	234	100,0
Sorulan sorulara ambulans ekibi tarafından anlaşılır cevaplar verilmesinden memnun kalma	59	25,2	105	44,9	70	29,9	234	100,0
Hasta/yaralısı hakkında verilen bilgilerden memnun kalma	68	29,1	98	41,8	68	29,1	234	100,0
Hasta\yaralı mahremiyetine verilen önemden memnun kalma	34	14,5	69	29,5	131	56,0	234	100,0

TARTIŞMA

Acil tıp sistemi (ATS), acil bir olayın bildirilmesinden kesin tedavi uygulanıncaya kadar olay yerinde ve ambulansta acil hasta bakımı sağlayan bir sistemdir.[17] ATS, sağlık sisteminin vitrinidir. Hastane öncesi sağlık hizmetleri, hasta ve yarılıya ilk müdahale edecek profesyonel sağlık birimleri olduğu için, gerek tüketici beklentilerini karşılayan mevcut hizmet kalitesini korumak, gerekse gelişen tıbbi teknolojiler paralelinde hizmetin yeniden yapılandırılması ve sunumuna yönelik iyileştirmelerle daha etkin ve verimli hale getirilmesinde halkın acil sağlık hizmetlerinin yapısı, içeriği, işleyişi ile ilgili bilgi düzeyleri ve aldıkları hizmetten memnuniyetleri temel belirleyici faktörlerdir.

Nitekim çalışmamızda halkın büyük bir çoğunluğu acil sağlık hizmetleri iletişim numarasını, yapısı, işleyişi ve sunucu özelliklerini ve hizmet kullanım endikasyonlarını bilmektedirler. Hizmetin finansal ve fiziksel ulaşılabilirliği, iletişim, hizmet sunumu bilgilendirme basamaklarında olumlu çalışan tutum ve davranışları, hasta mahremiyetine gösterilen özen, ambulans ekipman donanımı ve hijyeni temel memnuniyet parametrelerini oluşturmuştur.

Çalışmamızda düşük düzeyde olmakla birlikte acil sağlık hizmetleri kısa kod çağrı numarası 112'yi bilmeyenler (%5,2) bulunmaktadır. Bu durum çalışmanın yapıldığı dönemde acil durum çağrıları için kullanılabilen birden fazla (155-156-158-110-112-177-122) çağrı numarasının bulunmasına, dolayısıyla kişilerin acil tıbbi yardım çağrı numarasını hatırlayamamasına sebep olmuş olabilir. Ülkemiz genelinde 112 acil yardım ağrı merkezleri yardım numaralarının tek numarada (112'de) birleşmesiyle bu sorunun ortadan kalkacağı; tek numaranın hem halk tarafından kolay hatırlanması hem de halk sağlığı ekipleri (itfaiye-asayiş-sivil savunma vb.) arasında koordinasyon yaratarak acil vakalara eş zamanlı ulaşım ve müdahale etme imkanı sağlayacağı düşünülebilir.

Çalışmamızda 112 acil çağrı merkezini arayıp ulaşamayanların oranı düşük olmakla birlikte, önemli düzeydedir (%6,0). Kolay ulaşılabilirlik, erken müdahale, doğru tanı ve tedavi, hızlı nakil etkili bir acil sağlık hizmetinin ana unsurlarıdır. Ülkemizde 112 acil çağrı hizmetlerinde fiziksel ulaşılabilirliği olumsuz etkileyen en önemli faktörlerden birisi asılsız çağrılardır. Nitekim iç işleri bakanlığı verilerine göre, 112 acil çağrı merkezlerine, Türkiye genelinde 2019 yılının ilk 7 ayında alınan çağrıların %66,6'sını asılsız çağrılar oluşturmaktadır.[9]

Sonuçta 112 aramalarında asılsız çağrıların çokluğu hem çağrı karşılayan personelin gerçek vakaların ayırımını yapmada zorlanmasına, hem de gerçek vakalar için çağrıda bulunan kişilerin sisteme geç girmesine ya da hiç girememesine neden olabilmektedir.

112 acil hizmetlerine hızlı müdahale gerektiren acil vakaların başvurması beklenirken başvuruların yaklaşık %40'ının

acil olmayan olgular nedeniyle yapıldığı saptanmıştır.[21] Diğer taraftan araştırma grubunun üçte ikisinin hasta/yaralı nakli ve beşte birinin cenaze nakli için 112 çağrı sisteminin aranabileceğini ifade etmeleri düşündürücüdür. Bu durum 112 acil sağlık hizmetlerinin 7/24 esasına dayalı ve ücretsiz hizmet vermesine bağlı gelişebileceği gibi, geçmişte yanlış yapılanan "acil hizmetlerin yalnızca nakil hizmeti yürütür" yerleşik algının bir kalıntısı olarak da düşünülebilir.

Bilindiği gibi Türkiye'de, hastane öncesi acil sağlık hizmetlerinde "kap ve götür" prensibine dayalı Anglo-Amerikan modeli uygulamaktadır.[19] Alanda başlanan hayat kurtarıcı tıbbi tedavi ve bakım, nakil sırasında devam ettirilerek hasta ileri acil bakım için hastane acil servislerine ulaştırılmaktadır. 112 acil yardım çağrısı alındığında, çağrı karşılayan personel asılsız vakaları eleyerek, olay yerine en yakın ve uygun ambulans ekibini yönlendirerek hizmeti aktive etmektedir.[20] 112 ASH öncelikle travma (trafik kazası, darp, yüksekten düşme vb.) gibi akut gelişen olaylar ile mevcut bir kronik hastalık (DM, HT vb.) sonucu medikal durumu değişen hastaları olay yerinde ve ambulansta gerekli müdahaleleri uygulayarak hastaneye transport etmeye dayalı sağlık hizmeti sunmaktadır.

Çalışmamızda araştırma grubunun büyük çoğunluğu tarafından 112 çağrı merkezi arandığında olay yerinin adresi (%90,0), hastanın durumu (%86,3) ve olayın ne olduğu (%53,3) hakkında çağrı karşılayıcıya bilgi verilmesi gerektiği ifade edilmiştir. Keza acil sağlık hizmetleri gereksinimi duyduktan sonra sadece acil sağlık hizmetlerini numarasını (112) aramak etkin hizmet sürecinin doğru yapılanması için yeterli değildir. Çağrıyla birlikte 112 Komuta Kontrol Merkezine, biliniyorsa olayın gerçekleştiği yerin tam adresi, yoksa bilinen yakın merkezlere (okul, market, cami vb.) konumlarını, olayın ne olduğu (trafik kazası mı? zehirlenme mi?), hasta sayısı (birden fazla ambulans gereksinimi var mı?), hastanın durumu (bilinci açık mı?) gibi önemli bilgiler mutlaka iletilmelidir. Ayrıca telefon numarası, ad soyadı, çağrıda bulunan kişinin ilkyardım bilgisinin olup olmadığı gibi bilgilerde söylenmelidir. Nitekim doğru ifade edilecek bilgiler ambulansın olay yerine doğru ve hızlı yönlenmesini sağlayacak, olay yerine ulaşım süresi kısalacak, hastaya uygun-erken müdahale edilmesini sağlayacaktır.

Sağlık hizmetleri kalitesinin değerlendirilmesinde hasta memnuniyeti önemli bir göstergedir.[22] 112 acil çağrı merkezi hizmetlerinin kaliteli bir biçimde sunulması ve hasta beklentileri doğrultusunda sürekli iyileştirilmesi, hedef kitle ile etkin iletişim kurulması ve hedef kitle memnuniyetinin artması açısından oldukça önemlidir. Acil duruma hızlı yardımın ulaştırılması hedef kitlenin memnuniyet ve sadakat düzeyinin artmasına katkıda bulunmaktadır.[14] Çalışma bulgularımız ile örtüşür şekilde Çanakkale'de yapılan bir çalışmada hastane öncesi acil sağlık hizmetleri çağrı numarasına hızlı bir şekilde ulaşılması ve çağrı karşılayıcı personelin etkin iletişim becerisi hasta ve hasta memnuniyetini en fazla arttıran faktörler olarak rapor edilmiştir.[23]

SONUÇ

Halkın yarıdan fazlası 112 acil sağlık hizmetlerinden memnundur. Personelin tutum ve davranışları, güvenirliği, tıbbi müdahale ve hasta mahremiyetine gösterilen özen, ambulansın ekipman donanımı ve temizliğinden memnuniyet oldukça yüksek düzeydedir. Her 5 kişiden biri cenaze nakli vb. amaç dışı kullanımlar için ambulans çağrılması gerektiğini düşünmektedir. Halkın büyük çoğunluğu hasta yakınlarının ambulansa alınmamasına yönelik yasağa tepkilidirler. 112 çağrı merkezi ile iletişim, hastanın durumu ve sorumlu personel hakkında bilgilendirme, etkin yönlendirme, ambulansın olay yerine en kısa sürede ulaşımının sağlanması, personel tutum ve davranışlarının iyileştirilmesi yoluyla memnuniyet düzeyi daha da yükseltilebilir.

ETİK BEYANLAR

Etik Kurul Onayı: Bu araştırmada 2020 öncesi (2013 yılı) verileri kullanılmış ve araştırma 2020 öncesinde sonuçlandırılmıştır. 3 Kasım 2015 tarih 28617 sayılı Resmi Gazete'de yayımlanan Klinik Araştırmalar Yönetmeliğine göre etik kurul onayı alınmamıştır. "Bu Yönetmelik, ruhsatlı veya izinli olsa dahi insanlar üzerinde yapılacak biyoyararlanım ve biyoeşdeğerlik çalışmaları, ilaçlar, tıbbi ve biyolojik ürünleri içerir. (madde 2- (1))" maddesi uyarınca elde edilmiştir. Dolayısıyla klinik anket çalışmaları yönetmelik kapsamı dışındadır. Bu çalışma, Kişisel Verilerin Korunması Kanunu'na uygun olarak, hasta verilerinin anonim hale getirilmesi ve Helsinki Deklarasyonu'nun 2013 Brezilya revizyonu ve İyi Klinik Uygulamalar kılavuzuna uygun olarak hazırlanmıştır.

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Yazar Katkıları: Yazarların tümü; makalenin tasarımına, yürütülmesine, analizine katıldığını ve son sürümünü onayladıklarını beyan etmişlerdir.

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Sağlık Çalışanlarının İnfluenza Aşılamasına Yaklaşımı

The Approach of Health Care Workers to Influenza Vaccination

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Öz

Amaç: Ülkemizde sağlık çalışanlarına, 2002 yılından itibaren, her yıl, isteğe bağlı olarak, ücretsiz influenza aşısı temin edilmesine rağmen, aşılanma oranları düşük seyretmektedir. Bu çalışma 2 farklı hastanede bulunan sağlık çalışanlarının influenza aşılamasına yaklaşımlarını saptamak amacıyla yapılmıştır.

Gereç ve Yöntem: Kırıkhan Devlet Hastanesi ve Ağrı Devlet Hastanesi çalışanlarının yüz yüze görüşülerek demografik özellikleri ve influenza aşısı ile ilgili on soruya verdikleri cevapların anket formuna kaydedildiği bu tanımlayıcı çalışma 2-9 Ocak 2019 tarihlerinde gerçekleştirilmiştir. Veriler SPSS programı kullanılarak analiz edildi. İstatistiksel açıdan p değeri <0,05 düzeyi anlamlı olarak kabul edildi.

Bulgular: Çalışmaya iki farklı merkezden 31 doktor, 215 yardımcı sağlık personeli, 72 diğer sağlık personeli ve 52 şirket personeli katıldı. Çalışma katılımcılarının 134 (%36,1)'ünün hayatında en az 1 kez aşı yaptırdığını öğrendik. Eğitim düzeyi arttıkça aşı yaptırma oranın arttığı da görüldü. İnfluenza aşısı yaptırmak istememenin başlıca nedenleri, aşının gerekliliğine inanmama (%26) ve diğer korunma yöntemlerini tercih etme (%22,1) idi. Çalışma katılımcılarına influenzadan korunma yolları sorulduğunda, %64'ü düzenli beslenme, spor yapma ve C vitamini takviyesi alma, %5,7'si ise influenza aşısı olma şeklinde cevap vermiştir.

Sonuç: İnfluenza aşısı ile ilgili yapılacak eğitimlerde, sağlık çalışanlarına yönelik yapılan çalışmalardaki aşı olmama nedenleri de göz önünde tutularak, aşıların gerekliliğinin, etkinliğinin, düşük yan etkilerinin iyi anlatılması gerekir. Aynı zamanda hastane çalışanlarından öneriler alınarak konu ile ilgili bilgilerin aktarılması için yeni stratejiler geliştirilebilir.

Anahtar Kelimeler: Aşı, influenza, sağlık çalışanları

Abstract

Objective: Although the influenza vaccine is offered on request, free of charge every year since 2002 to healthcare workers in our country, vaccination rates are low. This study was carried out to determine the approach of healthcare workers in two different hospitals to the influenza vaccination.

Material and Method: This descriptive study, in which demographic characteristics of employees of Kırıkhan State Hospital and Ağrı State Hospital and their answers given to the ten questions about influenza vaccination by face to face interview have been recorded in the survey form, was conducted on 2-9 January 2019. The data were analyzed using the SPSS program. Statistically, the p-value <0.05 level was considered significant.

Results: 31 doctors, 215 assistant medical staff, 72 other healthcare workers, and 52 company staff, from two different centers, were involved in the study. We learned that 134 (%36.1) of the study participants had at least one vaccination in their life. The raised rate of vaccination was also observed as the education level increased. The leading causes of not wanting to get an influenza vaccine were unbelieving the necessity of the vaccine (26%) and preferring other protection methods (22.1%). When asked about ways to prevent influenza to the study participants, 64% responded as regular nutrition, doing sport, and taking vitamin C supplements, while %5.7 responded as getting an influenza vaccination.

Conclusions: In training will be done on influenza vaccination, by taking into account also the reasons for not being vaccinated that were determined in studies performed in healthcare workers, good explanation of the necessity, effectiveness, and low side effects of vaccines should be required. At the same time, by taking suggestions from hospital staff, new strategies could be developed to transfer the relevant information.

Keywords: Vaccine, influenza, healthcare workers

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GİRİŞ

İnfluenza her yaşta insanı etkileyen, çoğu zaman kendi kendini sınırlayan bir hastalıktır. Buna karşılık epidemilere yol açabilmesi, iş ve okula devamı aksatması, özellikle risk gruplarında hastaneye yatış ve ölümlere yol açması gibi nedenlerden dolayı önemlidir.[1] Risk grupları arasında bulunan sağlık çalışanlarının %23 ü influenza sezonunda enfekte olurken %28-59 'u hastalığı subklinik geçirmektedir.[2,3] Sağlık çalışanlarının influenzadan korunmaları kendi sağlıkları açısından önemli olduğu kadar hastalara da hastalık bulaştırmamaları açısından büyük önem taşır. Dünya Sağlık Örgütü ve Centers for Disease Control and Prevention (CDC) influenza aşısını sağlık çalışanlarına önermektedir.[4,5] Ülkemizde ise sağlık çalışanlarına, 2002 yılından itibaren, isteğe bağlı olarak, her yıl ücretsiz influenza aşısı temin edilmesine rağmen, aşılanma oranları düşük seyretmektedir.
Bu çalışma 2017-2018 influenza sezonunda aşılanma oranları düşük olan 2 farklı hastanedeki sağlık çalışanlarının aşıya yaklaşımlarını değerlendirmek amacıyla yapılmıştır.

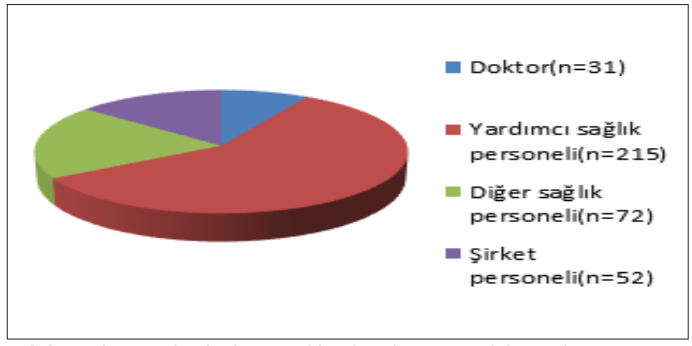
GEREÇ VE YÖNTEM

Bu çalışma 2-9 Ocak 2019 tarihlerinde 2 farklı devlet hastanesi çalışanlarına ait demografik özellikler ve influenza aşısıyla ilgili on soruya, yüz yüze görüşülerek alınan cevapların anket formuna kaydedildiği, tanımlayıcı tipte bir çalışmadır. Çalışmamızda SPSS ver. 20 kullanılmıştır. Değişkenlerin normal dağılıma uygunluğu görsel ve analiz yöntemleri ile değerlendirilmiş ve normal dağılıma uyduğu görüldüğü için parametrik testler kullanılmıştır. Hastaların kategorik olan demografik özellikleri Chi-square ve Fisher's exact test ile hesaplanmıştır. Univariate korelasyon analizi için Pearson rank korelasyon testi kullanılmıştır. İstatistiksel olarak anlamlılık sınır 0.05 in altı olarak kabul edilmiştir.
Bu çalışma Hatay Mustafa Kemal Üniversitesi Tayfur Ata Sökmen Tıp Fakültesi Girişimsel Olmayan Klinik Araştırmalar Etik Kurul Kararları 17.12.18 tarih 9 nolu karar sayısı ile etik kurul onayı almıştır.

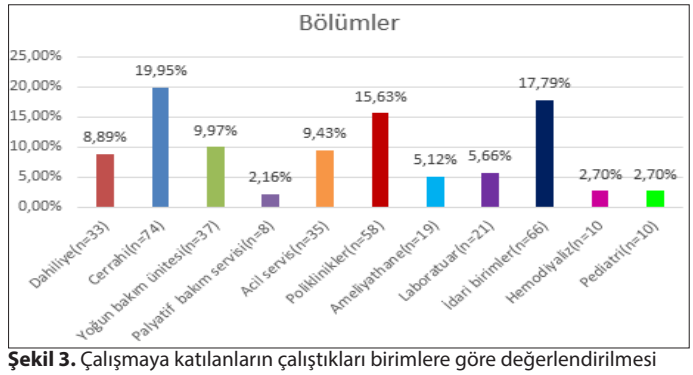
BULGULAR

İki farklı merkezde yapılan anket çalışmasına katılan 371 katılımcının verileri incelendi. Katılımcıların 207 (%56)'si kadın, 164 (%44)'Ü erkekti. Çalışmaya katılanların yaş, meslek ve çalıştıkları bölümlere göre dağılımları **Şekil 1**, **Şekil 2** ve **Şekil 3**'te gösterilmiştir.
Çalışmaya katılan 371 kişiye influenza aşısı yaptırıp yaptırmadıkları soruldu ve katılanların 134 (%36,1)'ünün hayatında en az 1 kez aşı yaptırdığı öğrenildi. İnfluenza aşısı yaptırmak istememe nedenlerinin başında, aşının gerekliliğine inanmama (%26) gelirken; diğer korunma yöntemlerini tercih etme (%22,1), yan etki profilinden korkma (%18,3) ve aşının yeterince denenmemiş olduğunu düşünme (%11,4) daha sonraki diğer en sık cevaplardı (**Tablo 1**). Ayrıca aşı yaptıranların eğitim düzeyi arttıkça aşı yaptırma oranın arttığı görüldü.

Şekil 1. Çalışmaya katılanların yaş gruplarına göre dağılımı



Şekil 2. Çalışmaya katılanların sağlık çalışanlarının meslek grupları



Şekil 3. Çalışmaya katılanların çalıştıkları birimlere göre değerlendirilmesi

Tablo 1. Sağlık çalışanlarının influenza aşısı yaptırmak istememe nedenleri

	Sayı (n)	Yüzde (%)
Yan etki profilinden korkma	84	18,3
Aşının gerekliliğine inanmama	119	26
Aşının yeterince denenmemiş olduğunu düşünme	52	11,4
İnfluenza hastalığının riskli bir hastalık olduğunu düşünmeme	23	5
Enjeksiyondan korkma	18	3,9
Aşının İnfluenza yaptığına inanma	27	5,9
İnfluenzadan antibiyotikle korunabileceğini düşünme	14	3,1
Diğer korunma yollarını tercih etme	101	22,1
Kişisel inançlar	20	4,4

İnfluenza aşısının etkinliği ve güvenilirliği hakkında soru yöneltildiğinde katılımcıların 257' si (%69,5) olumlu veya olumsuz fikir bildirmişken, 113 (%30,5) katılımcı ise fikrinin olmadığını belirtmiştir. Bu konuda fikir sahibi olmayan katılımcıların 29 (%25,7)'u ise yine de aşı olmuştur. Ancak fikir sahibi olmayanlarda aşı olma oranı anlamlı oranda daha düşüktür (p=0,003). İnfluenza aşısının etkin ve güvenilir olduğunu düşünen 96 kişinin 57(%55,3)'si, bu aşının etkisiz ve güvensiz olduğunu düşünen 161 kişinin 55 (%29,9)'i aşı olmuştur(p<0,001). Aşı olmayan katılımcıların çoğu etkinlik ve güvenilirlik ile ilgili anlamlı olarak daha yüksek oranda olumsuz kanaate sahiptir. İnfluenza virüsünden korunma yolları sorulduğunda %64 düzenli beslenme, spor yapma ve C vitamini takviyesi alma, %15,2 influenza hastalığı olduğunu düşündüğü kişilerden uzak durma, %4,9 hiçbir şey yapmama ve %10,2 diğer yöntemler diye cevap verirken yalnızca %5,7'si influenza aşısı olma cevabını vermiştir.

"Grip aşısı etkili ve güvenli bir korunma yolu mudur? sorusuna verilen cevaplar yaş, cinsiyet ve eğitim düzeyinden etkilenmezken; katılımcının çalıştığı bölümden (p=0.037) anlamlı etkilenmektedir. Dahili branşlarda çalışan katılımcıların 55(%32,2)'i grip aşısının etkili ve güvenli olduğu düşünürken; diğer katılımcıların 41(%20,5)'i bu soruya evet yanıtı vermiştir (p=0.037). Dahili servislerden katılan katılımcılar grip aşısını anlamlı olarak daha yüksek oranda etkili ve güvenli olarak değerlendirmiştir.

TARTIŞMA

İnfluenza virüsü tüm dünyada akut solunum yolu enfeksiyonuna sebep olan ve risk gruplarında yüksek mortalite ve morbiditeye sahip bir etkendir. Hastane kaynaklı bulaşın özellikle çocuklar, yaşlılar ve bağışıklığı baskılanmış hastalar gibi yüksek risk gruplarındaki hastalar için daha tehlikeli olduğu bilinmektedir. İnfluenza salgınlarını önlemenin en etkin yolu aşılamadır. Hastane kaynaklı bulaşı azaltmak için sağlık çalışanları, aşı yaptırması önerilen gruplardandır. İnfluenza aşılanma oranlarının %4'ten %67'ye yükseltildiği bir hastanede, sağlık çalışanlarındaki influenza oranı %42'den %9'a, nozokomiyal enfeksiyon olgusu sayısı %32'den %0'a gerilemiştir.[6,7] Sağlık çalışanları arasında aşılanma oranlarının düşük olduğu gözlenmesi üzerine nozokomiyal influenza olgularının tespit edilmesi amaçlanmış ve influenza benzeri hastalık olguları incelenmiştir.[8] Tespit edilen 59 olgunun 19'unun nozokomiyal kökenli olduğu gözlenmiştir. Sağlık çalışanlarının aşılanma nedenlerinden biri diğer sağlık çalışanlarına hastalığı bulaştırmamaktır. Çünkü bu grubun hastalanması halinde iş gücü ve ekonomik kayıpla karşılaşılacaktır.[9-13]

CDC verilerine göre 2018-2019 influenza sezonunda Amerika Birleşik Devletleri'nde yaklaşık 35 milyon influenza ilişkili vaka olduğu, bunların 16 milyonunun hastaneye başvurduğu ve 490 bin kişinin yatarak tedavi edildiği düşünülmektedir. Hastalığın 34 bin kişide ise mortal seyrettiği söylenmektedir.[14] Aynı sezonda Avrupa'da 36 binden fazla solunum yolu numunesi influenza virüsü yönünden değerlendirilmiş ve %45 oranında pozitiflik bulunmuştur. Laboratuvar konfirme bu vakaların 7342 'si yoğun bakım ünitesinde takip edilirken, 9561'i servislerde yatarak tedavi edilmiştir.[15] Ülkemiz dahil 50 ülkenin verilerinin yer aldığı Eurosurveillance raporuna göre 2018-2019 sezonunda 23929 yatış gerektiren hastanın %77'sinde influenza pozitifliği saptanmış, 3353'ü yoğun bakımda takip edilmiştir.[16] Halk Sağlığı Genel Müdürlüğü tarafından hazırlanan haftalık influenza sürveyansı raporuna göre sentinel grip benzeri hastalık sürveyans kapsamında çalışılan 3636 numunede %26 oranında influenza pozitifliği saptanmıştır. Yoğun bakımda 647, diğer servislerde 1224 hasta olmak üzere toplam 1871 hasta yatarak tedavi görmüştür.[17]

2018-2019 sezonundaki İnfluenza aşısı Avrupa'da %32-43 oranında influenza A'ya karşı etkin bulunmuştur.[15] CDC verilerine göre ise hastaneye başvuru oranında %40-60 oranında azalma sağlamaktadır.[18]

Sağlık personelinin influenza aşısıyla aşılanma oranlarının değerlendirildiği meta-analizlerde oranlar %2,1-92 arasında değişmektedir.[19-21] Meta-analizlerdeki yüksek aşılanma oranlarının yer aldığı çalışmalar, influenza aşı uygulamasının devlet tarafından sağlık personeline zorunlu kılındığı ülkelerde yapılmıştır. Ülkemizden yapılan çalışmalara bakıldığında Sarı ve ark.[22] yaptığı çalışmada oran %4,3, Karadağ Öncel ve ark.[23] yaptığı çalışmada oran %18,4 ve 2009 pandemisinde Gürbüz ve ark.[24] yaptığı çalışmada da oran %42,3 bulunmuştur. Bizim çalışmamızda ise influenza aşısı olma oranının %36,2 olduğu görülmüştür. Aşılanmama nedenlerine bakıldığında ise çalışmamızda aşının gerekliliğine inanmama %26, diğer korunma yöntemlerini tercih etme %22,1, yan etki profilinden korkma %18,3 ve aşının yeterince denenmemiş olduğunu düşünme %11,4 bulunmuştur. Yapılan benzer çalışmalarda ilk sırayı grip olmama, zaman bulamama ve aşının gereksiz olduğunu düşünme almıştır (22, 23, 25). Dünyada diğer ülkelerde yapılan benzer çalışmalara bakıldığında aşı reddinin en sık nedeni adjuvanlardan korkma ve kendini riskli grupta hissetmeme yer almıştır.[26,27]

Aşılanma oranları ankete katılanların çalıştıkları bölümlere göre incelendiğinde dahili branşlarda çalışan sağlık personelinin aşı yaptırma oranlarının daha yüksek olduğu görülmüştür. Gürbüz ve arkadaşlarının yaptığı çalışmada da Göğüs Hastalıkları ve Enfeksiyon Hastalıkları çalışanlarının 2009 yılındaki pandemik influenza A (H1N1) aşısını olmaya olumlu baktıkları görülmüştür (%100 ve %85,7).[22] Bu duruma influenza nedeniyle hastaneye yatırılan hastaların büyük çoğunluğunun pnömoni tanısıyla bu iki klinikte takip edilmesinin etken olduğu ve genel olarak hasta ile temas riski fazla olan bölümlerin aşı konusunda daha istekli olduğu düşünülmektedir.

Çalışmamızda influenza virüsünden korunma yolları sorulduğunda %64 düzenli beslenme, spor yapma ve C vitamini takviyesi alma, %15,2 influenza olandan uzak durma, %4,9 hiçbir şey yapmama ve %10,2 diğer yöntemler diye cevap verirken yalnızca %5,7'si influenza aşısı olma cevabını vermiştir. Hastalıklardan korunmada doğal yaşamın etkisinin olduğu kadar bağışıklamanın da önemli bir unsur olduğu öncelikle sağlık çalışanlarına iyi anlatılmalıdır.

Bağışıklama, en başarılı koruyucu sağlık müdahalesi olup, halk sağlığı açısından büyük önem taşımaktadır. Aşılar, doğrudan ve dolaylı etkiyle birçok hastalığın oluşmasını ve yayılmasını engeller. Tüm dünyada olduğu gibi ülkemizde de aşı karşıtlarının sayısı gün geçtikçe artmaktadır. Sağlık çalışanları, aşı uygulamasını reddeden kişilerin aşılanmasının sağlanmasında anahtar rol oynamaktadır.[28] Kendilerine ve çocuklarına aşı yaptırmayan hekimler hastalarına da aşı önermemektedir.[29] Aşılama programlarının ülke çapında başarılı olması için öncelikle sağlık çalışanlarında bilinçlendirme ve farkındalığın artırılması yoluyla aşılama oranlarının artırılması önemlidir.

İnfluenza aşısı ile ilgili yapılacak eğitimlerle, çalışmamızda ve diğer çalışmalarda saptanan aşı olmama nedenler de göz önünde tutularak, aşıların gerekliliğinin, etkinliğinin, düşük yan etkilerinin iyi anlatılması gerekir. Aynı zamanda hastane çalışanlarından öneriler alınarak konu ile ilgili bilgilerin aktarılması için yeni stratejiler geliştirilebilir.

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Aydınlatılmış Onam: Bu çalışmaya katılan hasta(lar)dan yazılı onam alınmıştır.

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Orjinal Araştırma / Original Article

Yenidoğan Yoğun Bakım Ünitesinde Akut Periton Diyaliz Kullanımı ve Sonuçları

Use and Results of Acute Peritoneal Dialysis in Neonatal Intensive Care Unit

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Öz

Amaç: Akut periton diyalizi yapılan yenidoğanların altta yatan nedenlerini ve sonuçlarını değerlendirmek.

Yöntem: Bu retrospektif analiz Ocak 2015–Aralık 2017 tarihleri arasında yenidoğan yoğun bakım ünitesinde akut periton diyalizi yapılan toplam 30 yenidoğan bebeği içermiştir. Demografik, klinik, laboratuvar ve mikrobiyolojik veriler hastane kayıtlarından elde edildi.

Sonuçlar: Akut periton diyalizi yapılan hastaların çoğunda akut böbrek yetmezliği (n=21, %70) ve sepsis-dirençli metabolik asidoz (n=5, %16,7) vardı. Akut böbrek yetmezliğinin diğer nedenleri renal agenezi (n=2, %9,5), perinatal asfiksi (n=4,%19), multikistik displastik böbrek (n=3, %13,3) ve konjenital kalp hastalığı (n=4, %19) idi. Ortalama diyaliz süresi 7,8±9,3 gün idi. En sık görülen komplikasyonlar kateter tıkanıklığı (n=8, %34,8) ve kateter girişinden sızıntı (n=5, %21,7) idi. Mortalite oranı %70 idi; 8 hasta (%38) akut periton diyalizi sürecinde altta yatan hastalıklar nedeniyle öldü. Hayatta kalan 9 hastanın izlemi sırasında 3 hasta (%33,3) tam remisyon gösterdi, ancak kalan 6 hastada kronik böbrek yetmezliği, altta yatan metabolik hastalıklarına yönelik klinik bulgular devam etti.

Sonuç: Akut periton diyalizi yenidoğan yoğun bakım ünitelerinde sıklıkla kullanılan tedavi şeklidir. Peritonit gibi hayatı tehdit eden komplikasyonları olsa da bu tür komplikasyonlar nispeten daha az yaygındır. Akut periton diyalizi ihtiyacı için erken tanıma ve erken Akut periton diyalizi işleminin başlaması bu hastalarda mortalitenin azalmasına katkıda bulunabilir.

Anahtar Kelimeler: Yenidoğan, periton diyalizi

Abstract

Aim: To evaluate the underlying causes and outcomes of newborns undergoing acute peritoneal dialysis.

Method: This retrospective analysis included 30 newborn infants who underwent acute peritoneal dialysis in the neonatal intensive care unit between January 2015 and December 2017. Demographic, clinical, laboratory and microbiological data were obtained from hospital records.

Results: Most patients with acute peritoneal dialysis had acute renal failure (n=21, 70%) and sepsis-resistant metabolic acidosis (n=5, 16.7%). Other causes of acute renal failure include renal agenesis (n=2, 9.5%), perinatal asphyxia (n=4, 19%), multicystic dysplastic kidney (n=3, 13.3%) and congenital heart disease (n=4, 19%) was. The mean duration of dialysis was 7.8±9.3 days. The most common complications were catheter occlusion (n=8; 34.8%) and leakage from the catheter inlet (n=5, 21.7%). Mortality rate was 70%; Eight patients (38%) died due to underlying diseases during acute peritoneal dialysis. Three patients (33.3%) showed complete remission during the follow-up of 9 surviving patients, but the remaining 6 patients continued to have clinical findings for chronic renal failure and underlying metabolic diseases.

Conclusion: acute peritoneal dialysis is frequently used in neonatal intensive care units. Although life-threatening complications such as peritonitis are common, this complications are relatively less common. Early recognition of the need for acute peritoneal dialysis and initiation of early acute peritoneal dialysis may contribute to a reduction in mortality in these patients.

Keywords: Newborn, peritoneal dialysis

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GİRİŞ

Şiddetli akut böbrek hasarında, renal replasman tedavisi çok önemlidir. Yenidoğanlarda renal replasman tedavisi için en yaygın endikasyonlar; renal hasar, refrakter asidoz, elektrolit anormallikleri, üremi ve metabolik hastalıklardır.[1] Periton diyalizi yenidoğan bebekler dahil olmak üzere pediatrik hastalar için venöz erişim gerektirmemesi, düşük maliyeti, sistemik antikoagülan kullanılmaması ve iskemik ve embolik komplikasyon riskinin daha düşük olması nedeni ile son yıllarda tercih edilen renal replasman tedavisi yoludur.[2-6] Bu işlem sırasında hastanın peritonu kandaki çözünmüş maddelerin (elektrolitler, üre, kreatinin, glikoz, ozmotik olarak aktif parçacıklar ve diğer küçük moleküller) değiştirildiği bir zar olarak kullanılır. Bu işlemin primer komplikasyonu karın bölgesinde kalıcı bir tüp bulunması nedeniyle oluşabilecek enfeksiyondur.[7,8] Bu retrospektif çalışmanın amacı kritik hasta yenidoğan bebeklerin tedavisinde etkili ve giderek daha popüler olan periton diyalizi ile tedavi edilmiş yenidoğanların klinik özelliklerini ve sonuçlarını değerlendirmektir.

GEREÇ VE YÖNTEM

Bu çalışma Necmettin Erbakan Üniversitesi, Meram Tıp Fakültesinde 01.01.2015-31.12.2017 tarihleri arasında retrospektif olarak yapıldı. Çalışma için etik onay Necmettin Erbakan Üniversitesi etik kurulundan alındı. Hastaların demografik özellikleri ile laboratuvar ve klinik veriler hastane kayıtlarından elde edildi. APD endikasyonları, sonuçları ve komplikasyonları kaydedildi.

PD endikasyonları aşağıdaki gibidir:[4,9] 1) sıvılar, diüretikler ve inotropik ajanlarla yapılan tedaviye rağmen böbrek fonksiyon bozukluğu (24-48 saat içinde <0,5 mL/kg/saat idrar çıkışı); 2) tıbbi tedaviye rağmen ciddi ödem; 3) üremi bulguları (kalp fonksiyonu veya kasılma); hiperkalemi, hiperamonyemi (kan amonyak seviyesi >200 mg/dL) ve bikarbonat tedavisine cevap vermeyen metabolik asidoz; ve 4) solunum fonksiyonlarının bozulmasına neden olan aşırı sıvı yüklenmesi.

Periton diyaliz kateterleri lokal anestezi uygulanarak steril koşullar altında perkütan olarak yerleştirildi. Kullanılan kateter tipi, neonatal tek kaflı düz kateterdi (Tenckhoff). Kateterler peritondaki açıklık boyunca ilerletilerek yönlendirilmiştir. Diyalizat çözeltisi olarak dekstroz konsantrasyonları %1,36, %2,27 ve %3,86 standart diyalizat çözeltileri kullanıldı. Periton kaçağını önlemek için diyaliz küçük hacimlerle (20 mL/kg) başlatıldı. Hastaların solunum ve kardiyak durumunun stabil olmasına göre hacim 30-50 mL/kg'a yükseltildi. Diyaliz döngüsü, 5 dakikalık yeniden doldurma süresi, 10 ila 30 dakika kalma süresi ve 15 dakika boşaltma süresini içermiştir. Diyalizat sıvısı her bir hastanın özel ihtiyaçlarına göre 1-3 saat kalarak günler boyunca gerçekleştirildi. Kateter yerleştirildikten sonra tüm hastalarda diyaliz sıvısına 500 mg/L seftazidime, 500 U/L dozda heparin ve hastanın kan potasyum seviyesine göre potasyum klorür ilave edildi. Diyalizat günlük bakteriyolojik olarak incelendi ve hücre sayısı diyalizat atık suyunda yapıldı. Beklenebilecek olası komplikasyonlar şunlardı: kateter tıkanması, diyalizat sızıntısı, boşaltılan atık sıvı görünümündeki değişiklikler, kateter çıkış bölgesinde değişiklikler.

Hastanın vücut ağırlığı günde iki kez ölçüldü. Hayati belirtiler (sıcaklık, nabız, solunum hızı ve kan basıncı) her değişim döngüsünün başında ve sonunda değerlendirildi. APD'nin etkinliği, hiperkalemi, üremi, metabolik asidoz, aşırı sıvı yüklenmesi veya hiperamonyeminin düzelmesi ile ölçüldü.

İlk 3 değişimden sonra diyalizat kanlı ise intraperitoneal kanama tanısı kondu. Diyalizatın boşaltımı sırasında sıvının yavaş yavaş ya da hiç hareket etmemesi durumunda kateter tıkanıklığı teşhisi kondu. APD kateterinin etrafındaki görünür sızıntı veya ıslaklık kateter sızıntısı olarak yorumlandı. Peritonit, boşaltılan atık sıvı direk mikroskobisinde 100/mm^3 lökositin varlığı (%50'den fazla nötrofil), gram boyamada mikroorganizma varlığı veya kültür-pozitif periton sıvısı olarak tanımlandı.[9,10] İlk 72 saatte meydana gelen sepsis; erken başlangıçlı bir sepsis, 72 saat sonra ortaya çıkan sepsis; geç sepsis olarak tanımlandı.

Veri kullanımı ve istatistik analizi SPSS 22 (SPSS Inc., Chicago, IL, ABD) kullanılarak yapıldı. Tanımlayıcı istatistikler kesikli sayısal değişkenler için ortalama±standart sapma (SS) biçiminde gösterilirken kategorik ve sıralanabilir değişkenler olgu sayısı ve % şeklinde ifade edildi. Mortalite ile ilişkili faktörlerin analizinde chi-square testi kullanıldı ve p değerinin 0,05'in altında olması anlamlı farklılık olarak kabul edildi.

SONUÇ

Son 2 yılda 1500 yenidoğan bebek yenidoğan yoğun bakım ünitesine kabul edildi. 30 hastaya (%2) APD prosedürü uygulandı. Bu 30 yenidoğanın 7'si (%23,3) term, 23'ü (%76,6) preterm idi. Olguların 20'i (%66,6) erkek, 10'i (%33,3) kız idi. Ortalama gebelik yaşı 32,2±5,49 (23-39) ve ortalama doğum ağırlığı 1921±1068,8 g (500-3600) idi. Genel olarak, diyaliz başlangıcındaki ortalama yaş postnatal 8,57±8,09 gün (2-58) idi. APD yapılan hastaların çoğunda akut böbrek yetmezliği (ABY) (n=21, %70) ve sepsis-dirençli metabolik asidoz (n=5, %16,7) vardı. APD'nin altında yatan başlıca nedenler **Tablo 1**'de verilmiştir. ABY'li 21 hastanın 8'ine (%38) prematürite sorunlarına bağlı periton diyalizi uygulandı. ABY'nin diğer nedenleri renal agenezi (n=2, %9,5), perinatal asfiksi (n=4, %19), multikistik displastik böbrek (n=3, %13,3) ve konjenital kalp hastalığı (n=4, %19) idi. APD'nin en sık görülen endikasyonu oligoanürik ABY (n=21,%70) idi. Ortalama diyaliz süresi 7,8±9,3 gün (2-54) idi. 23 hastada diyalize bağlı komplikasyonlar gözlendi (%76,7) (**Tablo 2**). En sık görülen komplikasyonlar kateter tıkanıklığı (n=8, %34,8) ve kateter girişinden sızıntı (n=5, %21,7) idi. 3 hastada peritonit gelişti. Klebsiella pneumoniae (n=2) ve Staphylococcus epidermidisin (n=1) neden olduğu peritonit intraperitoneal ve sistemik antibiyotiklerle düzeldi ve kateter işlevsel olarak diyalize devam edildi.

Sekiz hasta (%38) APD sürecinde altta yatan hastalıklar nedeniyle öldü. Mortalitenin nedenleri **Tablo 3**'de gösterildi. Bunların 6'sında (%28,6) çoklu organ yetmezliği vardı. Mortalite oranı %70 idi; ancak prematüre bebeklerde ölüm oranı %78,3 (18/23) idi. Çok düşük doğum ağırlıklı bebeklerde (<1000gr) ölüm oranı %77,8 (7/9) ve normal doğum ağırlığı olan bebeklerde ölüm oranı %70 (11/18) idi. Diyaliz başlangıç yaşı, sağ kalan bebeklerde 5,2±1,6 gün ve ölen bebekte 10,81±11,2 gün olarak

bulundu. Diyalizin geç başlamasının mortaliteyi etkilemediği bulundu (p=0,925). Periton diyalizi süresi sağ kalan bebeklerde 10,7±18,3 gün ve ölen bebekte 8,9±11 gün olarak bulundu Periton diyalizi süresi ile mortalite arasında istatistiksel olarak anlamlı bir ilişki bulunamadı (p=0,593). Doğuştan metabolik hastalık nedeni ile diyaliz uygulanan hastalarda tedaviye yanıt alındı. APD uygulanan ve ölen hastalarda komplikasyon görülme oranı yaşayanlara oranla yüksekti ve istatistiksel olarak anlamlı idi (p=0,048) (**Tablo 4**). Hayatta kalan 9 hastanın izlemi sırasında 3 hasta (%33,3) tam remisyon gösterdi, ancak kalan 6 hastada kronik böbrek yetmezliği ve altta yatan metabolik hastalıklarına yönelik klinik bulgular devam etti.

Tablo 1. Periton diyalizinin altta yatan nedenleri

Tanı	Sayı (n)	Oran (%)
Akut böbrek yetmezliği	21	70
Renal agenezi	2	9,5
Perinatal asfiksi	4	19
Prematürite	8	38
Multikistik displastik böbrek	3	13,3
Konjenital kalp hastalığı	4	19
Sepsis, dirençli metabolik asidoz, multiorgan yetmezliği	5	16,7
Renal ven trombozu	1	3,3
Konjenital metabolik hastalık	3	10
Toplam	30	100

Tablo 2. Periton diyalizi sırasında ortaya çıkan komplikasyonlar

Komplikasyonlar	Sayı (n)	Oran (%)
Kateter giriş yerinden sızıntı	5	21,7
Peritonit	3	13
Kateter tıkanıklığı	8	34,8
Hiperglisemi	3	13
Kateter girişinde kanama	4	17,4
Toplam	23	100

Tablo 3. Periton diyalizi yapılan infantların ölüm nedenleri

	Sayı (n)	Oran (%)
Premature	8	38
Çoklu organ yetmezliği	6	28,6
Sepsis	2	9,5
Peritonit	2	9,5
Kalp yetmezliği	2	9,5
Bilateral renal ven trombozu	1	4,8
Toplam	21	100

Tablo 4. Periton diyalizi sırasında ölen ve yaşayan infantların özelliklerinin karşılaştırılması

Hasta özelliği	Yaşayan (n=9)	Ölen (n=21)	p
Cinsiyet (erkek)	3	10	0,562
Doğum ağırlığı (g) (ortalama±SD)	2442±1081	1698±1007	0,582
Gebelik yaşı (term)	4	3	0,073
Metabolik hastalık	3	0	-
PD süresi (gün) (ortalama±SD)	10,7±18,3	8,9±11	0,593
PD başlama yaşı (gün) (ortalama±SD)	5,2±1,6	10,8±11,2	0,925
Komplikasyon (n (%))	9 (%30)	17 (56,7)	0,048

TARTIŞMA

Yenidoğanlarda ABY'e sebep olan birçok faktör vardır. Bunlar arasında anne sütünün yetersiz alınımına bağlı dehidratasyon, perinatal hipoksi, doğumsal kalp hastalıkları, sepsis, doğumsal metabolik bozukluklar, doğumsal böbrek anomalileri ve bilateral renal ven trombozu sayılabilir.[11-16] ABY tedavisinde uygulanan hemodiyaliz ve sürekli renal replasman tedavisi yenidoğanlarda teknik zorluklar nedeniyle yerini periton diyalizine bırakmıştır.

Literatürde APD uygulamalarında endikasyonlar farklılık göstermektedir. Üstyol ve ark.[17] çalışmalarında APD kullanımının en sık nedeninin sepsis olduğunu belirtirken Kara ve ark.[16], Hakan ve ark.[9], Yıldız ve ark.[11] ve Matthews ve ark.[18] APD yapmanın en sık nedeninin oligurik ABY ve bunu takiben metabolik bozukluklar olduğunu bildirmişlerdir. Bunlardan farklı olarak Alparslan ve ark.[4] APD'nin en sık metabolik bozukluklar, asfiksi ve sepsis nedeni ile uygulandığını yazılarında belirtmiştir. Bizim çalışmada da APD en sık uygulama endikasyonu oligoanürik ABY idi.

APD akut renal hasarda olduğu gibi bazı metabolik bozuklukların tedavisinde de etkili olabilir. Matthews ve ark.[18] yaptığı bir çalışmada, APD'nin ikinci nedeni (% 35,5) olarak metabolik bozuklukları bildirmiştir. Bizim çalışmamızda ise, ikinci sıklıkta sepsis ve dirençli metabolik asidoz görülüp konjenital metabolik bozukluklar üçüncü sırada APD nedeni idi (%10). Çalışmamız konjenital metabolik bozukluğu olan bu yenidoğanlarda APD'nin etkinliğini göstermiştir ve bu grup hastalarımızda mortalite gözlenmemiştir.

APD invaziv bir işlemdir ve yenidoğanlarda APD uygulaması sırasında birçok zorluk ve komplikasyonla karşı karşıya kalınabilir (%25-60).[4,6] Bu komplikasyonlar arasında hiperglisemi, peritonit, kateter çıkış yerinde sızıntı, revizyon veya replasman gerektiren kateter tıkanıklığı ve bazı vaka raporlarında belirtildiği gibi barsak perforasyonu sayılabilir.[1,14,19] Kara ve ark.[16] çalışmalarında hipergliseminin APD'nin en sık görülen komplikasyonu olduğunu bildirmiştir. Bizim çalışmamızda APD ile ilişkili en sık görülen komplikasyon kateter tıkanıklığı idi ve sadece 3 hastada revizyon ihtiyacı oldu.

APD uygulanan hastalarda mortalite, komplikasyonlardan ziyade altta yatan hastalıkla ilişkilidir.[20,21] Mortalite ile ilişkili faktörler arasında multiorgan yetmezliği, hipotansiyon, vazopressör tedavisi ihtiyacı, hemodinamik instabilite ve mekanik ventilasyon ve diyaliz gereksinimi vardır.[18,22-24] Tetta ve ark.[25] çoklu organ yetmezliği olan ABY vakalarında mortalite oranının %95'e çıkabileceğini bildirmişlerdir. Mathur ve ark.[26] sepsisli yenidoğanlarda ABY varlığının mortalite oranını neredeyse üç kat artırdığını göstermiştir. Matthews ve ark.(18) APD uygulanan olgularda %61,3 ölüm oranı bildirmişlerdir. Türkiye'den yapılan çalışmalarda Hakan ve ark.[9] mortalite oranlarını %74 olarak bildirirken Alparslan ve ark.[4] APD'nin ABY'li prematüre yenidoğanlarda iyi sonuç verebileceğini iddia etmiş, 13 kişiden 5 yenidoğanın APD ile hayatta kaldığını gözlemlemiştir. Bizim çalışmamızda ise mortalite oranımız %70 idi ve çok düşük doğum ağırlıklı bebekler ve normal doğum ağırlıklı bebekler arasında ölüm oranı birbirine oldukça yakın

idi. Bu durum düşük doğum ağırlıklı bebeklerin mortalite sebebi olarak diyaliz dışında farklı sorunların ön planda olması ile açıklanabilir. Çalışmamızda APD başlama süresi, yaşayan hastalarda daha erken başlanmış olmasına rağmen ölen hastalarla karşılaştırıldığında istatistiksel anlam görülmemiştir ve bu durumun vaka sayılarımızın az olmasının sonucu olduğu düşünülmüştür. Ölen hastalarımız arasında komplikasyon görülme sıklığı daha fazla olmasına rağmen bu komplikasyonlar hastalarımızın primer ölüm nedeni değildi. Ancak peritonit gelişen 3 hastanın 2'si peritonite bağlı ex oldu.

SONUÇ

Periton diyalizi yenidoğan yoğun bakım ünitelerinde sıklıkla kullanılan tedavi şeklidir. ABY ve metabolik bozuklukları olan bebeklerde güvenli ve etkili bir renal replasman tedavisi yöntemidir. Peritonit gibi hayatı tehdit eden komplikasyonlar olsa da, bu tür komplikasyonlar nispeten daha az yaygındır. Mortalite oranı bu hastalarda altta yatan hastalıkların ciddi olmasından dolayı hala çok yüksektir. APD ihtiyacı için erken tanıma ve erken APD işleminin başlaması bu hastalarda mortalitenin azalmasına katkıda bulunabilir.

ETİK BEYANLAR

Etik Kurul Onayı: Çalışma için etik onay Necmettin Erbakan Üniversitesi etik kurulundan alındı (Tarih: 05-07-2019, Karar: 2019/1988).

Aydınlatılmış Onam: Çalışma retrospektif olarak dizayn edildiği için hastalardan aydınlatılmış onam alınmamıştır.

Hakem Değerlendirme Süreci: Harici çift kör hakem değerlendirmesi.

Çıkar Çatışması Durumu: Yazarlar bu çalışmada herhangi bir çıkara dayalı ilişki olmadığını beyan etmişlerdir.

Finansal Destek: Yazarlar bu çalışmada finansal destek almadıklarını beyan etmişlerdir.

Yazar Katkıları: Yazarların tümü; makalenin tasarımına, yürütülmesine, analizine katıldığını ve son sürümünü onayladıklarını beyan etmişlerdir.

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Orjinal Araştırma / Original Article

Palyatif Bakım Ünitemizde Yatan Hastaların Retrospektif Analizi

Retrospective Analysis of Hospitalized Patients in Our Palliative Care Unit

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Öz

Amaç: Bu çalışmada, Palyatif Bakım Merkezimizde (PDM) yatan hastaların klinik ve demografik özelliklerini inceleyerek taburcu olma durumu ile ilişkili faktörleri araştırmayı ve bunları literatürle karşılaştırmayı amaçladık.
Materyal ve Metot: Retrospektif yapılan bu çalışmada, Malatya Eğitim ve Araştırma hastanesi PBM'de, Haziran 2016-Nisan 2018 tarihleri arasında takip ve tedavi edilen hastaların Hastane Bilgi Yönetim Sistemi ve arşivlerindeki dosya kayıtlarının incelenmesiyle veriler elde edildi.
Bulgular: Çalışmaya alınan 321 hastanın (%53,9 Erkek, %46,1 Kadın) ortalama yaşı 72,5±14,7 ve ortalama yatış süresi 15,4±23,2 (1-275) gündü. Hastaların PBM'ye başvuruları en sık ayaktan (%37,4), yoğun bakım (%27,8), servisler (%23,1) ve acil servis (%11,6) olduğu tespit edilmiştir. En sık yatış endikasyonları oral alım yetersizliği (genel durum bozukluğu) %58,3, bakım eğitimi %14,3, ağrı palyasyonu %12,8 ve dekübit yara bakımı %7,5 idi. Ek hastalık olarak en sık sırasıyla Serebro Vasküler Hastalık (SVH), Alzheimer, Hipertansiyon (HT), Kronik Obstruktif Akciğer Hastalığı (KOAH) ve Diyabetes Mellitus (DM) eşlik etmekteydi. Hastaların 139'u (%43,3) malignite nedeni ile yatırılmış olduğu tespit edildi ve en sık eşlik eden malignite türü olarak akciğer, daha sonra ise mide kanseri bulunmuştur. Taburculuk durumu olarak; hastaların %42,7'si eve taburcu, %8,7'si 3. Basamak Yoğun Bakıma devir, %6,9'u kendi isteği ile taburcu, %3,7'si servislere devir, %1,2'si ileri merkeze sevk ve %36,8 hastanın ex olduğu belirlendi. Malignitesi olan 139 hastanın yaklaşık yarısının (74) mortal seyrettiği ve 4 hastanın yoğun bakıma devir edildiği görüldü. Uzun yatış süresi (1 aydan uzun) dekübit yara bakımı (%29,1) ve bakım eğitimi (%13) amaçlı yatan hastalarda görüldü.
Sonuç: Gerek yaşlı hastaların ve gerekse ileri evre onkolojik ve nörolojik hastaların sayısının artması nedeniyle PBM'lere ihtiyaç gün geçtikçe artmaktadır. Çalışmamız tek merkezli olup, Türkiye'deki PBM'lere veri sunacağını düşünmekteyiz.

Anahtar Kelimeler: Palyatif bakım, kanser, yatış süresi

Abstract

Objectives: In this study, we aimed to investigate the factors associated with discharge status and compare them with the literature By examining the clinical and demographic characteristics of inpatients in our Palliative Care Center (PCM).
Material and Method: In this retrospective study, data were obtained by examining the file records of the patients who were followed up and treated in the Hospital Information Management System and archives of Malatya Training and Research Hospital PBM between June 2016 and April 2018.
Results: The mean age of the 321 patients (53.9% male, 46.1% female) included in the study was 72.5±14.7 and the mean length of hospitalization was 15.4±23.2 (1-275) days. The most frequent outpatients (37.4%), intensive care unit (27.8%), wards (23.1%) and emergency department (11.6%) were found to be the most frequently referred patients. The most frequent hospitalization indications were inadequate oral intake (general disorder), 58.3%, care training 14.3%, pain palliation 12.8% and decubitus wound care 7.5%. The most common comorbidities were Cerebro Vascular Disease (CVD), Alzheimer's disease, Hypertension (HT), Chronic Obstructive Pulmonary Disease (COPH) and Diabetes Mellitus (DM) respectively. It was found that 139 (43.3%) of the patients were hospitalized due to malignancy and the most common type of malignancy was lung cancer and later gastric cancer. As the discharge status; 42.7% of the patients were discharged home, 8.7% were transferred to the 3rd Stage Intensive Care Unit, 6.9% were discharged voluntarily, 3.7% were transferred towards, 1.2% were advanced and 36.8% of the patients were ex. It was observed that approximately half (74) of 139 patients with malignancy were mortal and 4 patients were transferred to intensive care unit. Long hospitalization period (longer than 1 month) was seen in patients hospitalized for decubitus wound care (29.1%) and care education (13%).
Conclusion: The need for PCMs is increasing day by day due to the increasing number of elderly and advanced oncologic and neurological patients. Our study is a single-center, we believe that the data presented to the PCM in Turkey.

Keywords: Palliative care, cancer, length of stay

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GİRİŞ

Dünya Sağlık Örgütü'ne (WHO) göre palyatif bakım (PB) tanımı hayati tehlikesi olan hastalıkların erken teşhis edilmesi, hatasız değerlendirilmesi, bu hastalıklar vesilesiyle oluşan ağrı ve diğer fiziksel, psikososyal ve ruhsal problemlerin tedavi edilmesi yoluyla, söz konusu hastalığın önlenmesi ve rahatsızlıkların giderilmesini sağlayarak hastaların ve ailelerinin hayat kalitesini artıran bir yaklaşımdır.[1]

Palyatif bakım merkezlerine (PBM) onkolojik hastaların yanı sıra yaşlı hastalar ve hayatı tehdit eden kronik hastalıkları olan hastalar da sıklıkla yatmaktadır. Tüm dünyada olduğu gibi ülkemizde yaşlı nüfus giderek artmaktadır. Bu da klinik pratikte yaşlı hastaların ve hayatı tehdit eden kronik hastalıklı hastaların artmasına sebep olmaktadır. Bu sebeplerden dolayı bu hastalarda PB ihtiyacı da ileri evre onkolojik hastalar gibi giderek artmaktadır.[2]

PB de amaç; hastalık tanısı koymak veya primer hastalığı tedavi etmek değil, evde yada ayaktan tanısı konmuş, kesin olarak tedavi edilemeyen hastalıklarda başta ağrı ve diğer semptomların giderilmesidir. Kısaca hasta ve ailelerinin yaşam kalitelerini artırmayı hedefler. PB spesifik bir hastalık ile uğraşmaz. Herhangi bir kronik ve ileri evre hastalığın tanısından yaşam sonu durumu da kapsayacak şekilde hasta ve yakınlarına yönelik plan belirler.[3,4]

Bu çalışmada amacımız, hastanemiz PBM'de yatan hastaların klinik ve demografik özelliklerini inceleyerek, taburculuk durumları ile ilişkili faktörleri araştırarak literatür ile karşılaştırmaktır.

GEREÇ VE YÖNTEM

Çalışmamız için Malatya İli Klinik Araştırmalar Etik Kurulu Başkanlığı'ndan 2019/136 sayı ile onay alınmıştır.

Hastanemizde Palyatif Bakım Merkezi (PBM) 22 yataklı olup hastaların takip ve tedavisi Anesteziyoloji ve Reanimasyon uzmanları olarak tarafımızca yapılmaktadır. Bu çalışmada 2 yıl süre (Ocak 2017-Aralık 2018) boyunca PBM'de takip ve tedavisi yapılan 321 olgunun hastane bilgi yönetim sistemi ve arşivlerindeki dosya kayıtlarının geriye dönük olarak incelenmesiyle veriler elde edildi. Tekrarlı yatışları olan hastanın ilk yatışı değerlendirildi. Yirmi dört saatten az yatan ve yetersiz dosya bilgileri olan hastalar çalışmaya dahil edilmedi. Tüm hastaların demografik özellikleri, yatış endikasyonu, ek hastalıkları, malignite varlığı ve türü, kabul yerleri, yatış süreleri ve hastaneden taburculuk durumları değerlendirilerek kayıt edildi.

İstatistiksel değerlendirmede SPSS 21 programı kullanıldı. Veriler ortalama±standart sapma, sayı veya % olarak verilmiştir. Kategorik değişkenlerin karşılaştırmasında ki-kare testi kullanıldı. İstatistiksel anlamlılık düzeyi için $p<0,05$ kabul edildi.

BULGULAR

Çalışmaya yaş ort 72,5±14,7 yıl olan, 173 (%53,9) erkek ve 148 (%46,1) kadın toplam 321 hasta dahil edildi (**Tablo1**).

Tablo 1. Olguların demografik verileri

Yaş ortalaması	72,5±14,7 Yıl	
Minumum	19 Yıl	
Maximum	98 Yıl	
	n	**%**
Erkek	173	53,9
Kadın	148	46,1
Toplam	321	100

Hastaların PBM'ye kabul yerlerinin en sık ayaktan (%37,4), yoğun bakım (%27,8), servisler (%23,1) ve acil servis (%11,6) olduğu tespit edilmiştir. Yatış endikasyonu olarak en sık neden oral alım yetersizliği ve genel durum bozukluğu (n: 187) bulunmuştur (**Tablo 2**). Yatış süresi ortalama 15,4±23,2 gün (1-275) olarak saptanmıştır.

Tablo 2. Olguların yatış endikasyonu

Yatış Endikasyonu	**n**	**%**
Oral alım yetersizliği	187	58,3
Bakım eğitimi	46	14,3
Ağrı palyasyonu	41	12,8
Dekübit yara bakımı	24	7,5
Diğer	23	7,2
Toplam	321	100,0

Diğer: GİS kanama, ateş etyolojisi, gastroenterit, idrar yolu enfeksiyonu

Hastaların PBM'de yatış süreleri incelendiğinde; 1-15 gün arasında yatan hasta sayısı 216 (%67,3), 16-30 gün arasında yatan hasta sayısı 66 (%20,6) iken, 30 gün üzerinde yatan hasta sayısı 39 (%12,1)'dur. Uzun süreli (30 gün üzeri) yatan hastaları malignitesi olmayan, nörolojik hastalıklar başta olmak üzere ek hastalıkları olan hastaların oluşturduğu saptanmıştır. Mortalitenin (%72,9), taburculuğun (%60,6) ve yoğun bakıma devrin (%71,4) en fazla 15 gün içerisinde olduğu tespit edilmiştir. Malignitesi olan hastaların mortalitesi yüksek oranda ilk 15 gün içerisinde (%77,02) gerçekleşmiştir. Nörolojik hastalığı olanlar malignitesi olanlara kıyasla daha uzun yatış süresine sahiptir (**Tablo 3**).

Tablo 3. Hastaların yatış süreleri, çıkış şekilleri, malignite ve nörolojik hastalık varlığı arasında ilişki

	Çıkış şekli					
Yatış gün sayısı	**Taburcu n (%)**	**Ex n (%)**	**Yoğun bakıma devir n (%)**	**Malignite varlığı n (%)**	**Malignite mortalite oranı n (%)**	**Nörolojik hastalık varlığı n (%)**
0-15 gün	83 (%60.6)	86 (%72.9)	20 (%71.4)	94 (%67.6)	57 (%77.02)	55 (%60.43)
16-30 gün	33 (%24.1)	20 (%16.9)	4 (%14.3)	30 (%21.6)	11 (%14.80)	21 (%23.07)
30 gün üzeri	21 (%15.3)	12 (%10.2)	4 (%14.3)	15 (%10.8)	6 (%8.10)	16 (%17.5)
Total	137	118	28	139	74	91

Hastaların başvuruları sırasında tespit edilmiş komorbid hastalıkları incelendiğinde ön planda en fazla Alzheimer (n:58) saptanmış, daha sonra sırasıyla Serebro Vasküler Olay (SVO) (n:41), Hipertansiyon (HT) (n:41), Kronik Obstruktif Akciğer Hastalığı (KOAH) (n:22), Koroner Arter Hastalığı (KAH) (n:18) ve Diyabetes Mellitus (DM) (n:15) bulunmuştur. Ayrıca hastalarda gözlenen malignite varlığı %43,3 (n:139) olup, en sık eşlik eden malignite türü olarak akciğer daha sonra ise mide bulunmuştur (**Tablo 4**). Olgularda malignitenin varlığı erkeklerde (%66,2) kadınlara (%33,8) oranla anlamlı olarak daha fazla oranda gözlendi (**Tablo 5**). PBM'de takip ve tedavisi yapılan hastaların servisden çıkış durumları incelendiğinde 137'si taburcu edilirken, sadece 4 hastanın sevki gerçekleşmiştir. Mortalite oranı %36,8 (n:118) olarak saptanmıştır (**Tablo 6**). Ayrıca PBM'de exitus olan 118 hastadan 74'ünde bir malignite türü gözlenirken, 44 hastada ise gözlenmemiştir. Taburcu olan hasta sayısı (n:137) malignitesi olmayan hastalarda (n:91) daha fazla sayıda olup, kanser varlığı ile PBM'den çıkış durumu arasında anlamlı bir ilişki saptanmıştır (**Tablo 7**).

Tablo 4. Olgularda gözlenen malignite türleri

Malignite türü	n	%
Akciğer	42	13,1
Kolon	9	2,8
Meme	4	1,2
Mesane	4	1,2
Prostat	12	3,7
Mide	17	5,3
Pankreas	10	3,1
Diğer	41	12,8
Malignite		
Var	139	43,3
Yok	182	56,7
Toplam	321	100

Diğer: KLL, lenfoma, multiplmyelom, baş boyun kanseri, mezotelyoma, Hepatobiliyer kanser, renal kanser, over kanseri

Tablo 5. Cinsiyetler arası malignite varlığı

Cinsiyet		Malignite		Toplam
		Var	Yok	
Erkek	n (%)	92 (66,2)	81 (44,5)	173 (53,9)
Kadın	n (%)	47 (33,8)	101 (55,5)	148 (46,1)
Toplam	n	139	182	321
	%	43,3	56,7	100

p<0,05

Tablo 6. Olguların PBM'den çıkış şekli

Çıkış Şekli	n	%
Taburcu	137	42,7
Exitus	118	36,8
Yoğun bakıma devir	28	8,7
Servise devir	12	3,7
Sevk	4	1,2
Kendi isteği ile taburcu	22	6,9
Toplam	321	100,0

TARTIŞMA

Tüm dünya da olduğu gibi ülkemizde de artan yatağa bağımlı ve yaşlı hasta popülasyonuna ilave olarak artan yaşamı tehdit eden ileri evre kronik hastalıklardan dolayı palyatif bakım merkezlerine ihtiyaç da giderek artmaktadır. Ülkemizde palyatif bakım merkezi sayısı ve klinik deneyim hala kısıtlıdır.[2] Bu çalışma da, Anestezi ve Reanimasyon uzmanları tarafından 7 gün 24 saat izlemi yapılan palyatif bakım merkezimizde yatan hastaların demografik ve klinik özelliklerini sunduk. Ayrıca hastaların klinik özellikleri, yatış süresi ve mortalite ile ilişkili faktörleri inceledik.

Yatan hastaların çoğunluğu yaşlı (72,5±14,7 yıl) ve %53,9 erkek hastalardı. Bu hastalara ağrı palyasyonu, nutrisyon, dekübit yara bakımı ve kronik hastalık tedavilerinin sağlanması planlandı. Ülkemizde yapılan benzer bir retrospektif çalışmada %55 erkek, yaş ort 71±15,8 yıl ve yatış süresi ort 15,4 gün olarak bildirilmiştir. Çalışmamızda ortalama yatış süresi 15,4 (1-275) gün olup kadın ve erkeklerin yatış süreleri arasında anlamlı farklılık yoktu. Dincer M ve ark. 435 palyatif hastasında yaptıkları çalışmada yaş ortalaması 70,6 yıl, yatış süresi ortalaması 17 gün ve mortalite oranını %46,2 olarak bulmuşlardır.[5]

Hastaların PBM'ye kabul yerleri en sık ayaktan (%37,4) olmak üzere, yoğun bakım (%27,8), servisler (%23,1) ve acil servis (%11,6)'dir. PBM'ye ayaktan kabul edilen hastaların çoğunluğunu evde sağlık hizmeti kapsamında veya aile hekimi takibinde olup telefon ile ünitemiz randevu sistemine kayıt yaptırılarak görüşülen hastalar oluşturmaktadır. Aslaner M.A. yaptıkları çalışmada acil servise başvuran kritik hastaların %67,3'ünün yoğun bakım ünitesine ve %23,7'sinin palyatif bakım ünitesine yatırıldığını saptamışlardır.[6]

Palyatif bakım gerektiren hastalıklar kanserden nörolojik hastalıklara, ileri dönem organ yetmezliklerinden AIDS gibi infeksiyonlara kadar geniş bir çeşitlilik gösterir ve her yaş hasta

Tablo 7. Olgulardaki kanser varlığı ile PBM'den çıkış şekli arasındaki dağılım

Malignite	Taburcu n (%)	Exitus n (%)	YBÜ'ne nakil n (%)	Servise Nakil n (%)	Sevk n (%)	Kendi isteği ile taburcu n (%)	Toplam n (%)
Var	46 (33,6)	74 (62,7)	4 (14,3)	4 (33,3)	0 (0)	11 (50)	139 (43,3)
Yok	91 (66,4)	44 (37,3)	24 (85,7)	8 (66,7)	4 (100)	11 (50)	182 (56,7)
Toplam	137 (42,7)	118 (36,8)	28 (8,7)	12 (3,7)	4 (1,2)	22 (6,9)	321 (100)

p<0,05

grubundan hastayı kapsar. Çalışmamızda yatış endikasyonları içinde birçok faktör olmakla birlikte ilk sırada yer alan endikasyon oral alım yetersizliği/genel durum bozukluğudur (%58,3); bunu sırasıyla bakım eğitimi (%14,3), ağrı palyasyonu (%12,8) ve dekübit yara bakımı (%7,5) takip etmiştir. Dinçer ve ark. yaşlı palyatif hastaları üzerine yaptıkları çalışmada yatış endikasyonunu sırasıyla nutrisyon (%52,2), dekübit yara bakımı (%40,5) ve ağrı (%12,6) olarak saptamışlardır.[7] Bakım eğitimi endikasyonu ile yatırılan hastaları; genellikle hastanemiz yoğun bakım ve servislerinden kabul edilen, taburculuk öncesi hastanın bakımından sorumlu kişilere evde bakım için bilgi ve beceri kazandırmak amaçlı yatırılan hastalar oluşturmaktadır. Bu endikasyonla yatırılan hasta grubunun literatürden fazla olduğu görülmektedir.[7,8]

Yürüyen M. ve ark.[2] 2 yıllık sürede yatan 319 hastayı inceledikleri çalışmalarında komorbid hastalık sayısının ort 2,2±1,05 olduğunu ve en sık olarak malnütrisyon %59 (n:187), malignite %44 (n:143), enfeksiyon hastalığı %33 (n:104), bası yarası %33 (n:107) ve SVO %10 (n:31) görüldüğünü belirtmişlerdir. Çalışmamızda komorbid hastalık olarak sıklıkla nörolojik hastalıklar (n:99), HT (n:41), KOAH (n:22), KAH (n:18) ve DM (n:15) bulunmuştur. Yapılan çalışmalarda hastalarda malignite dışı en sık hastalık tanısının nörolojik (%16) olduğu saptanmıştır. Nörolojik hastalıkların palyatif bakım hastalarının günlük yaşamlarında önemli semptom yüküne ve kısıtlamalara neden olduğu belirtilmiştir.[8]

Çalışmamız da açıkça ortaya konan başka bir gerçek; PBM'mizde yatan hastaların yaklaşık yarısını %43,3 (139)'ünü kanser hastalarının oluşturmasıdır. Yürüyen M ve ark.[2] çalışmamıza benzer olarak komorbid hastalık olarak malignite oranını %43,9 bulmuşlardır. Ülkemizde her yıl 170000 yeni kanser olgusu tanı almaktadır ve bu kanser olgularının 2/3'ü erkektir.[9] Çalışmamızda kadınların oranı %33,8 (n:47), erkeklerin oranı %66.2 (n:92) olduğu saptanmıştır. Dünya'da en çok tanı konulan üç kanser sıklığına göre akciğer (%13,0), meme (%11,9) ve kolon (%9,7) iken kanserden ölümlerin gerçekleştiği en sık üç kanser akciğer (%19,4), karaciğer (%9,1) ve mide (%8,8) olarak belirtilmiştir. Şenel ve ark.[10] tarafından ülkemizde yapılan çalışmada palyatif bakımda 418 kanser hastasında kanser türü olarak gastrointestinal sistem (GİS) %21, akciğer %19 ve genitoüriner sistem %15 olarak bildirilmiştir. Aynı çalışmada hastaların ortalama yatış süresi 9,4±10,8 gün ve mortalite oranı %41 olarak saptanmıştır. Çalışmamızda ise kanser türü olarak en sık akciğer %13,1, ikinci sırada mide %5,7 ve prostat %3,7 takip etmektedir. Çalışmamızdan farklı olarak; Uysal ve ark.[11] malignite türü olarak ilk sırada GİS (%22) yer alırken bunu hepatobiliyer-pankreas (%19), akciğer (%16) ve meme (%16) izlemektedir. Çalışmamızda malignite türleri arasında mortalite oranları mesane %75, pankreas %70 ve akciğer %57,1'dir. Taburculuk ise en sık mide (%58,8) kanserinde görülmüştür.

Çalışmamızda taburculuk %42,7 (n:137) iken, ileri basamak yoğun bakıma devir %8,7 (n:28) ve kendi isteği ile taburcu %6,9 (n:22) olarak bulunmuştur. Hastaneden taburculuk durumu ile ilişkili olumlu faktörler; yatış endikasyonu dekübit yara bakımı ve bakım eğitimi olanlar ayrıca kısa yatış süresi ve ileri yaştır. Bu hasta grubu muhtemelen yaşlı, kronik hastalıkları olan ve evde bakım süreci gereken hastalardır. Taburculukla ilişkili olumsuz faktörler ise malignite, uzun yatış süresi (15 gün üzeri) ve 75 yaş altıdır. Yürüyen ve ark. yaptıkları çalışmada taburculuk durumu ile ilişkili pozitif faktörleri malignite, opioid kullanımı, parenteral beslenme tipi olarak belirtmişlerdir. Yine aynı çalışmada negatif ilişkili faktörleri ise ileri yaş, uzun yatış gün süresi, HT, DM, enfeksiyon hastalıkları, nörodejeneratif hastalıklar, artan komorbidite sayısı ve yüksek NRS 2002 puanı olduğunu saptamışlardır.[2]

Başta kanser olmak üzere birçok kronik progresif hastalığın seyrinde ölmeden önce ortaya çıkan ve yaşam kalitesini en çok bozan, hasta ve ailesine en çok sıkıntı veren septomlardan biri ağrıdır. Palyatif bakımın temel amacı ağrıyı önlemektir, yaşam süresinden çok yaşamın niteliğiyle ilgilenir. Yürüyen ve ark. farklı komorbid hastalıklarla PBM'ye kabul ettikleri 319 hastada %11 (n:35) oranında ağrı semptomunun olduğu, ancak yatış esnasında VAS ile yapılan ağrı değerlendirmesinde bu oranın %18 (n:60)'e yükseldiği saptanmıştır. Yine aynı çalışmada opioid kullanım oranı %40 (n:129) bulunmuştur.[2] Uysal ve ark.[11] 108 kanser hastasında semptomları inceledikleri çalışmada, hastaların PBM'ye kabül esnasında %90 ağrı semptomu tarifliklerini, üçüncü ve yedinci günde ağrı semptomunun hem insidansının hem de şiddetinin azaldığı saptamışlardır. Şenel ve ark.[10] palyatif bakımda 418 kanser hastasının yatışta öncelikli endikasyon olarak %68 (284) oranında ağrı olduğu ve hastaların %86'sının yatıştan önce analjezik kullandığını saptamışlar. Yine Walsh ve ark.[12] tarafından ileri evre kanser hastalarında yapılan bir çalışmada belirlenen semptom sıklıklarında ağrı %82 ile ilk sırada gelmektedir. Çalışmamızda sadece kanser hastaları değil, yaşlı ve farklı komorbid hastalıkların varlığından dolayı yatış endikasyonu olarak %12,8 ağrı palyasyonu görülmüştür. Hastaların yaşam kalitelerini olumsuz yönde etkileyen, muhakkak tedavi edilmesi gereken ağrı şikayeti, hastalar değerlendirilirken mutlaka sorgulanmalı ve ağrı skalaları ile şiddeti ölçülüp kaydedilmelidir.

Sonuç olarak tüm dünyada olduğu gibi ülkemizde de yaşlı nüfusun artması nedeniyle hayatı tehdit eden kronik hastalıklara sahip hastaların palyatif bakıma gereksinim göstermesi durumu çalışmamızla desteklenmiştir. Yaşlı, malignite ve nörolojik hastalığı olan hastalar palyatif bakıma daha çok ihtiyaç duymaktadır. Çalışmamızda ortaya koyulan yatış süresi ve taburculuk durumu ile ilişkili faktörlerin, çok merkezli çalışmalara veri sunacağını düşünmekteyiz.

ETİK BEYANLAR

Etik Kurul Onayı: Çalışma için Malatya İli Klinik Araştırmalar Etik Kurulu Başkanlığı'ndan 2019/136 sayı ile etik kurul onayı alınmıştır.

Aydınlatılmış Onam: Çalışma retrospektif olarak dizayn edildiği için hastalardan aydınlatılmış onam alınmamıştır.

Hakem Değerlendirme Süreci: Harici çift kör hakem değerlendirmesi.

Çıkar Çatışması Durumu: Yazarlar bu çalışmada herhangi bir çıkara dayalı ilişki olmadığını beyan etmişlerdir.

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Yazar Katkıları: Yazarların tümü; makalenin tasarımına, yürütülmesine, analizine katıldığını ve son sürümünü onayladıklarını beyan etmişlerdir.

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Orjinal Araştırma / Original Article

Tüberküloz Lenfadenit Olgularının Epidemiyolojik, Klinik, Laboratuar ve Radyolojik Olarak Değerlendirilmesi

Epidemiological, Clinical, Laboratory and Radiological Evaluation of Tuberculosis Lymphadenitis Cases

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Öz

Amaç: Ülkemizde tüberküloz hala önemli bir halk sağlığı sorunudur. Son yıllarda akciğer dışı tüberküloz olgularımızda artış görülmektedir. Tüberküloz lenfadenit olguları akciğer dışı tüberkülozun önemli bir bölümünü oluşturmaktadır. Biz bu çalışmada tüberküloz lenfadenit tanısıyla takip ettiğimiz hastaların demografik, klinik, laboratuar, radyolojik verilerini ortaya koyup hem farkındalık yaratmayı hem de hastalığın özelliklerini ortaya koymayı hedefledik.

Gereç ve Yöntem: Bu çalışma, Aralık 2011-Aralık 2019 yılları arasında hastanemizde takip edilen toplam 41 tüberküloz lenfadenitli hastanın verisini içeren retrospektif bir çalışmadır. Hastaların yaş, cinsiyet gibi demografik bilgileri, altta yatan hastalıkları, risk faktörleri, klinik özellikleri, laboratuar ve radyolojik bulguları, tedavi süreleri kaydedilmiştir.

Bulgular: Tüberküloz lenfadenit tanısıyla takip edilen toplam 41 hasta çalışmaya dahil edildi. Hastaların 25 (%61)'i kadın, 16 (%39)'sı erkekti. Yaş ortalaması 42,07±1,84 (Yaş aralığı 18-78) idi. Hastaların %17.1'inde hipertansiyon, %9.8'inde diyabetes mellitus, %7.3'ünde kronik böbrek yetmezliği mevcuttu. Sadece 1 hasta HIV pozitifti. Yine hastaların %51.2'inde ateş mevcutken, en sık semptom %70.7 ile gece terlemesi idi. Servikal bölge %39 oranında tutulmuşken, %19.5'inde aksiler bölge, %12.2'sinde abdomen, %4.9'unda torakal bölge tutulumu mevcuttu. Onaltı hastada tanıda radyolojik yöntem olarak ultrasonografi (USG), diğerlerinde bilgisayarlı tomografi (BT), pozitron emisyon tomografi ile BT (PET-BT) ya da birden fazla yöntem kullanılmıştı.

Sonuç: Tüberküloz lenfadenit, lenfadenopatilerin özellikle lenfomanın ayırıcı tanısında düşünülmelidir. Klinik bulgular nonspesifik olduğundan tanıda radyolojik ve histopatolojik bulgular önemlidir. Bu olgularda mikrobiyolojik olarak tanı koymak oldukça güçtür.

Anahtar Kelimeler: Tüberküloz, lenfadenit

Abstract

Aim: Tuberculosis is still an important public health problem in our country. In recent years, there has been an increase in our extrapulmonary tuberculosis cases. Tuberculosis lymphadenitis cases constitute an important part of extrapulmonary tuberculosis. In this study, we aimed to reveal the demographic, clinical, laboratory and radiological data of the patients we follow with the diagnosis of tuberculosis lymphadenitis, and to both raise awareness and reveal the characteristics of the disease.

Material and Method: This study is a retrospective study including data from 41 patients with tuberculosis lymphadenitis followed in our hospital between December 2011 and December 2019. Demographic information such as age, gender, underlying diseases, risk factors, clinical features, laboratory and radiological findings, and duration of treatment were recorded.

Results: A total of 41 patients who were followed up for the diagnosis of tuberculosis lymphadenitis were included in the study. 25 (61%) of the patients were female and 16 (39%) were male. The average age was 42.07 ± 1.84 (Range 18-78). Hypertension was present in 17.1%, diabetes mellitus in 9.8%, and chronic kidney failure in 7.3%. Only one patient was HIV positive. While fever was present in 51.2% of patients, the most common symptom was night sweating with 70.7%. While the cervical region was affected by 39%, axillary region was involved in 19.5%, abdomen in 12.2% and thoracic region in 4.9%. Sixteen patients used ultrasonography (USG) as the radiological method in diagnosis, computed tomography (CT) in others, CT with positron emission tomography (PET-CT) or more than one method.

Conclusion: Tuberculosis lymphadenitis should be considered in the differential diagnosis of lymphadenopathies, especially lymphoma. Since clinical findings are nonspecific, radiological and histopathological findings are important in diagnosis. It is very difficult to diagnose microbiologically in these cases.

Keywords: Tuberculosis, lymphadenit

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GİRİŞ

Tüberküloz dünyada, ölüme sebep olan enfeksiyon hastalıkları içerisinde ön sıralarda yer almaktadır. Son yıllarda artan göçler, sosyoekonomik sorunlar, savaşlar, immunsupresif ajan kullanımı, özellikle de HIV/AIDS hastalığının artması nedeniyle tüberküloz insidansında artış olmuştur.[1] Dünya Sağlık Örgütü'nün 2019 raporuna göre 2018 yılında 1,5 milyon kişi tüberküloz nedeniyle hayatını kaybetmiştir. Ölümlerin % 95'i düşük ve orta gelirli ülkelerde gerçekleşmiştir.[2] Tüberküloz başta akciğeri tutmakla birlikte lenf düğümleri, plevra, böbrek, kemik ve eklemler, meninks, beyin, periton olmak üzere tüm organ ve dokuları tutabilmektedir. Tüm olguların % 80'i akciğer, % 20'si akciğer dışı tüberkülozdur. Akciğer dışı tüberküloz sıklığı son yıllarda giderek artmaktadır.[3] Akciğer dışı tüberkülozlu olguların ise çoğunluğu lenf veya plevra tüberkülozudur.[4] Ülkemizde 2017 raporuna göre hastaların %59,5'i (7.598) akciğer tutulumu, %35,6'ı (4.548) akciğer dışı organ tutulumu, %4,9'u (626) hem akciğer hem de akciğer dışı tutulum göstermiştir. Akciğer dışı organ tüberkülozu olgularında en sık ekstratorasik lenf bezleri (%30,2) ve plevra (%24,8) tutulumu olduğu tespit edilmiştir.[5] Tüberküloz lenfadenit olguları özellikle tüberkülozun yaygın olduğu yerlerde lenfadenopati ile gelen hastaların büyük bir bölümünü oluşturmakta ve özellikle lenfomanın ayırıcı tanısında yer almaktadır.[6] Tanının klinik, mikrobiyolojik olarak konulması biraz daha güç olduğu için histopatoloji hala tanıda önemlidir. Biz bu çalışmada tüberküloz lenfadenit tanısıyla takip ettiğimiz hastaların demografik, klinik, laboratuar, radyolojik verilerini ortaya koyup hem farkındalık yaratmayı hem de hastalığın özelliklerini ortaya koymayı hedefledik.

GEREÇ VE YÖNTEM

Bu çalışma, Aralık 2011-Aralık 2019 yılları arasında hastanemizde takip edilen toplam 41 tüberküloz lenfadenitli hastanın verisini içeren retrospektif bir çalışmadır. Bu çalışma için Sağlık Bilimleri Üniversitesi Gazi Yaşargil Eğitim ve Araştırma Hastanesi Klinik Araştırmalar etik kurulundan onay alınmıştır (Tarih: 17.01.2020, Sayı: 415). Veriler hasta dosyalarından, hastane veri kayıt sisteminden elde edilmiştir. Hastaların yaş, cinsiyet gibi demografik bilgileri, altta yatan hastalıkları, risk faktörleri, klinik özellikleri, laboratuar ve radyolojik bulguları, tedavi süreleri kaydedilmiştir. Veriler SPSS 16.0 programına yüklenip sayı ve yüzdelik hesaplama kullanılarak değerlendirilmiştir.

BULGULAR

Tüberküloz lenfadenit tanısıyla takip edilen toplam 41 hasta çalışmaya dahil edildi. Hastaların 25 (%61)'i kadın, 16 (%39)'sı erkekti. Yaş ortalaması 42,07±1,84 (Yaş aralığı 18-78) idi. Hastaların %17,1'inde hipertansiyon, %9,8'inde diyabetes mellitus, %7,3'ünde kronik böbrek yetmezliği mevcuttu. Sadece 1 hasta HIV pozitfiti. Olguların altta yatan hastalıkları ve risk faktörleri **Tablo 1**'de gösterilmiştir. Yine hastaların %51.2'inde ateş mevcutken, en sık semptom %70.7 ile gece terlemesi idi. Olguların %68.3'ü ele gelen kitle nedeniyle hastaneye başvurmuştu (**Tablo 1**). Yine hastaların 7'sinde lenfadenite eşlik eden ayrı bir tüberküloz odağı mevcuttu (**Tablo 2**). Hastaların hepsine PPD yapılmıştı ve 35 (%85.4) hastada pozitifti. Servikal bölge %39 oranında tutulmuşken, %19.5'inde aksiler bölge, %12.2'sinde abdomen, %4.9'unda torakal bölge tutulumu mevcuttu. Hastaların %24.4'ünde birden fazla bölge tutulmuştu. Otuzbeş hastada tanı histopatolojik, geri kalanında ise histopatolojik ve mikrobiyolojik olarak konulmuştu. Onaltı hastada tanıda radyolojik yöntem olarak ultrasonografi (USG), diğerlerinde bilgisayarlı tomografi (BT), pozitron emisyon tomografi ile BT (PET-BT) ya da birden fazla yöntem kullanılmıştı (**Tablo 2**). Olguların 8'inde daha önceden geçirilmiş tüberküloz öyküsü mevcuttu. Otuzdokuz hasta 6 ay, 2 hasta 9 ay süre ile tedavi almıştı. Sadece 1 hastada relaps gelişmişti.

Tablo 1. Hastaların demografik özellikleri, altta yatan hastalıkları, risk faktörleri ve semptomları

Değişken	N (%)
Yaş ortalaması ±SD,y	42,07±1,84
Cinsiyet	
Kadın	25 (61)
Erkek	16 (39)
Altta yatan hastalık	
Hipertansiyon	7 (17,1)
Diyabetes mellitus	4 (9,8)
Kronik böbrek yetmezliği	3 (7,3)
Kronik kalp hastalığı	2 (4,9)
Kronik akciğer hastalığı	2 (4,9)
HIV	1 (2,4)
Risk Faktörleri	
Malignite	9 (22)
Steroid kullanımı	4 (9,8)
Diyabetes mellitus	4 (9,8)
Kronik böbrek yetmezliği	3 (7,3)
HIV	1 (2,4)
Semptom	
Ateş	21 (51,2)
Kilo Kaybı	20 (48,8)
Gece terlemesi	29 (70,7)
İştahsızlık	21 (51,2)
Ele gelen kitle	28 (68,3)

Tablo 2. Hastaların lenf nodu yerleşim yeri, tanı, radyolojik ve laboratuar bulguları

Değişken	N (%)
Lenf nodu yerleşimi	
Servikal	16 (39)
Aksiller	8 (19,5)
Abdominal	5 (12,2)
Torakal	2 (4,9)
Servikal+abdominal+torakal	4 (9,8)
Servikal+torakal	4 (9,8)
Servikal+aksiler	2 (4,9)
Eşlik eden tüberküloz odağı	
Ürogenital	2 (4,9)
Abdominal	2 (4,9)
Deri	1(2,4)
Plevra	1(2,4)
Tanı	
Histopatolojik	38 (92,7)
Histopatolojik+Mikrobiyolojik	3 (7,3)
Radyolojik Yöntem	
Ultrasonografi (USG)	16 (39)
Bilgisayarlı tomografi (BT)	1 (2,4)
PET-CT	1 (2,4)
USG+BT	8 (19,5)
USG+BT+Manyetik resonans (MR)	1 (2,4)
USG+BT+MR+PET-CT	2 (4,9)
USG+MR	2 (4,9)
USG+PET-CT	3 (7,3)
USG+BT+PET-CT	5 (12,2)
BT+PET-CT	2 (4,9)
Laboratuar	
Kan lökosit düzeyi ±SD (mm^3)	8541±2358
C-reaktif protein (mg/dl)	20,9±22,1
Eritrosit sedimentasyon hızı (mm/h)	34,1±18,9

TARTIŞMA

Tüberküloz ülkemiz gibi gelişmekte olan ülkelerde hala büyük önem taşımaktadır. En sık akciğeri tutmasına karşın son yıllarda akciğer dışı organ tutulumları da artmaktadır. Özellikle lenf nodu tüberkülozu diğer bir deyişle tüberküloz lenfadenit sıklığının arttığı görülmektedir.[7] Tüberküloz lenfadenitin klinik bulguları nonspesifik ve bakteriyolojik olarak identifiye etmek zor olduğundan tanıda kimi zaman güçlüklerle karşılaşılabilmektedir. Burada ince iğne aspirasyon biyopsisi ya da eksizyonel biyopsiye başvurulmaktadır. Özellikle lenfoma ve nedeni bilinmeyen ateşin ayırıcı tanısında tüberküloz lenfadenit akla gelmeli ve tanıya gidilmelidir.[8] Nitekim bizim hasta populasyonumuzda da büyük çoğunlukla sadece histopatolojik olarak tanıya gidilmiştir. Sadece 3 hastada mikrobiyolojik tanı konulabilmiştir.

Tüberküloz genç ve orta yaşlı kesimde daha fazla görülmektedir ve kadınlarda daha fazla rastlandığına dair yayınlar mevcuttur.[9,12] Bizim çalışmamızda da benzer şekilde orta ve genç yaş grubunda kadınlarda daha sık görülmüştür. Malnutrisyon, alkolizm, insan immün yetmezlik virüsü (HIV) , kronik böbrek yetmezliği, diyabetes mellitus, evsizlik, cezaevinde kalma tüberküloz için risk faktörleri arasındadır.[10] Bizim hasta grubumuzda malignite, steroid kullanımı, diyabetes mellitus, kronik böbrek yetmezliği, HIV risk faktörleri arasındaydı.

Semptomlar genellikle nonspesifiktir. Çalışmamızda en sık semptom gece terlemesi ve ele gelen kitle idi. Vakaların yarısında ateş, kilo kaybı ve iştahsızlık mevcuttu. Bizim çalışmamızda PPD pozitifliği %85.7 oranında olup literatürle uyumlu idi.[11] Laboratuar bulguları da nonspesifik olmakla beraber çoğunlukla yükselmiş eritrosit sedimentasyon hızı (ESH), C reaktif protein (CRP) ve lökositoz ya da lökopeni görülebilir.[11] Bu seride CRP ve ESH düzeylerinde yükseklik tespit edilmiştir. Kan lökosit düzeyi ortalaması normal düzeylerdeydi. Serilerde en sık servikal bölge tutulumu görülmektedir.[12] Bizim çalışmamızda da en sık servikal sonra aksiler bölge tutulumu mevcuttu. On olguda birden fazla bölge tutulumu olduğu görülmüştür. Lenfadenopatilerin belirlenmesinde USG, BT ve manyetik rezonans görüntülemenin önemli yeri vardır.[13] Bizim hastalarımızda da tanıda görüntüleme yöntemleri kullanılmış ve en sık olarak USG yer almıştır. Tüm hastalara standart tüberküloz tedavisi verilmiştir. Sadece iki hastada 9 ay, diğerlerinde ise 6 ay tedavi verilmiştir. Sadece bir hastada relaps gelişmiştir.

SONUÇ

Tüberküloz lenfadenit, lenfadenopatilerin özellikle lenfomanın ayırıcı tanısında düşünülmelidir. Klinik bulgular nonspesifik olduğundan tanıda radyolojik ve histopatolojik bulgular önemlidir. Bu olgularda mikrobiyolojik olarak tanı koymak oldukça güçtür.

ETİK BEYANLAR

Etik Kurul Onayı: Bu çalışma için Sağlık Bilimleri Üniversitesi Gazi Yaşargil Eğitim ve Araştırma Hastanesi Klinik Araştırmalar etik kurulundan onay alınmıştır (Tarih: 17.01.2020, Sayı: 415).

Aydınlatılmış Onam: Bu çalışmaya katılan hasta(lar)dan yazılı onam alınmıştır.

Hakem Değerlendirme Süreci: Harici çift kör hakem değerlendirmesi.

Çıkar Çatışması Durumu: Yazarlar bu çalışmada herhangi bir çıkara dayalı ilişki olmadığını beyan etmişlerdir.

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Yazar Katkıları: Yazarların tümü; makalenin tasarımına, yürütülmesine, analizine katıldığını ve son sürümünü onayladıklarını beyan etmişlerdir.

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Mültecilerde D Vitamini Eksikliği Prevalansı

The Prevalence of Vitamin D Deficiency in Refugees

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Öz

Amaç: D vitamini eksikliği Dünya'da yaygın görülen önlenebilir bir halk sağlığı sorunudur. Çalışmanın amacı mültecilerde D vitamini eksikliği prevalansını belirlemektir.

Gereç ve Yöntem: Retrospektif tipte planlanan çalışmaya Ocak-Aralık 2019 tarihleri arasında Tokat İl ve İlçelerinde bulunan Devlet Hastanelerinde 25(OH)D vitamini ölçümü yapılmış olan 103 mülteci birey hastane otomasyon sisteminden taranarak dahil edildi. Bireylerin D vitamini düzeyinin mevsim, yaş, cinsiyet ve uyrukları ile ilişkisi değerlendirildi. İstatistiksel analizlerde sayı, yüzde, ortalama±standart sapma, Mann Whitney U testi ve Kruskal Wallis testleri kullanıldı. p<0.05 istatistiksel olarak anlamlı kabul edildi.

Bulgular: Çalışmaya 18 yaş üzeri 103 birey dahil edildi. Çalışmada D vitamini ortlaması 12.59±8.90 ng/ml olarak bulundu. Mültecilerin %80.6'sında D vitamini eksikliği [25(OH)D<20 ng/ml] olduğu tespit edildi. Çalışmaya katılanların %70.9'u (n=73) kadın, %72.8'i (n=75) 19-50 yaşları arasındaydı. Mültecilerin %46.6'sı (n=48) Irak, %44.7'si (n=46) Afganistan, %8.7'si (n=9) Suriyeliydi. Çalışmada D vitamini düzeyi ile mevsim, yaş, cinsiyet ve mültecilerin uyrukları arasında anlamlı ilişki tespit edilmedi.

Sonuç: Mültecilerde D vitamini eksikliği prevalansı yüksek bulunmuştur. Sağlık profesyonelleri dezavantajlı gruplar arasında yer alan mültecileri D vitamini eksikliği açısından değerlendirmeli ve eksiklik durumunda uygun tedavi protokollerini uygulamalıdır.

Anahtar Kelimeler: Mülteci, D vitamini eksikliği, 25(OH)D

Abstract

Aim: Vitamin D deficiency is a common preventable public health problem in worldwide. The aim of the study is to determine the prevalence of vitamin D deficiency in refugees.

Materials and Methods: 103 refugees, whose 25(OH) vitamin D measurements were made in the State Hospitals in Tokat Province and Districts between January-December 2019, were included in the retrospective study. The relationship of vitamin D levels with season, age, gender and nationality was evaluated. In statistical analysis, number, percentage, mean ± standard deviation, Mann Whitney U test and Kruskal Wallis tests were used. p <0.05 was considered statistically significant.

Results: 103 individuals over the age of 18 were included the study. The mean vitamin D level in the study was found 12.59 ± 8.90 ng/ml. It was determined that 80.6% of the refugees had vitamin D deficiency [25(OH)D<20 ng/ml]. 70.9% (n = 73) of the participants in the study were female and 72.8% (n = 75) were between the ages of 19-50. 46.6% (n = 48) of the refugees were from Iraq, 44.7% (n = 46) were from Afghanistan, 8.7% (n = 9) were from Syria. In the study, no significant relationship was found between vitamin D level and season, age, gender and nationalities of refugees.

Conclusion: Vitamin D deficiency prevalence was high in refugees. Health professionals should evaluate refugees who are among the disadvantaged groups in terms of vitamin D deficiency and apply appropriate treatment protocols in case of deficiency.

Keywords: Refugee, vitamin D deficiency, 25(OH)D

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GİRİŞ

Dünyada yaygın görülen ve önlenebilir bir halk sağlığı sorunu olan D vitamini eksikliğinin mültecilerde görülme sıklığı %24-%88 arasındadır.[1-3] Kalsiyum, fosfor ve kemik metabolizmasının homeostazını sağlayan D vitamini yağda eriyen steroid yapıda bir hormondur.[4] D vitamininin çok küçük bir bölümü diyet ile alınırken %90'ı güneşten ultraviyole B (UVB) ışını maruziyeti ile ciltte sentezlenir.[5] Kendi ülkesinden daha az UVB radyasyona maruz kalma, koyu cilt pigmentasyonu, peçe giyme gibi kültürel alışkanlıklar, farklı beslenme alışkanlıkları, D vitamini takviyelerinin ve kalsiyumun yetersiz alımı mültecilerde D vitamini eksikliğini artırmaktadır.[6] Avusturalya'da yaşayan 20 yaş üstü mültecilerde D vitamini eksikliği [25(OH)D<20 ng/ml] %88 olarak bulunmuştur.[1] Norveç'e göç eden mültecilerde yapılan çalışmada ise uyruklarına göre D vitamini eksikliği prevelansı [25(OH)D<20 ng/ml] Orta Doğulularda %81, Sahra-altı Afrikalılarda %73, Güney Asyalılarda %75 ve Doğu Asyalılarda %24 olarak bildirilmiştir.[3] Literatürde D vitamini eksikliğinin kanser, hipertansiyon, kardiyovasküler hastalık, diabetes mellitus, metobolik sendrom, enfeksiyöz ve otoimmün hastalıklar, osteomalazi, osteoporoz, kas güçsüzlüğü, kas-iskelet sistemi ağrıları, düşme, kırıklar ve genel mortalitede artış ile ilişkili olduğu belirtilmektedir.[5,7] Mültecilerin kendilerine yabancı olan sağlık sistemine girmesi, yaşadıkları dil engeli, maddi sorunlar, sağlık sigortası yokluğu gibi birçok problem; çok sayıda hastalıkla ilişkilendirilen D vitamini eksikliği açısından değerlendirilmelerini zorlaştırabilir.[8]

Çalışmanın amacı dezavantajlı gruplar arasında yer alan mültecilerde D vitamini eksikliği prevalansını belirlemek ve D vitamini eksikliğine bağlı oluşabilecek sağlık riskleri konusunda sağlık profesyonellerinin farkındalığını arttırmaktır.

GEREÇ VE YÖNTEM

Retrospektif tipteki çalışmaya 01 Ocak–31 Aralık 2019 tarihleri arasında Tokat İl ve İlçelerinde bulunan Devlet Hastanelerinde 25(OH)D vitamini ölçümü yapılmış olan 103 mülteci birey hastane otomasyon sisteminden taranarak dahil edildi. Çalışmada mültecilerin yaş, cinsiyet, uyrukları ve 25(OH) D vitamini istem tarihleri hastane otomasyon sisteminden elde edildi. Mültecilerin 25(OH)D vitamini istem tarihlerine göre mevsimler: İlkbahar (Mart-Nisan-Mayıs), yaz (Haziran-Temmuz- Ağustos), sonbahar (Eylül-Ekim-Kasım) ve kış (Aralık-Ocak-Şubat) şeklinde gruplandırıldı. Mülteciler yaşa göre 19-50 yaş, 51-64 yaş, 65 yaş ve üzeri olarak 3 gruba ayrıldı. 25(OH) D vitamini tekrarlı ölçümlerinden ilki değerlendirmeye alındı. Serum 25(OH)D vitamini düzeyi; Roche Cobas e 601 (Roche Diagnostics, Mannheim, Germany, ölçüm aralığı 3-70 ng/mL, fonksiyonel duyarlılık 4,01 ng/ml ve varyasyon katsayısı %18,5) oto analizöründe elektrokemülüminesans yöntemi ile ölçüldü. 25(OH)D vitamini düzeyi <10 ng/ml ciddi eksiklik, 10-19 ng/ml eksiklik, 20-29 ng/ml yetersizlik, >30 ng/ml ise yeterlilik olarak kabul edildi (9). Araştırmada elde edilen verilerin istatistiksel analizleri SPSS (Versiyon 22.0, SPSS Inc., Chicago, IL, USA) paket programı kullanılarak gerçekleştirildi. Tanımlayıcı istatistikler ortalama±standart sapma, olarak sunuldu. Kategorik verilerin frekans dağılımları sayı ve yüzde (%) olarak raporlandı. Normallik dağılımı Shapiro-Wilk testi ile incelendi. Nicel değişkenlerin gruplar arasındaki ortalamalarını karşılaştırılmasında normal dağılım varsayımı sağlanmadığında Mann Whitney U testi ve Kruskal Wallis testi kullanıldı. İstatistiki anlamlılık düzeyi için p<0,05 olarak kabul edildi. Çalışmanın yapılabilmesi için Tokat İl Sağlık Müdürlüğü Etik Komisyonundan (87064461-044) ve Tokat Gaziosmanpaşa Üniversitesi Klinik Araştırmalar Etik Kurulundan (20-KAEK-187) gerekli izinler alındı.

BULGULAR

Çalışmaya katılanların (Kadın/Erkek, n=73/30) %46,6'sı (n=48) Iraklı, %44,7'si (n=46) Afganistanlı ve %8,7'si (n=9) Suriyeli mülteciydi. Çalışmada yaş ortalaması 38,78±15,71 (min=19;max=83) tespit edildi. Bireylerin %72,8'inin (n=75) 19-50 yaşları arasında olduğu bulundu. Çalışma verilerinin %33'ü (n=64) kış, %35,9'u (n=37) ilkbahar, %23,3'ü (n=24) yaz ve %7,8'i (n=8) sonbahar mevsiminde 25(OH)D vitamin düzeyi ölçümü yapılanlardan elde edildi. 25(OH)D vitamin düzeyi ortalamasının en yüksek yaz mevsiminde (13,43±9,42 ng/ml), en düşük sonbahar mevsiminde (9,54±7,43 ng/ml) olduğu bulundu. Çalışmada mültecilerin uyrukları, mevsim, cinsiyet ve yaş gruplarına göre 25(OH)D vitamin düzeyi ortalaması benzer tespit edildi (p>0,05) (**Tablo 1**).

Tablo 1. Mültecilerin cinsiyet, yaş, mevsim ve uyruklarına göre 25(OH)D vitamini düzeyi ortalamalarının karşılaştırılması

Değişkenler		N (%)	Vitamin D Ortalama(ng/ml)	Test
Cinsiyet	Kadın	73 (70,9)	13,37±9,42	p=0,062*
	Erkek	30 (29,1)	10,68±7,27	
Yaş	19-50	75 (72,8)	11,96±7,89	p=0,733**
	51-64	21 (20,4)	14,97±12,15	
	65 ve üzeri	7 (6,8)	12,11±7,77	
Mevsim	Kış	34 (33,0)	13,01±7,86	p=0,301**
	İlkbahar	37 (35,9)	12,31±9,86	
	Yaz	24 (23,3)	13,43± 9,42	
	Sonbahar	8 (7,8)	9,54 ±7,43	
Uyruk	Afganistan	46 (44,7)	13,01±8,65	p=0,459**
	Irak	48 (46,6)	12,58±9,44	
	Suriye	9 (8,7)	10,44 ±7,69	

*: Mann-Whitney U test, **: Kruskal Wallis Test

Çalışmada 25(OH)D vitamin düzeyi ortalaması 12,59±8,90 ng/ml olarak bulundu. Çalışmaya dahil edilen mültecilerin %53,4'ünde (n=55) ciddi D vitamini eksikliği, %27,2'sinde (n=28) D vitamini eksikliği ve %16,5'inde (n=17) D vitamini yetersizliği olduğu görüldü. Çalışmaya katılanların %2,9'unun (n=3) D vitamininin yeterli olduğu tespit edildi (**Tablo 2**).

Tablo 2. Mültecilerin 25(OH)D vitamini düzeyine göre sınıflandırılması

		Sayı (n)	%
25(OH)D ng/ml	Ciddi Eksiklik	55	53,4
	Eksiklik	28	27,2
	Yetersizlik	17	16,5
	Yeterli	3	2,9
	Toplam	103	100,0

TARTIŞMA

Birleşmiş Milletler Mülteci Örgütü'nün 2019 yılı verilerine göre ülkemizde; 3.6 milyon Suriyeli, 170.000 Afganistanlı, 142.000 Iraklı mülteci bulunmaktadır.[10] Mülteciler D vitamini eksiliği açısından risk altındandır.

Çalışmada mültecilerin %80,6'sında D vitamini eksikliği [25(OH)D<20 ng/ml] tespit edildi. İsviçre'de Eritreli mülteciler ile yapılan çalışmada mültecilerin %86'sında,[11] Avusturalya'da yapılan çalışmada Afrikalı mültecilerin %88'inde,[1] Güney Kore'de yaşayan Kuzey Koreli mültecilerin %87'sinde,[2] Sidney'de yapılan çalışmada ise Afrikalı mültecilerin %99'unda D vitamini eksikliği [25(OH)D<20 ng/ml] olduğu bulunmuştur.[12] Literatürle benzer şekilde çalışmamızda D vitamini eksikliği prevalansının mültecilerde sık görülmesinin nedeni mültecilerin güneş ışığına daha az maruz kalmaları, ekonomik nedenlerden dolayı D vitamini yönünden zengin yiyecekleri tüketememeleri olabilir. Aynı zamanda İl Göç İdaresi Müdürlüğü verilerine göre çalışmanın yapıldığı tarihlerde ilimizde 1022 Suriyeli mülteci ikamet etmesine karşın D vitamini düzeyi ölçümü yaptıran mülteci sayısının yalnızca 9 kisi ile sınırlı kalması, mültecilerin D vitamini eksikliği hakkında farkındalığının olmadığını ve bu durumun mültecilerde D vitamini eksikliği sıklığını arttırdığını düşündürebilir.[13]

Çalışmada uyruklarına göre mültecilerin 25(OH)D vitamin düzeyi ortalaması benzer bulundu. Çalışmaya dahil edilen mülteciler Afganistanlı, Iraklı ve Suriyelidir. Literatür ile benzer şekilde mültecilerin sosyokültürel faktörler ve inançlarına bağlı kapalı giyim tarzı güneşten yeterince faydalanmalarını engellemiş olabilir.[14] Bulgularımızı destekler şekilde, Skull ve ark.[15] tarafından Avustralya'da yaşayan Somali, Sudan, Etiyopya, Eritre ve Kenyalı mültecilerde yapılan çalışmada, %17'si Hristiyan olan mültecilere göre Müslüman mültecilerde ciddi D vitamin eksikliği 11 kat daha fazla bulunmuştur. Norveç'te yapılan kesitsel çalışmada ise Filipinler, Tayland ve Myanmarlı mültecilerde D vitamini düzeyi Afganistan, Irak, Filistin, İran, Fas ve Çeçenistanlı mültecilere göre anlamlı olarak daha yüksek bulunmuştur.[3] ABD'de yapılan çalışmada ise D vitamini yetersizliği veya eksikliği Iraklı mültecilerde Latin Amerika ve Karayipler'den gelen mültecilere göre 6.4 kat daha fazla tespit edilmiştir.[16] Bir diğer unsurda göç ettikleri bölgelerin Ülkemize göre daha düşük enlemde olması olabilir. Yapılan bir çalışmada göç öncesi yaşanılan bölgenin daha düşük enlemde olması göç sonrası D vitamini eksikliği açısından önemli bir risk faktörü olarak gösterilmiştir.[17]

Çalışmada mültecilerde D vitamini düzeyi cinsiyet ve yaşa göre benzer bulunmuştur. ABD'de 2610 mülteci ile yapılan çalışmada, Orta Doğu'dan gelenlerde D vitamini eksikliği kadınlarda daha yüksek tespit edilirken diğer bölgelerden göçlerde cinsiyet açısından farklılık tespit edilmemiştir.[16] Avrupa'da ki göçmenlerde yapılan çalışmada ise D vitamini eksikliği ile yaş arasında ilişki olmadığı bildirilmiştir.[18] Çalışmada en yüksek D vitamini düzeyi yaz mevsiminde tespit edilmekle birlikte mevsimler arasında D vitamini düzeyi açısından anlamlı farklılık tespit edilmemiştir. Afrikalı göçmenler ile yapılan çalışmada ise kış mevsimine göre yaz mevsiminde D vitamini düzeyi daha yüksek bulunmuştur.[12] Bu durum güneş ışığındaki UVB'nin, mevsim, enlem ve günün saati ile büyük ölçüde değişmesi ve UVB'nin D vitamini üretimi üzerinde büyük bir etkiye sahip olmasıyla açıklanabilir.[19] D vitamini serum konsantrasyonlarının, mevsimler boyunca önemli ölçüde değişiklik gösterdiği, yaz aylarında güneş ışığına maruz kaldıktan 30-60 gün sonra pik yaptığı ve kış ayları sonunda en düşük seviyeye ulaştığı bildirilmiştir.[19,20] Çalışmada mevsimler arasında D vitamini düzeyi açısından anlamlı farklılığın bulunmamasının nedeni mültecilerin yaz aylarında yeterli süre güneşe maruz kalmamaları veya güneşlenmelerini engelleyecek kıyafet seçimleri olabilir.

Bu çalışma ülkemizde 18 yaş üzeri mültecilerde D vitamini eksikliği prevalansını değerlendiren ilk çalışmadır fakat verilerin retrospektif olarak hastane kayıtlarından elde edilmesi sebebiyle bireylerin giyim özellikleri, beslenme alışkanlıkları, güneş maruziyetleri, ve D vitamini desteği kullanımının belirlenememesi ve kontrol grubunun bulunmaması çalışmanın kısıtlı yönleridir.

SONUÇ

Çalışmada mültecilerin %80,6'sında D vitamini eksikliği tespit edildi. Mültecilerde sık görülen D vitamini eksikliği, mültecilerin ülkemize giriş yaptıkları andan itibaren tespit ve tedavi edilmeli bunun yanı sıra yıllık kontrollerde D vitamini düzeyleri araştırılmalıdır. Sağlık profesyonelleri mültecilere yaz aylarında yeterli güneş ışığı maruziyetinin gerekliliğini anlatmalı, dış ortam aktivite programları planlamalı ve eksiklik tespit edilen bireylerde vitamin D desteğini sağlayarak D vitamini eksikliğinin ve bunun getirdiği sağlık sorunlarının önüne geçmelidir.

ETİK BEYANLAR

Etik Kurul Onayı: Çalışmanın yapılabilmesi için Tokat İl Sağlık Müdürlüğü Etik Komisyonundan (87064461-044) ve Tokat Gaziosmanpaşa Üniversitesi Klinik Araştırmalar Etik Kurulundan (20-KAEK-187) gerekli izinler alındı.

Aydınlatılmış Onam: Çalışma retrospektif olarak dizayn edildiği için hastalardan aydınlatılmış onam alınmamıştır.

Hakem Değerlendirme Süreci: Harici çift kör hakem değerlendirmesi.

Çıkar Çatışması Durumu: Yazarlar bu çalışmada herhangi bir çıkara dayalı ilişki olmadığını beyan etmişlerdir.

Finansal Destek: Yazarlar bu çalışmada finansal destek almadıklarını beyan etmişlerdir.

Yazar Katkıları: Yazarların tümü; makalenin tasarımına, yürütülmesine, analizine katıldığını ve son sürümünü onayladıklarını beyan etmişlerdir.

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Original Article / Orjinal Araştırma

Obstrüktif Uyku Apne Sendromunda Sol Ventrikül Kitlesi ve Diyastolik Fonksiyonlar

Left Ventricular Mass and Diastolic Functions in Obstructive Sleep Apnea Syndrome

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Öz

Amaç; Bu çalışmanın amacı; Obstrüktif uyku apne sendromu (OUAS) olan hastalarda, 2-boyutlu ve pulse dalga doppler (PDD) ekokardiyografi teknikleri kullanılarak SV fonksiyonlarının değerlendirilmesidir.
Yöntem; Çalışmaya polisomnografi ile OUAS tanısı konulan ve henüz tedavi uygulanmamış 40 hasta ve 28 sağlıklı birey kontrol grubu olarak alındı. Hastalara M-mod, 2- boyutlu ve PDD ekokardiyografi incelemeleri yapıldı.
Bulgular; Gruplar arasında M-mode ölçümleri ile elde edilen SV sistolik ve diyastolik çapları, ejeksiyon fraksiyonları açısından fark saptanmadı. OUAS' li grupta SV kitle ve kitle indeksi ve SV diyastolik duvar kalınlıkları, kontrol grubuna göre anlamlı olarak daha fazla tespit edildi. Transmitral diyastolik doluş parametrelerinin PDD ekokardiyografi ile yapılan incelemesinde; OUAS grupta erken diyastolik doluma ait E dalga hızında, E/A oranlarında anlamlı azalma izlendi. E dalga deselerasyon zamanı ve izovolümetrik gevşeme zamanının OUAS' lı grupta anlamlı olarak daha uzun saptandı. Apne-hipopne indeksi ile SV diyastolik parametreler arasında ilişki saptanmadı.
Sonuç; OUAS, altta yatan herhangi bir kalp hastalığı olmasa da SV kitlesini etkileyen ve hastalığın şiddetinden bağımsız olarak SV diyastolik fonksiyonlarını bozan bir durumdur. Bu nedenle OSAS hastaları diyastolik fonksiyonlar da dahil edilerek ekokardiyografi ile değerlendirilmelidir.

Anahtar Kelimeler; Obstrüktif uyku apne sendromu, ekokardiyografi, sol ventrikül kitlesi

Abstract

Objective; The aim of this study is to evaluate SV functions in two-dimensional and pulse wave doppler (PDD) echocardiography functions with obstructive sleep apnea syndrome (OSAS).
Methods; Forty patients who were diagnosed with OSAS by polysomnography (not yet treated) and 28 healthy individuals were included as control group. The patients underwent M-mode, 2-dimensional and PDD echocardiography examinations.
Results; There was no difference between the two groups in terms of SV systolic and diastolic diameters and ejection fractions obtained by M-mode measurements. SV mass and mass index and SV diastolic interventricular and posterior wall thicknesses were significantly higher in the the OSAS group than the control group. In the examination of the transmitral diastolic flow parameters by PDD echocardiography, there was a significant decrease in E wave velocity and E/A ratios in the OSAS group. E wave deceleration time and isovolumetric relaxation time were significantly prolonged in the OSAS group. No relation was found between apnea-hypopnea index and SV diastolic parameters.
Conclusion; OSAS is a condition that affects the SV mass and impairs SV diastolic functions, regardless of the severity of the disease, even if there is no coexistent heart disease. Therefore, OSAS patients should be evaluated by echocardiography including diastolic functions.

Keywords; Obstructive sleep apnea syndrome, echocardiography, left ventricular mass

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GİRİŞ

Obstrüktif uyku apne sendromu (OUAS), uyku sırasında üst hava yolunun tekrarlayan kollapsı ile karakterize bir hastalıktır .[1] OUAS, orta yaşlı kadınların %2' sini ve erkeklerin %4' ünü etkiler.[2] Yaş ve kilo artışı ile görülme sıklığı artar.[2-4] OUAS, artmış kardiyovasküler morbidite ve mortalite riski ile ilişkilidir.[5-8] Ayrıca kalp yetmezliği ile OUAS' ın sık birlikteliği, OUAS' ın sol ventrikül (SV) üzerindeki etkilerini belirlemeyi zorlaştırmaktadır.

Özellikle gece daha belirgin olarak ortaya çıkan ve tekrarlayan solunum yetersizlikleri, hipoksi, hiperkapni, negatif intratorasik basınca neden olur. Sonuçta OUAS'lı hastalarda uyku sırasında sempatik sistem aktive olur ve hemodinamik değişiklikler ortaya çıkar. Ancak bu aktivasyon sadece gece değil, gün boyunca devam eder ve böylece periferik vasküler dirençte artışa neden olur ve sonuçta afterload artar.[9,10] Ayrıca, tekrarlayan hipoksemi ve reoksijenasyon atakları oksidatif stres mekanizmalarını tetikler ve reaktif oksijen radikallerinin oluşmasına neden olur.[11] Böylece endotel disfonksiyonunu, iskemi-reperfüzyon hasarı ortaya çıkar ve ventriküler remodelinge neden olur.[12,13] Ventriküler remodelinge katkıda bulunduğu düşünülen diğer bir mekanizma ise; OUAS' da meydana gelen aralıklı hipoksemi ile tetiklenen renin-anjiyotensin-aldosteron kaskadını ile aldesteron ve anjiyotensin 2 konsantrasyonlarının artmasıdır.[14,15]

Bu çalışmada amacımız, OUAS`ı bulunan hastaların SV kitlelerinde meydana gelen değişiklikler ve konvansiyonel metotlarla SV diyastolik fonksiyonlarının değerlendirilmesidir.

GEREÇ VE YÖNTEM

Çalışmaya, uyku laboratuvarında polisomnografi yapılarak OUAS tanısı konmuş, Apne-Hipopne İndexi (AHİ)>5 olan ve daha önce tedavi başlanmamış 18 yaşından büyük 40 hasta (34 erkek) ve 28 sağlıklı birey (20 erkek) dahil edildi. Hasta ve kontrol grubunda SV fonksiyon bozukluğuna neden olabilecek diabetes mellitus (DM), kardiyak aritmiler, kapak hastalıkları, bilinen koroner arter hastalığı (KAH) hikayesi, elektrokardiyografisinde (EKG) KAH ile uyumlu bulgular, kronik obstrüktif akciğer hastalığı, kronik böbrek yetmezliği, hipertansiyon (HT), tedavi altında OUAS, ekokardiyografisiside KAH bulguları olan bireyler çalışmaya dahil edilmedi. KAH şüphesi olanlara efor testi yapıldı ve iskemi tespit edilenler çalışmadan dışlandı.

Çalışmaya dahil edilenlere ve kontrol grubuna rutin anamnez ve fizik muayene işlemleri yapıldıktan sonra demografik özellikleri (yaş, cinsiyet, boy ve kilo ölçümü) kaydedildi. Vücut kitle indeksi (VKİ); vücut ağırlığı(kg)/boy(m)2 formülü ile hesaplandı. Kan basınçları aneroid sfigmomanometre ile ölçüldü ve kaydedildi. Ardından M-mod, iki boyutlu ekokardiyografi ve pulse dalga doppler ekokardiyografi (PDDE) yapıldı. Çalışma için yerel etik kuruldan onay alındı ve çalışmaya katılanlardan bilgilendirilmiş onam alındı.

Uyku testi ve OUAS' ın sınıflandırılması

Polisomnografik değerlendirme, uyku laboratuvarında EKG, elektroensefalogram, elektromiyogram, elektrokülogram, nabız oksimetresi, burun hava akımı, horlama, bacak hareketleri, torasik ve abdominal hareketler ve vücut pozisyonu sürekli izlendi ve analiz edilerek yapıldı. Polisomnografik kayıtlar, uyku bozuklukları ve polisomnografi açısından tecrübeli hekimler tarafından Amerikan Uyku Tıbbı Akademisi kriterlerine göre bilgisayar destekli manuel puanlama ile değerlendirildi. OUAS, uyku sırasında saatte apneik ve hipopneik olayların sayısı ile tanımlandı. Apne, en az 10 saniye süren hava akışının olmaması olarak tanımlandı. Hipopne, sonraki uyarılma ile en az 10 saniye süren %4 oksijen desatürasyonu ile hava akışının azaltılması olarak tanımlandı. Saatte 5'den az AHİ olayı olan denekler normal, saatte 5-15 AHİ olayı olanlar hafif OUAS'a sahip olarak tanımlandı ve saatte 15-30 arası AHİ olayı orta ve 30 AHİ üzeri olanlar şiddetli OUAS olarak değerlendirildi.[16,17]

Ekokardiyografi

Tüm ekokardiyografik değerlendirmeler Amerikan Ekokardiyografi Derneği kılavuzlarına uygun olarak sol lateral dekübit pozisyonunda yapıldı.[18,19] 2,5 MHz kardiyak transducer ile VİNGMED SYSTEM 5 (GE Vingmed Ultrasound AS, Horten, Norway) cihazı ile ölçümler yapıldı. Tüm Doppler ekokardiyografik kayıtları 100 mm/s'lik bir tarama hızında yapıldı. Sol ventrikül çapları ve interventriküler septum (İVS) ve posterior duvar kalınlıkları, belirlenen standartlara göre M-modda parasternal uzun eksen açısında ölçüldü. SV ejeksiyon fraksiyonlar (SVEF) Teicholz metodu kullanılarak hesaplandı.[18] Transmitral akım, apikal 4 boşluk görünümünde mitral yaprakçık uçları arasına yerleştirilen pulse dalga doppler ile kaydedildi. Pik erken (E) ve geç (A) diyastolik hızlar, erken-geç pik hızların oranı (E/A), E hızının yavaşlama süresi (EDT) ve izovolümik gevşeme süresi (İVRT) ölçüldü. SV kitlesi (SVK) Devereux ve ark tariflediği formüle uygun olarak hesaplandı.[20] SV kitle indeksi (SVKİ), SV kitlesinin vücut yüzey alanına bölünmesiyle hesaplandı.

İstatiktiksel Analiz

Çalışmada kullanılan verilerin analizi SPSS for Windows 11,5 paket programı (SPSS Inc., Chicago, IL, USA) kullanılarak yapıldı. Kategorik değişkenler yüzde, sürekli değişkenler ortalama±SD olarak ifade edildi. Çalışmada kullanılan verilerin normal dağılıma uygunluklarını değerlendirmek için Kolmogorov-Smirnov testi kullanıldı. Normal dağılıma uymayanlara non-parametrik testler, normal dağılıma uyanlara ise parametrik testler uygulandı. Gruplar arası sürekli değişkenler değerlendirilirken ortalama±standart sapma olarak belirtildi ve Student t-testi kullanılarak karşılaştırıldı. Üçlü grup karşılaştırıldığı analizlerde ANOVA testi, gruplar arası niteliksel değişkenler yönünden karşılaştırıldığı hesaplamalarda ki-kare testi kullanıldı.

BULGULAR

Çalışmaya dahil edilen 40 OUAS hastası (34 E, ortalama yaş 49±9) ve 28 sağlıklı bireyin (20 E, ortalama yaş 51±4) demografik özelliklerinin karşılaştırılması **Tablo 1**' de özetlenmiştir. Sistolik kan basıncı (SKB) ($p<0,05$), kilo ($p<0,001$) ve VKİ ($p<0,001$) OUAS grubunda daha yüksek olması dışındaki özellikler her 2 grup arasında benzerdi.

Tablo 1. Hasta ve kontrol grupları arasındaki bazal klinik özelliklerin karşılaştırılması

	OUAS (n=40)	Kontrol (n=28)	P
Yaş (yıl)	49±9	51±4	0,85
Cinsiyet (E/K)	34/6	20/8	0,67
SKB (mmHg)	120±12	110±6	<0,05
DKB (mmHg)	80±7	70±8	0,34
Boy (cm)	168±8	168±8	0,1
Kilo (kg)	84±15	70±7	<0,001
VKİ (kg/m²)	29±6	24±2	<0,001

SKB; sistolik kan basıncı **DKB;** diyastolik kan basıncı **VKİ;** vücut kitle indeksi

Sol Ventrikül M-mode ve Konvansiyonel Ekokardiyografi Bulguları;

SV arka duvar ile İVS diyastolik kalınlığı, OUAS' lı hastalarda kontrol grubuna oranla daha fazla bulundu (p<0,001). SVK ve SVKİ OUAS' lı grupta daha yüksek olarak tespit edildi (sırasıyla p<0,001 ve p<0,05). SV diyastol ve sistol sonu çapları ile SVEF değerleri açısından istatistiki anlamlı fark bulunamadı. Sol atriyum çapı OUAS' lı hastalarda daha geniş olarak tespit edildi(p<0,001) (**Tablo 2**).

Tablo 2. Hasta ve kontrol gruplarının M-mod ve 2-boyutlu Ekokardiyografi sonuçlarının karşılaştırılması

	OUAS (n=40)	Kontrol (n=28)	P
SVEF (%)	66±8	65±7	0,89
SV SSÇ (mm)	33±6	34±4	0,53
SV DSÇ (mm)	47±5	48±4	0,72
İVSDSK (mm)	10±2	8±2	<0,001
PDDSK (mm)	10±2	8±2	<0,001
SA Çapı (mm)	32±3	29±3	<0,001
SVK (gr)	225±66	169±59	<0,001
SVKİ (gr/m²)	115±31	93±34	<0,05

SVEF; SV ejeksiyon fraksiyonu **SV SSC;** SV sistol sonu çapı **SV DSÇ;** SV diyastol sonu çapı **SDSK;** interventriküler septum diyastol sonu kalınlığı **PDDSK;** posteriyor duvar diyastol sonu kalınlığı **SA;** sol atriyum **SVK;** SV kitlesi, **SVKİ;** SV kitle indeksi

SV PDDE Bulguları;

Mitral kapak üzerinden elde edilen SV standart PDDE parametreleri değerlendirildiğinde; mitral kapak E dalga hızında OUAS grubunda istatiksel olarak anlamlı azalma izlendi (p<0,001). Mitral kapak A dalga hızında OUAS grubunda artma tespit edildi ancak istatiksel olarak anlamlı değildi. E/A değeri ise OUAS' lı hastalarda daha düşük olarak saptandı (p<0.001) EDT ve İVRT OUAS' lı grupta istatiksel olarak anlamlı şekilde uzadığı tespit edildi (sırasıyla p<0,05 ve p<0,001) (**Tablo 3**).

Tablo 3. Standart pulse dalga doppler ile elde edilen transmitral diyastolik akım indeksleri

Mitral	OUAS (n=40)	Kontrol (n=28)	P
E (m/s)	0,66±0,13	0,80±0,13	<0,001
A (m/s)	0,64±0,12	0,59±0,008	0,09
E/A	1,02±0,27	1,34±0,20	<0,001
EDT (ms)	213±40	164±32	<0,001
İVRT (ms)	75±18	64±12	<0,05

EDT; E dalga deselerasyon zamanı **İVRT;** izovolümetrik gevşeme zamanı

OSAS' da AHİ ve Diyastolik İndeksler

Hastalar AHİ indeksine göre hafif, orta ve şiddetli OUAS' lı olmak üzere 3 gruba ayrıldı. OUAS' lı hastalarda, hastalık şiddeti ile diyastolik parametreler arasındaki ilişki **Tablo 4**' de özetlenmiştir. Mitral kapak E dalga hızı, A dalga hızı ve E/A oranı arasında gruplar arasında anlamlı fark görülmedi. Aynı şekilde EDT ve İVRT açısından gruplar arasında fark izlenmedi.

Tablo 4. OUAS' nin şiddeti ile diyastolik indekslerin değerlendirilmesi

Mitral	Hafif OUAS (n=9)	Orta OUAS (n=16)	Şiddetli OUAS (n=15)	P
E (m/s)	0,68±0,12	0,68±0,14	0,68±0,12	0,5
A (m/s)	0,65±0,16	0,62±0,10	0,66±0,13	0,58
E/A	1,08±0,27	1,12±0,27	1,01±0,28	0,83
EDT (ms)	217	193	206	0,66
İVRT (ms)	72	71	82	0,23

EDT; E dalga deselerasyon zamanı **İVRT;** izovolümetrik gevşeme zamanı

TARTIŞMA

Çalışmamızda OUAS olan hastalarda SKB, kilo ölçümlerini ve VKİ lerini daha yüksek bulduk. Ekokardiyografi parametrelerinde, SV duvar kalınlarını, Sol atriyum çapını, SVK ve SVKİ gibi kardiyak ölçümlerin sağlıklı kontrollere göre anlamlı olarak daha yüksek saptadık.

OUAS' lı hastalarda kardiyovasküler hastalıkların daha sık görülmesine neden olan mekanizmalar henüz tam olarak aydınlatılamamıştır. Ancak OUAS hastalarının sol kalp yetmezliği, ateroskleroz, akut koroner sendromlar ve ani kardiyak ölüm gibi kardiyovasküler hastalıklar için risk taşırlar.[21-25]

OUAS'lı hastalarda, obezite, HT ve DM gibi SV kitlesini artıran ve diyastolik disfonksiyona neden olan kronik hastalıklar sık ortaya çıkar. Ayrıca diyastolik disfonksiyon için HT, LVH, BMI yüksekliği, DM ve KAH bağımsız belirleyicidir.[26-28]

OUAS hastalarında güvenilir bir LV kitle ölçümü elde etmek zordur çünkü bu popülasyon sıklıkla aşırı kiloludur ve bu da sonuçları önemli ölçüde etkilemektedir. Sadece konvansiyonel metotlar ile yapılan ekokardiyografi ölçümleri kullanılarak LV kitlesini değerlendiren çalışmaların sonuçları, obezite uyarlandıktan sonra OUAS ile LV hipertrofisi arasında ilişki olmadığını iddia etmektedir.[29-33] Bununla beraber çokdeğişkenli analiz yapılan çalışmalarda OUAS ve LV kitlesi arasında bağımsız ilişki olduğunu gösterilmiştir.[34-39] Ancak az sayıda olsa da tersini iddia eden çalışmalarda mevcuttur.[40-43] Bizim çalışmamızda sol atriyumun genişlediğini, SV interventriküler septum ve arka duvar diyastolik kalınlıklarının arttığını, SVK ve SVKİ arttığını tespit ettik. HT olan olgular dışlanmış olsa da çalışmaya dahil edilen olguların tansiyon arteryel ölçümleri normal sınırlar içinde olmasına rağmen, kontrol grubuna göre anlamlı olarak daha yüksekti. SV konvansiyonel ekokardiyografi ölçümlerinde görülen değişikliklerin SKB ölçümlerindeki farka bağlı olabileceği düşünülse de hastaların HT tanısı yoktur. Bununla birlikte Hedner ve arkadaşlarının yaptığı çalışma da SV de meydana

gelen değişikliklerin, tansiyon artışından ziyade SV ardyük te meydana gelen artma ve sempatik sinir sistemi aktivasyonuna bağlı olduğunu düşündürmektedir.[44]

OUAS hastalarında diyastolik disfonksiyon prevalansı, kullanılan metot ve hasta sayısına göre değişmekle birlikte %23-56 arasında değişmektedir, OUAS'lı hastaların SV diyastolik fonksiyonlarının değerlendirildiği çalışmalarda da çelişkili sonuçlar bildirilmiştir.[25,45-47] Wachter ve ark.[48] ile Lisi ve ark.[49] gibi diyastolik fonksiyonların bozulduğunu gösteren çalışmalar olduğu gibi, Varol ve ark.[30] gibi SV diyastolik fonksiyonlarının etkilenmediği iddia eden çalışmalar da vardır. Dursunoğlu ve ark.[50] ile Butt ve ark.[51] yaptıkları çalışmalarda, bizim yaptığımız çalışma ile uyumlu olarak LA' nın genişlediği, İVRT' nin uzadığı, E/A oranın ters döndüğü rapor edilmiştir. Kepez ve ark.[52] yaptığı çalışmada ise E/A oranın değişimi ile birlikte mitral E dalga hızının azaldığı gösterilmiştir. Her ne kadar Altıparmak ve ark.[53] ile Chen ve ark.[54] yaptıkları çalışmalarda mitral EDT ve İVRT zamanlarında değişiklik olmadığı bulunmuş olsa da bizim yaptığımız çalışma da Çiçek ve ark.[55] ile Tavil ve ark.[56] yaptığı çalışma ile uyumlu olarak uzamıştır. Kraiczi ve ark.[29] ile Shivalkar ve ark.[57] yaptığı çalışma hastalık şiddeti ile SV diyastolik fonksiyon bozukluğu arasında ilişki tespit edilmiş olmasına rağmen biz çalışmamızda anlamlı bir ilişki tespit edemedik.

Bizim çalışmamızda SV remodeling ve diyastolik fonksiyonlarını etkileyecek hastalıklar dışlandığı için, OUAS' nin SV üzerine olan etkilerini daha iyi değerlendirildiği bir çalışma olmuştur. Her ne hastalığın derecesi ile SV diyastolik fonksiyonlardaki bozulmanın şiddeti arasında korelasyon tespit edilememiş olsa da bizim çalışmamızda SV ölçüm indekslerinde değişme ve SV diyastolik fonksiyonlarında bozulma tespit edilmiştir. Bu sonuçlar, OUAS' nin SV remodelingi üzerinde etkisi olduğunu düşündürmektedir.

Sol ventrikül fonksiyonlarını etkileyen hastalıklar ile OUAS birlikteliğinin fazla olması nedeni ile biz çalışmamızda mümkün mertebe eşlik eden başka bir hastalığı olmayan OUAS hastalarını dahil ettik. Bu sebeple hasta sayımız göreceli olarak az oldu. Hasta sayısının az olması bu çalışmanın en önemli kısıtlayıcı yönüdür. Bu nedenle daha geniş hasta sayısı olan çalışmalara ihtiyaç vardır.

SONUÇ

Biz bu çalışmamızda, altta yatan herhangi bir kalp hastalığı olmasa da OUAS'nun SV kitlesini etkileyen ve hastalığın şiddetinden bağımsız olarak SV diyastolik fonksiyonlarını bozan bir durum olduğunu gösterdik. Bu nedenle OSAS hastaları kardiyak açıdan da mutlaka değerlendirilmelidir.

ETIK BEYANLAR

Etik Durum: Dr. İsmet Sarıkaya'nın 2005 yılında Erciyes Üniversitesi / Tıp Fakültesi / Kardiyoloji Anabilim Dalında DOÇ.DR. NAMIK KEMAL ERYOL danışmanlığında kabul edilen "Obstrüktif uyku apne sendromunda diyastolik fonksiyonlar ve sol ventrikül kitlesi" başlıklı tezden üretilmiş yayındır..

Aydınlatılmış Onam: Bu çalışmaya katılan hasta(lar)dan yazılı onam alınmıştır.

Hakem Değerlendirme Süreci: Harici çift kör hakem değerlendirmesi.

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Hemşirelik Fakültesine Yeni Kayıt Olan Gençlerin Bazı Sağlık Taramalarına Dair Sağlık Hizmeti Alma Durumları

Healthcare Service Getting Status of Young People Registered to the Faculty of Nursing on Some Health Screenings

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Öz

Amaç: Bu çalışmada üniversiteye yeni kayıt olmuş öğrencilerin adölesan ve genç erişkin dönemde sağlık hizmetlerinden yararlanma ve bazı sağlık taramalarına dair hizmet alma durumlarını değerlendirmek amaçlanmıştır.

Yöntem: Tanımlayıcı nitelikte bu araştırma Aile Hekimliği Polikliniklerinde 15 Eylül 2019 ile 30 Ekim 2019 tarihleri arasında yapılmıştır. 2019 yılında Hemşirelik fakültesine kayıt olan ve tarafımıza başvuran öğrencilerinden çalışmaya katılmak isteyen gönüllüler evreni oluşturmaktadır. Kayıt olan öğrencilerin %92,3'üne ulaşılmıştır. Başvuran öğrencilere toplamda 17 soruluk anket formu uygulanmıştır.

Bulgular: 120 katılımcının %71,7'si kadın; %28,3'ü erkekti. Öğrencilerin %18,3'ü son bir yıl içinde herhangi bir şikâyetle üç ve daha üstü kez sağlık merkezine başvurduğunu; %15,8'i ise sağlık kurumuna hiç başvurmadığını bildirmiştir. Katılımcıların %71,7'i aile hekimine bir şikayet nedeni ile, %31,7'si genel kontrol amaçlı başvuru yapmıştır. %30,0'u kontrol amaçlı bir göz hekimine, %29,2'si bir diş hekimine başvuru yapmıştır. Öğrencilerin %59'una son üç yılda herhangi bir sebeple (şikayetle yada kontrol için) başvurduğu doktoru tarafından yaşına uygun yapılması gereken sağlık taramalarından bahsedilmiş, %61,7'sinin vücut ağırlığı ve boy uzunluğu ölçülmüş, %77,1'inin kan basıncı ölçümü yapılmış, %80,7'sinden tarama amaçlı tetkik istenmişti.

Sonuç: Bu sonuçlara göre bu yaş grubunun en sık başvurduğu hekimler olan aile hekimleri başta olmak üzere hekimlerin sağlık taramaları için her fırsatı değerlendirmesinin önemi bir kez daha vurgulanmaktadır.

Anahtar Kelimeler: Genç erişkin, hemşire, hizmet, periyodik sağlık muayeneleri

Abstract

Objective: In this study, it was aimed to evaluate the status of benefiting from health services and admitting some health screening services in adolescent and young adulthood of newly enrolled students.

Method: This descriptive research was carried out between September 15 2019- October 30, 2019 in Family Medicine Polyclinics. Volunteers who enrolled in the Faculty of Nursing and who wanted to participate in the study constitute the universe (92.3%). A total of 17 questionnaire forms were applied to the students.

Results: 71.7% of 120 participants were women; 28.3% were men. 18.3% of the students stated that they applied to the health center three or more times with any complaints in the last year; 15.8% of them stated that they have never applied to the health institution. 71.7% of the participants filed a complaint to the family physicians due to a complaint, 31.7% applied for general control. 30.0% applied to an ophthalmologist for control purposes and 29.2% applied to a dentist. 59% of the students have been referred to their age by the doctor they applied to for any reason (for complaints or control) in the last three years, 61.7% of them were measured for their body weight and height, 77.1% of them were measured for blood pressure. 80.7% of the examinations were performed for screening purposes.

Conclusion: According to these results, it is emphasized once again that the physicians, especially family physicians, who are the most frequently used physicians of this age group, evaluate every opportunity for their health screening.

Keywords: Young adult, nurse, service, periodic health examinations

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GİRİŞ

Adölesan dönem, insan gelişim dönemleri içinde toplumsal etkilerin birey için en fazla önem taşıdığı bir evredir; fiziksel büyüme, cinsel gelişme ve psikososyal olgunlaşmanın gerçekleştiği, çocukluktan erişkin hayata geçiş dönemidir.[1,2] Puberte ile başlayan ergenlik, yaşam sürecinde en etkileyici biyolojik ve sosyal geçiş dönemlerinden biridir. Bu dönemde beyin, nöroendokrin sistem ve hormon konsantrasyonlarında değişim, fiziksel büyüme ile üreme sisteminde farklılaşma gibi çok çeşitli değişiklikler meydana gelir.[1,3] Dünya Sağlık Örgütü (DSÖ) tarafından 10-19 yaş grubu "Adolesan" yaş grubu olarak, 15-24 yaş grubu ise "Genç" grubu olarak nitelendirilmektedir. Adolesan ve gençlik dönemlerine ait yaşların kesişmesi nedeniyle de 10-24 yaş grubu "Genç İnsanlar" olarak isimlendirilir.[4] Dünya nüfusu altı milyarın üzerindedir ve beşte birini 10-19 yaş grubu adolesanlar oluşturmaktadır. Adolesan yaş grubunun nüfusu yaklaşık 1,2 milyar olup, giderek de artmaktadır.[5]

Halk Sağlığı Genel Müdürlüğünün yayınladığı "Bebek, Çocuk, Ergen İzlem Protokolleri" ne göre 10-21 yaş aralığındaki genç bireylere her yıl izlem yapılması gerekmektedir şeklinde belirtilmiştir.[6] Bu izlemler dahilinde belirtilen yaş gruplarında (10-14, 15-18, 19-21 yaşlar) Hb/Htc ölçümünün 1'er kez yapılması; bu yaş gruplarında her vizitte tam bir sistemik muayene yapılması, psikososyal durumun belirlenmesi için HEEADSSS formunun kullanılması, vücut ağırlığı ve boy uzunluğunun ölçülmesi, kan basıncının ölçülmesi, hiperlipidemi riski açısından değerlendirilmesi ve sağlıkla ilgili konularda danışmanlık verilmesi önerilmektedir.[6] 25.01.2013 tarih ve 28539 sayılı Aile Hekimliği Uygulama Yönetmeliğinin 4. maddesinde de aile hekiminin görevleri arasında "Kayıtlı kişilerin yaş, cinsiyet ve hastalık gruplarına yönelik izlem ve taramaları (kanser, kronik hastalıklar, gebe, lohusa, yenidoğan, bebek, çocuk sağlığı, adölesan (ergen), erişkin, yaşlı sağlığı ve benzeri) yapmak." ibaresi bulunmaktadır.[7] Yani bir ergen kendi tercihi doğrultusunda tarama yada izlem amaçlı bir sağlık kurumuna başvurmasa bile aile hekimliği yönetmeliği doğrultusunda adölesanın bağlı bulunduğu aile hekimi ve aile sağlığı elemanı tarafından bazı sağlık taramalarının yapılması gerekmekte ve bu amaçla aile hekiminin/aile sağlığı elemanının adölesanın ailesine ulaşarak bu izlemler için adölesanı ailesi ile beraber sağlık merkezine davet etmesi gerekmektedir. Adolesanların diğer yaş gruplarına göre sağlık kurumlarına daha az başvuru yapıyor olması koruyucu hekimlik açısından yapılması gereken taramaların ve danışmanlık hizmetlerinin aksama nedenlerinden birisi olabilir.[8,9]

Adolesan dönemde çok ciddi sağlık sorunları oldukça seyrek görülmektedir, ancak adolesan dönem yaşam boyu süren davranış ve alışkanlık kalıplarının yerleştiği bir dönemdir; bu nedenle bu dönemde adölesan bireylere ulaşmak ve sağlık alışkanlıkları ve taramalara yönelik bilgilendirmek çok önemlidir.[9]

Aile sağlığı elemanları birinci basmak sağlık sisteminin çok önemli bir parçasını oluşturmaktadırlar. Bu görevde rol alan hemşirelik fakültesine yeni başlayan öğrencilerin bu konudaki bilgi durumlarını ve ihtiyaçlarını bilmek eğitim süreçlerinde yön vermek adına önem taşımaktadır.

Bu çalışmada Hacettepe Üniversitesi Tıp Fakültesi Aile Hekimliği Anabilim Dalı polikliniğine başvuran, yeni kayıt olmuş Hemşirelik fakültesi öğrencilerinin adölesan ve genç erişkinlik dönemde sağlık hizmetlerinden yararlanma ve bazı sağlık taramalarına dair hizmet alma durumlarını değerlendirmek amaçlanmıştır.

GEREÇ VE YÖNTEM

Araştırmanın tipi: Tanımlayıcı nitelikte bir araştırma planlanmıştır.

Araştırmanın yeri & zamanı: Hacettepe Üniversitesi Tıp Fakültesi Hastanesi Aile Hekimliği Polikliniklerinde 15 Eylül 2019 ile 30 Ekim 2019 tarihleri arasında yapılmıştır.

Araştırmanın evreni, örneklemi, araştırma grubu: Araştırmanın evrenini Hacettepe Üniversitesi Tıp Fakültesi Aile Hekimliği Polikliniğine başvuran Hemşirelik fakültesine yeni kayıt yaptırmış öğrenciler oluşturmaktadır. 2018 yılında Aile Hekimliği Polikliniğine Hemşirelik Fakültesinden yeni kayıt için toplamda 107 öğrenci başvurusu olmuştur.

2019 yılında Hemşirelik fakültesine toplamda 130 kişi kontenjan açılmıştır. Örneklemi tarafımıza başvuran öğrencilerinden çalışmaya katılmak isteyen gönüllüler oluşturacaktır. Örneklem hesabı yapılmaksızın yeni kayıt için başvuran tüm öğrencilere ulaşılması hedeflenmektedir.

Dışlama kriterleri: Çalışmaya katılmayı kabul etmeme, koordinasyon sağlayamama.

Öğrencilerin dersliklerine gidilerek anket toplama şeklinde yapılan bir çalışmada katılımda gönüllülük olmayacağı düşünüldüğü için sağlık merkezine başvuran öğrenciler üzerinde çalışmanın yapılması planlanmıştır. Bunun yanısıra öğrencilerin sağlık fakültesinde alacakları eğitimden etkilenmiş olmamaları için yeni kayıt yaptıran öğrenciler üzerinde çalışma yapılmıştır.

Araştırmanın yöntemi ve veri toplama araçları: Başvuran öğrencilere sosyodemografik bilgilerini içeren bazı soruların yanısıra yapılması gereken sağlık muayanelerinin başvurdukları merkezlerde uygulanıp uygulanmamadığını belirleyen, sağlık hizmetlerinden faydalanma durumlarını içeren sorulardan oluşan toplamda 17 soruluk anket formu çalışmaya katılmaya gönüllü öğrencilere uygulanmıştır. Çalışmamızda ölçek kullanılmamış olup, anket soruları literatür taraması sonucu çalışmacılar tarafından oluşturulmuştur.

Verilerin Toplanması: Anket formu hakkında polikliniğe başvuran öğrencilere bilgilendirme yapılarak onamları alınmıştır. Sağlık muayenesi sonrası öğrencilere anket formu poliklinikte bulunan muayeneyi gerçekleştiren doktor tarafından yüzyüze görüşme şeklinde doldurulmuştur.

Verilerin Analizi: Verilerin değerlendirilmesinde sürekli olan değişkenler için ortalama, standart sapma, niteliksel veriler için frekans tablosu kullanılmıştır. Niteliksel veriler arasında ilişki araştırılırken ki-kare testi kullanılmıştır. Sürekli değişkenler arasında farklılıklar t testi, ANOVA testi veya bunların nonparametrik karşılıkları kullanılmıştır. Yanılma düzeyi olarak $\alpha=0.05$ değeri kabul edilmiştir. İstatiksel analizler SPSS 23 paket programı ile yapılmıştır.

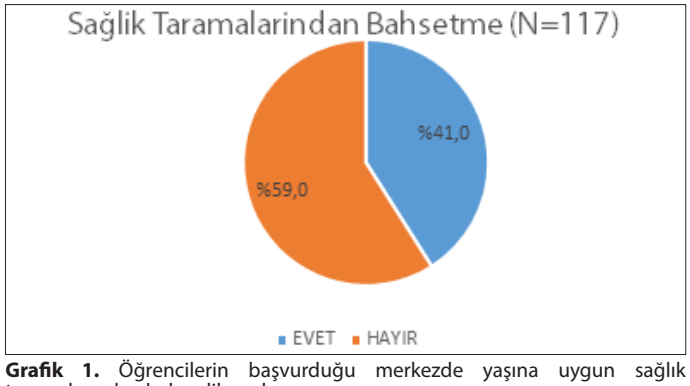
BULGULAR

Çalışmaya 86 kadın (%71,7); 34 erkek (%28,3) olmak üzere toplam 120 öğrenci dahil oldu. Hemşirelik fakültesine yeni kayıt olan öğrencilerin %92,3'ü çalışmaya katılmıştır. Çalışmaya katılan öğrencilerin yaş ortalamaları 19,28±1,11 (min=17; max=23) idi. Öğrencilerin %5,8'i (n=7) sağlık lisesi mezunu idi.

Öğrencilerin hepsinin hayatı boyunca bir sağlık kurumuna başvuruları bulunmaktaydı. %10,8'inin (n=13) doktor tarafından tanısı konmuş devam eden, ilaç kullanmasını gerektirecek bir sağlık sorunu vardı. Öğrencilerin %18,3'ü (n=22) son bir yıl içinde ortalama herhangi bir şikâyetle üç ve daha üstü kez sağlık merkezine başvurduğunu; %15,8'i (n=19) ise sağlık kurumuna hiç başvurmadığını bildirmiştir. %71,7'si (n=86) sağlık durumunu iyi, %27,5'i (n=33) orta olarak değerlendirmiştir. Son bir yılda sağlık kurumuna hiç başvuru yapmamış olanların hepsinin sağlık durumunu iyi olarak değerlendirdiği; sağlık kurumuna başvuru sıklığı arttıkça kendini orta- kötü olarak hissedenlerin sıklığının arttığı ve bu ilişkinin istatistiksel olarak anlamlı olduğu görülmüştür (p=0,000).

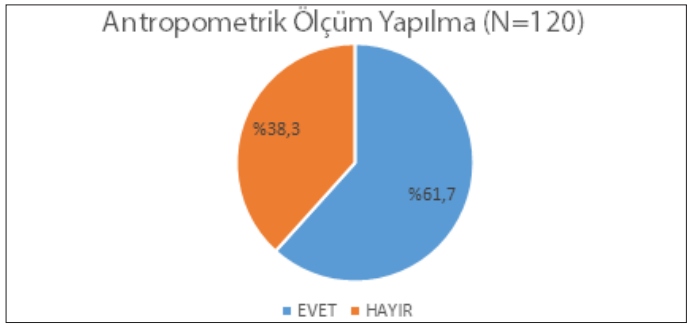
Katılımcıların %71,7'i (n=86) aile hekimine bir şikayet nedeni ile, %31,7'si (n=38) genel kontrol amaçlı başvuru yapmıştır. %44,2'sinin (n=53) bir pediatriste, %42,5'inin ise (n=51) bir dahiliye hekimine başvurusu bulunmaktadır. Katılımcıların %11,7'sinin (n=14) psikiyatrist başvurusu, %53,3'ünün (n=64) ise göz hekimine bir şikayet nedeni ile başvurusu bulunmaktaydı; % 30,0'u ise kontrol amaçlı bir göz hekimine başvuru yapmıştı. Öğrencilerin şikayet nedenli bir diş doktoruna başvuru sıklığı %60,8 iken (n=73), %29,2'si (n=35) kontrol amaçlı başvuru yapmıştır. %7,5'inin (n=9) diyetisyen başvurusu bulunmaktadır.

Öğrencilerin %59'una (n=69) son üç yılda herhangi bir sebeple (şikayetle yada kontrol için) başvurduğu doktoru tarafından yaşına uygun yapılması gereken sağlık taramalarından bahsedilmiştir.



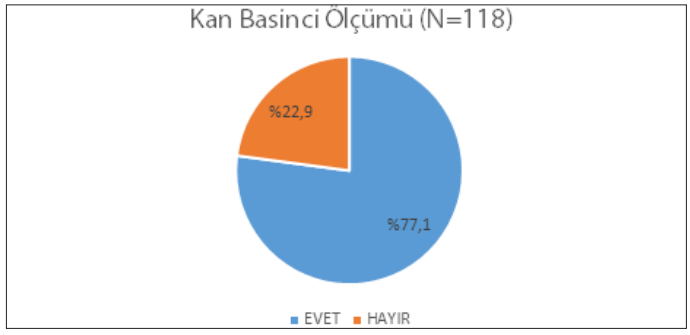
Grafik 1. Öğrencilerin başvurduğu merkezde yaşına uygun sağlık taramalarından bahsedilme durumu

Öğrencilerin %61,7'sinin (n=74) son üç yılda herhangi bir sebeple (şikayetle yada kontrol için) başvurduğu sağlık merkezinde vücut ağırlığı ve boy uzunluğu ölçülmüştür.



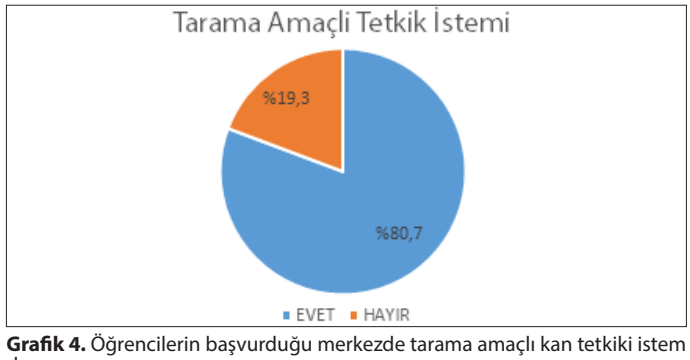
Grafik 2. Öğrencilerin başvurduğu merkezde antropometrik ölçüm yapılma durumu

Öğrencilerin %77,1'inin (n=91) son üç yılda herhangi bir sebeple (şikayetle yada kontrol için) başvurduğu doktoru tarafından kan basıncı ölçümü yapılmıştır.



Grafik 3. Öğrencilerin başvurduğu merkezde kan basıncı ölçümü yapılma durumu

Öğrencilerin %80,7'sinden (n=96) son üç yılda herhangi bir sebeple (şikayetle yada kontrol için) başvurduğu doktoru tarafından tarama amaçlı tetkik istenmişti.



Grafik 4. Öğrencilerin başvurduğu merkezde tarama amaçlı kan tetkiki istem durumu

Öğrencilerin bazı sağlık muayenelerinin yapılma durumunu etkileyebilecek faktörler **Tablo 1**'de sunulmuştur. Buna göre aile hekimine tarama amaçlı başvuru yapanların ve pediatri hekimine başvuru yapanların antropometrik ölçüm istenme sıklıkları daha fazla bulunmuştur. Dahiliye hekimine başvuru yapanların kan basıncı ölçüm sıklığı daha fazla bulunmuştur. Sağlık kurumuna yılda bir ve birden az başvuru yapanlara sağlık taramalarından daha az bahsedildiği görülmüştür.

Tablo 1. Öğrencilerin bazı sağlık muayenelerinin yapılma durumunu ile bazı faktörlerin ilişkisi

	Sağlık Taramalarından Bahsetme		Antropometrik Ölçüm		Kan Basıncı Ölçümü		Tarama için Kan Tetkiki İsteme	
	Evet % (n)	Hayır % (n)	Evet % (n)	Hayır % (n)	Evet % (n)	Hayır % (n)	Evet % (n)	Hayır % (n)
Cinsiyet								
Kadın	%38,1 (32)	%61,9 (52)	%61,6 (53)	%38,4 (33)	%77,6 (66)	%22,4 (19)	%84,9 (73)	%15,1 (13)
Erkek	%48,5 (16)	%51,5 (17)	%61,8 (21)	%38,2 (13)	%75,8 (25)	%24,2 (8)	%69,7 (23)	%30,3 (10)
p	0,304		0,989		0,826		0,060	
Kronik hastalık durumu								
Var	%69,2 (9)	%30,8 (4)	%84,6 (11)	%15,4 (2)	%84,6 (11)	%15,4 (2)	%92,3 (12)	%7,7 (1)
Yok	%36,9 (38)	%63,1 (65)	%58,5 (62)	%41,5 (44)	%76,2 (80)	%23,8 (25)	%79,2 (84)	%20,8 (22)
p	0,025		0,068		0,389		0,236	
Sağlık kurumuna başvuru sıklığı								
1≥	%28,6 (10)	%71,4 (25)	%57,9 (22)	%42,1 (16)	%72,2 (26)	%27,8 (10)	%75,7 (28)	%24,3 (9)
2≤	%47,5 (38)	%52,5 (42)	%63,7 (51)	%36,3 (29)	%80,0 (64)	%20,0 (16)	%83,8 (67)	%16,3 (13)
p	0,044		0,541		0,353		0,299	
Aile hekimi başvurusu (şikayet)								
Evet	%44,7 (38)	%55,3 (47)	%64,0 (55)	%36,0 (31)	%79,7 (67)	%20,2 (17)	%83,5 (71)	%16,5 (14)
Hayır	%31,3 (10)	%68,8 (22)	%55,9 (19)	%44,1 (15)	%70,6 (24)	%29,4 (10)	%73,5 (25)	%26,5 (9)
p	0,187		0,413		0,283		0,212	
Aile hekimi başvurusu (tarama)								
Evet	%37,8 (14)	%62,2 (23)	%73,7 (28)	%26,3 (10)	%70,3 (26)	%29,7 (11)	%86,5 (32)	%13,5 (5)
Hayır	%42,5 (34)	%57,5 (46)	%56,1 (46)	%43,9 (36)	%80,2 (65)	%19,8 (16)	%78,0 (64)	%22,0 (18)
p	0,634		0,049		0,231		0,281	
Pediatri hekimi başvurusu								
Evet	%47,2 (25)	%52,8 (28)	%71,7 (38)	%28,3 (15)	%76,9 (40)	%23,1 (12)	%82,7 (43)	%17,3 (9)
Hayır	%35,9 (23)	%64,1 (41)	%53,7 (36)	%46,3 (31)	%77,3 (51)	%22,7 (15)	%79,1 (53)	%20,9 (14)
p	0,219		0,044		0,964		0,623	
Dahiliye hekimi başvurusu								
Evet	%46,0 (23)	%54,0 (27)	%58,8 (30)	%41,2 (21)	%85,7 (42)	%14,3 (7)	%86,0 (43)	%14,0 (7)
Hayır	%37,3 (25)	%62,7 (42)	%63,8 (44)	%36,2 (25)	%71,0 (49)	%29,0 (20)	%76,8 (53)	%23,2 (16)
p	0,345		0,582		0,048		0,210	

TARTIŞMA

Adolesan dönem ve genç erişkinlik dönemi yaşam boyu süren davranış ve alışkanlık kalıplarının yerleştiği bir dönemdir; bu nedenle bu dönemdeki bireylere ulaşmak ve bu kişileri sağlık alışkanlıkları ve taramalara yönelik bilgilendirmek ve mümkünse sağlık taramalarını gerçekleştirmek çok önemlidir. Bu danışmanlıkları vermekle yükümlü olan sağlık personellerinden olan hemşirelerin bu yaş grubundaki durumlarının değerlendirilmesi ayrı bir önem taşımaktadır. Çalışmamız sonucuna göre hemşirelik fakültesi öğrencilerinin hepsinin çeşitli sıklıklarla çeşitli sağlık kurumlarına başvurularının olmasına rağmen; uygulanması gereken sağlık taramalarının yeterli sıklıklarda uygulanmaması dikkat çekmektedir.

Çalışma sonucuna göre hemşirelik fakültesi öğrencilerinin yaklaşık beşte birinin son bir yılda üç ve daha üstü kez sağlık merkezine başvurusu bulunduğu, yaklaşık %16'sının ise başvurusunun olmadığı görülmüştür. Adölesan ve genç erişkinlerin sağlık merkezi başvuru sıklıkları bu çalışmaya paralel yapılan çalışmalarda %10-25 arası değişiklik göstermektedir.[10,12] Bu çalışmada katılımcıların son üç yıl içinde en sık başvurdukları hekim aile hekimi olarak değerlendirilmiştir. Aile hekimine şikayet nedenli başvuru sıklıkları daha fazladır. Çalışmamızda ilgili branşlara başvurular değerlendirilirken dikkat çeken diğer bir konu göz hastalıkları hekimlerine kontrol amaçlı başvuru sıklıklarının son üç yıl içinde %30 olmasıdır. Sağlıklı bireylerin iki yılda bir yada risk durumuna göre yılda bir kez göz muayenesi olması önerilmektedir.[13] Yine çalışmamızda öğrencilerin son üç yılda şikayet nedenli bir diş doktoruna başvuru sıklığı %60,8 iken, kontrol amaçlı başvuru sıklığı %29,2'dir. Şahin ve ark.[14] çalışmasında genç erkek bireylerin %9,2'sinin ihtiyaç durumu dışında kontrol için diş hekimine gittiği görülmüştür. Eğitim Düzeyinin Genç Erişkin Erkeklerde Ağız Sağlığına Etkisinin Değerlendirilmesi Rutinde çocukluk ve erişkinlik dönemi için mümkünse en az 6 ayda bir olmak üzere diş muayenelerinin düzenli olarak yapılması önerilmektedir.[15] Kontrol amaçlı diş hekimi ziyareti özellikle genç yaşlardan itibaren yapılması çok kıymetlidir. Yapılan çalışmalarda bu oranlar %3-20 arasında değişmektedir. Çalışmamızda diş hekimine gitme sıklıkları sorgulanmadığı için net bir karşılaştırma yapılamamaktadır. Katılımcıların %11,7'sinin psikiyatrist başvurusu bulunmaktadır. Bireyleri değerlendirirken biyopsikososyal yaklaşım çerçevesinde değerlendirmek çok kıymetlidir. Bu bağlamda henüz üniversiteye yeni başlangıç yapacak olan kişilerin %11,7'sinin psikiyatrist başvurusu olması bu konuda başta daha önce

başvurusu olan öğrenciler olmak üzere tüm öğrencilere sıkı ve etkin danışmanlık uygulamalarının yapılmasının gerekliliğini gözler önüne sermektedir.

Çalışmamızda öğrencilerin %59'una son üç yılda herhangi bir sebeple (şikayetle yada kontrol için) başvurduğu doktoru tarafından yaşına uygun yapılması gereken sağlık taramalarından bahsedilmiştir. Öğrencilerin %84'ünün son üç yılda bir sağlık kurumuna başvurusu olduğu, %71,7'sinin ise aile hekimi başvurusunun olduğu görülmektedir. Aile hekimi, pediatri hekimi ve iç hastalıkları hekimlerine yapılan başvurularda yaklaşık yarısına sağlık taramalarından bahsedildiği görülmüştür. Çalışmamızda kronik hastalığı olanlara ve daha sık başvuruda bulunanlara sağlık taramalarından bahsedilme sıklığı daha yüksek olarak saptanmıştır. Başvuru sıklıkları çeşitli nedenlerle diğer yaş gruplarına göre nispeten daha az olan bu yaş grubundaki kişilerin sağlık merkezi başvuruları bu kişiler için bir fırsat olarak görülüp değerlendirmeleri yapılmalıdır. Bu konu hakkında 2015 yılında Aile Sağlığı Merkezlerinde adolesan dönemde koruyucu hekimlik uygulamaları ile ilgili kaçırılmış fırsatları araştıran Özkul ve ark.[17] çalışmasında adolesan döneme özgü önlenebilir riskler ile ilgili fırsatların kaçırıldığı yönünde bir sonuca ulaşılmıştır. Bu konulardaki çalışmalardan bir rapor oluşturularak hekimlere özellikle aile hekimlerine iletilmeli, gerekirse eğitimler düzenlenmelidir.

Halk Sağlığı Genel Müdürlüğünün yayınladığı "Bebek, Çocuk, Ergen İzlem Protokolleri" ne göre 10-21 yaş aralığındaki genç bireylere her yıl izlem yapılması gerekmektedir şeklinde belirtilmiştir.[6] Bu izlemler dahilinde belirtilen yaş gruplarında her vizitte (10-14, 15-18, 19-21 yaşlar) vücut ağırlığı ve boy uzunluğunun ölçülmesi önerilmektedir.[6] Çalışmamızda öğrencilerin %61,7'sinin son üç yılda herhangi bir sebeple (şikayetle yada kontrol için) başvurduğu sağlık merkezinde vücut ağırlığı ve boy uzunluğu ölçülmüştür. Özkul ve ark.[16] çalışmasında bu oran %57,4'tür. Türkiye sağlık istatistiklerine göre 2016 yılında 15 yaş üzeri nüfusun %19,6'sının obez, %34,3'ünün fazla kilolu olduğu belirlenmiştir. Sonuç olarak antropometrik ölçümlerin takibi özellikle komorbid hastalıkların gelişme sıklığının daha az olduğu adölesan ve genç erişkin dönemde yapılması çok önemlidir. Bu yaş gruplarının yaşam tarzlarında yapılacak olan değişikliklerin geleceğe büyük yatırım olacağı unutulmamalıdır. Çalışmamızda ek olarak aile hekimine tarama amaçlı başvuran ve pediatri hekimi başvurusunda bulunanların antropometrik ölçümlerinin daha sık yapıldığı görülmüştür.

"Bebek, Çocuk, Ergen İzlem Protokolleri" ne göre genç bireylere her vizitte kan basıncının ölçülmesi önerilmektedir.[6] Aile Hekimliği Uygulamasında Önerilen Periyodik Sağlık Muayeneleri ve Tarama Testleri Rehberine göre ise 18 yaşından büyük yetişkinlerde başvuru sebebinden bağımsız olarak hipertansiyon tanısının erken tespiti ve kardiyovasküler olayların önlenmesi amaçlı yılda en az bir kez arteriyel tansiyon ölçülmesi önerilmektedir. Çalışmamızda öğrencilerin %77,1'inin son üç yılda herhangi bir sebeple (şikayetle yada kontrol için) başvurduğu doktoru tarafından tansiyon ölçümü yapılmıştır. Dahiliye hekimine başvuru yapanların kan basıncı ölçüm sıklığı daha fazla bulunmuştur. Özkul ve ark.[16] çalışmasında son 1 yılda adolesanların sadece %27,4'ünün kan basıncının ölçüldüğü saptanmıştır. Bu oranların %90-100'lere çıkması için bu konuda duyarlılığı arttırıcı çalışmalar yürütülebilir.

Ergen/genç erişkin yaş grubunda Hb/Htc ölçümünün 1'er kez yapılması; hiperlipidemi riski açısından değerlendirilmesi ve risk faktörü varsa kan tetkiki yapılması, Tip 2 diyabet riski yüksek (özellikle obez veya kilolu ve ilave risk faktörleri olan) adolesanların iki yılda bir, genç erişkinlerde daha sık diyabet taraması (kan tetkiki ile) yapılması önerilmektedir.[6] Çalışmamızda öğrencilerin %80,7'sinden son üç yılda herhangi bir sebeple (şikayetle yada kontrol için) başvurduğu doktoru tarafından tarama amaçlı tetkik istenmişti. Çalışmamızdaki limitasyonlardan biri katılımcıların tarama amaçlı yapılan tetkikler ile (anket başında tarama terimi ile ne kastedildiği ayrıntılı anlatılmasına rağmen) tam olarak ne kastedildiğini anlamamış olabilir; ikinci limitasyon ise hafıza faktörüdür.

Çalışmamızda son bir yılda sağlık kurumuna hiç başvuru yapmamış olanların hepsinin sağlık durumunu iyi olarak değerlendirdiği ve sağlık durumunu orta- kötü olarak değerlendirenlerin sağlık kurumuna başvuru sıklığı daha çok olarak değerlendirilmiştir; bu sonuç beklenen bir sonuçtur.

Çalışmamız küçük bir örneklemde yapılmıştır; örneklem hesabı yapılmamıştır, üniversitemiz hemşirelik öğrencilerine genellenebilmekle birlikte tüm genç erişkinlere ve adölesanlara genellenemez. Verilerin geçmişe yönelik toplanması (hafıza faktörüne dayalı) toplanmış olması, kayıtlarından alınmaması çalışmanın kısıtlı yönleridir.

SONUÇ

Çalışmamızın sonuçları, adölesan ve genç bireylerin sağlık hizmetlerine başvuru sıklıklarının çok olmadığını; ancak nispeten aile hekimlerine daha sık başvurduklarını; göz ve diş muayenelerine başvuru sıklıklarının yeterli olmadığını; bazı önemli sağlık taramalarına dair hizmet alma durumlarının olması gerekenden az sıklıkta olduğunu göstermektedir. Bu sonuçlara göre bu yaş grubunun en sık başvurduğu hekimler olan aile hekimleri başta olmak üzere hekimlerin her fırsatı değerlendirmesinin önemi bir kez daha vurgulanmaktadır. Bu yaş grubuna yönelik sağlık taramalarının kayıtlardan elde edilerek hafıza faktörünün ortadan kaldırıldığı araştırmalar planlanabilir.

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Hakem Değerlendirme Süreci: Harici çift kör hakem değerlendirmesi.

Çıkar Çatışması Durumu: Yazarlar bu çalışmada herhangi bir çıkara dayalı ilişki olmadığını beyan etmişlerdir.

Finansal Destek: Yazarlar bu çalışmada finansal destek almadıklarını beyan etmişlerdir.

Yazar Katkıları: Yazarların tümü; makalenin tasarımına, yürütülmesine, analizine katıldığını ve son sürümünü onayladıklarını beyan etmişlerdir.

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Case Report / Olgu sunumu

Radyolojik Olarak Nekrotizan Pnömoni Ve Apseyi Taklit Eden İntralober Sekestrasyon

Intralobar Sequestration Mimicking Radiologically Necrotizing Pneumonia and Abscess

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Öz

Amaç: Pulmoner sekestrasyon anormal sistemik arter damarlanmasına sahip kistik, fonksiyone olmayan embiryonik akciğer dokusuyla karakterize konjenital bir malformasyondur. Klinik olarak bronşektazi, pnömoni, akciğer absesi ya da kaviter akciğer hastalıklarını taklit edebilen, tedavisinde cerrahi rezeksiyon gerektiren konjenital bir patolojidir.

Olgu: Burada sol akciğerin alt lob bazal segmentinde lokalize intralober sekestrasyon olan 11 yaşında kız çocuğu olgusunu rapor ettik. Radyolojik incelemede sol alt lobta akciğer absesi ile uyumlu görünüm mevcut idi. Akciğer absesi tanısıyla bazal segmentektomi uygulandı ancak intralobar sekestrasyon olduğu tesbit edildi.

Sonuç: Burada radyolojik olarak nekrotizan pnömoni ve akciğer absesiyle karışan pulmoner sekestrasyon olgusu sunuldu ve literatür eşliğinde tartışıldı.

Anahtar Kelimeler: İntralober sekestrasyon, nekrotizan pnömoni, apse

Abstract

Aim: Pulmonary sequestration is a congenital malformation characterised by cystic, non-functioning embryonic lung tissue with vascularisation of an abnormal systemic artery. It's a congenital pathology which requires surgical resection and can clinically mimic bronchiectasis, pneumonia, pyogenic lung abscess or cavitary lung diseases.

Case: We report a 11-year-old male patient with intralobar pulmonary sequestration located in the lower lobe basal segment of the left lung. Radiological investigation revealed lung abscess in the left lower lobe. Basal segmentectomy was performed with the diagnosis of lung abscess but intralobar sequestration was detected.

Result: In this presentation, pulmonary sequestration which is misdiagnosed as necrotizing pneumonia and lung abscess radiologically, has been discussed in the light of literature

Keywords: Intralobar sequestration, necrotizing pneumonia, abscess

GİRİŞ

Pulmoner sekestrasyon trakeobronşial havayolları ile belirgin bir bağlantısı olmayan, herhangi bir fonksiyon göstermeyen, kanlanmasını pulmoner arteryel sistem yerine sistemik arterlerden alan anormal akciğer dokularıdır. Nadir konjenital anomaliler olup, tüm konjenital akciğer malformasyonlarının %0,15-6,4'ünü oluşturmaktadır.[1,2] İntralober sekestrasyon akciğer parenkimi içine gömülü iken, ekstralober sekestrasyon adeta ayrı bir lob gibi kendi visseral plevrası ile örtülüdür. Her iki tipte de arteriyel kanlanma torasik veya abdominal aort ya da bunların herhangi bir dalından sağlanırken, venöz drenaj genellikle intralober sekestrasyonda pulmoner venlere, ekstralober sekestrasyonda ise azigos veya hemiazigos yoluyla sistemik venlere olmaktadır. İntralober sekestrasyonun %60-70'i, ekstralober sekestrasyonun %90'ı sol hemitoraksta lokalizedir.[3,4] Bu yazımızda sık enfeksiyon geçirme hikayesi olan, 4 hafta boyunca çocuk hastalıklarında enfeksiyon tedavisi alan fakat radyolojik düzelme gözlenmeyen ve nekrotizan pnömoniye bağlı apse ön tanısıyla opere edilen çocuk hasta sunulmuş ve literatür gözden geçirilmiştir.

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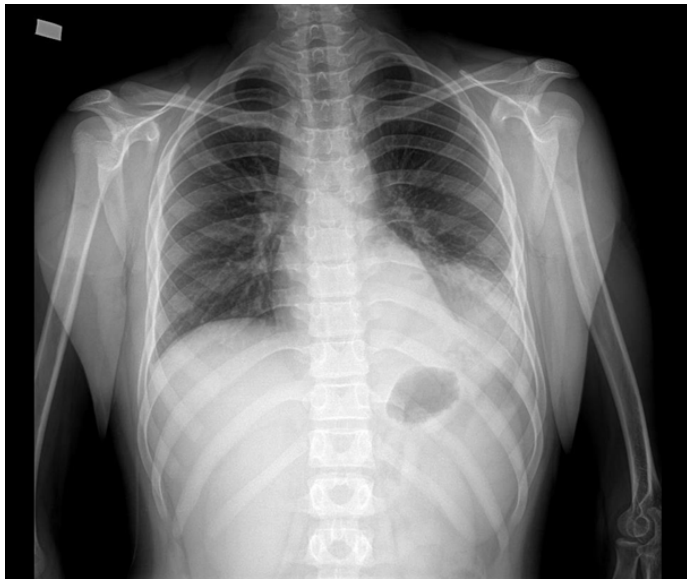
OLGU

11 yaşında çocuk hasta ateş, öksürük ve balgam çıkarma yakınmalarıyla çocuk hastalıklarına başvurmuş. Sık enfeksiyon geçirme hikayesi olan hastaya çekilen PA Akciğer grafisinde sol akciğerde nekrotizan pnömoni ön tanısıyla ikili antibyotik tedavisi başlanmış (**Resim 1**).

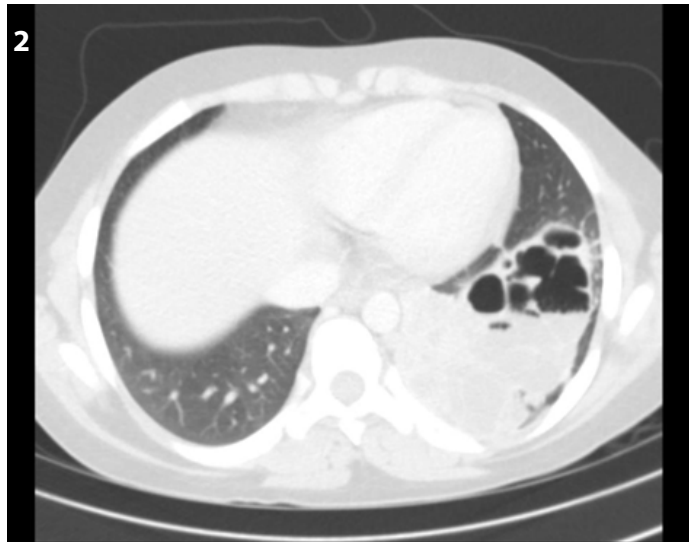


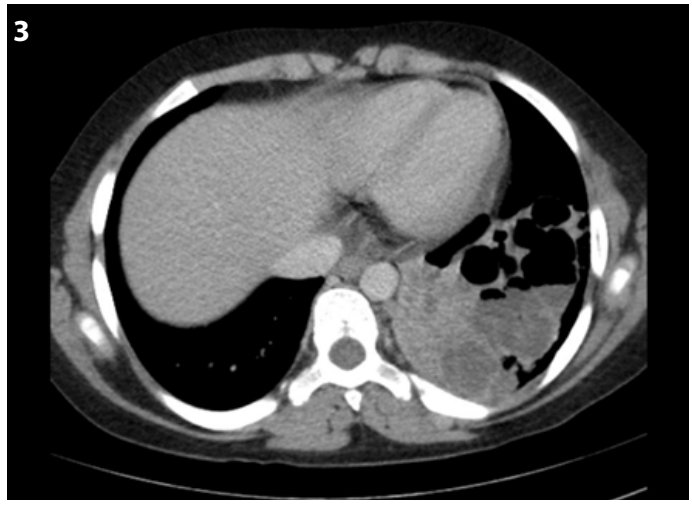
Resim 1. PA Akciğer grafisinde sol alt zonda pnömonik infiltrasyon ve dansite artışı

4 hafta süren antibiyotik tedavisi sonrası şikayetleri gerileyen yalnız radyolojik olarak düzelme gözlenmeyen hastaya toraks bilgisayarlı tomografi (BT) çekilerek tarafımıza yönlendirilmiş (**Resim 2, Resim 3**).

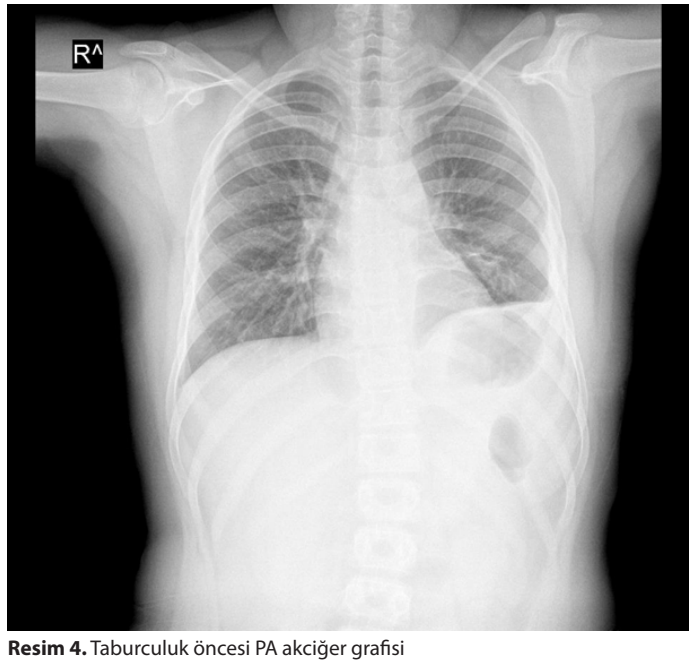
Nekrotizan pnömoniye bağlı akciğer apsesi düşünülen hasta, preop hazırlandı ve opere edildi. Operasyon sırasında sol alt lob bazal segment kistik yapılara sahipti, inferior pulmoner ligaman serbestleştirildiğinde 1 cm çapında, pulsatil, direkt torasik aortadan kaynaklanan arteriyel damarlanması saptandı. Damar dönüldü ve damar stapleri kullanılarak kesildi. Alt lob süperior segment parankimi normal idi. Alt lob süperior segment korunarak sol alt lob bazal segmentektomi uygulandı. Histopatolojik incelemede kronik inflamasyon, küboidal epitelyum ile döşeli alveol yapıları, kalın duvarlı damarlar ve kolumnar epitelyum ile döşeli kistik boşluk saptandı ve bu bulgular intralober sekestrasyon ile uyumlu bulundu.

Takiplerinde postoperatif 1. gününde şilöz vasıfta drenajı olması üzerine mayide trigliserit ve kolesterol çalışıldı. Kolesterol: 67 mg/dl, Trigliserit: 468 mg/dl olarak tespit edilen hastaya şilotoraks tanısı konulması üzerine oral alımı kesildi, periferik total parenteral nütrisyon (TPN) başlandı ve somatostatin 5 µgr/kg/saat başlandı. Postoperatif 4. gününde drenajlarının 100 cc altına düşmesi üzerine otolog kan ile plöredezis yapıldı ve yüksek proteinli yağsız diyet başlandı. Postoperatif 6. gününde drenajlarının azalması üzerine TPN önce yarı doza düşüldü daha sonra stoplandı. Toraks dreni çekildi. Postop 9. gününde kontrol PA akciğer grafisinin ekspanse olması üzerine taburcu edildi (**Resim 4**). Kontrollerinde herhangi bir patoloji saptanmadı.





Resim 2-3. Toraks BT'de sol akciğer alt lobta nekrotizan pnömoniyi düşündüren kaviter lezyonlar (Parankim ve mediyastinal pencere)



Resim 4. Taburculuk öncesi PA akciğer grafisi

TARTIŞMA

İntralober sekestrasyon, %15 oranında asemptomatik olup akciğer grafilerinde intratorasik bir kitle olarak tesadüfen fark edilebilir.

Ancak, çoğunlukla, yaşamın ilk iki dekadında semptomlar ortaya çıkar. En sık görülen klinik tablo, sunulan olguda olduğu gibi rekürren ya da kronik, lokalize pulmoner enfeksiyondur.[4] Rekürren ateş, öksürük, terleme, plöritik ağrı ve pürülan balgam sıklıkla mevcuttur. Hastamızda ateş, öksürük ve balgam şikayetleriyle tekrarlayan pnömoni atakları vardı.

İntralober sekestrasyon değişik radyolojik görüntüler ile karşımıza çıkabilir. Wei ve Li,[6] 2625 hastada yaptıkları çalışmada, toraks BT'de en fazla kitle lezyonu şeklinde (%49,01) görüldüğünü, bunun dışında kistik lezyon (%28,57), kaviter lezyon (%11,57) ve %7,96 oranında pnömonik infiltrasyon şeklinde görüldüğünü bildirmişlerdir. İntralober sekestrasyon içine mukus salgılanması, kistik oluşuma neden olarak çevre akciğerde basıya bağlı atelektazi oluşturabilir ve eklenen enfeksiyon, sekestrasyon bölgesine de yayılarak bir bronşiyal bağlantıya sebep olabilir.[4] Hastamızda BT'de çok sayıda kaviteleşmiş apse görünümüne sahip nekrotizan pnömoni görüntüsü mevcut idi.

Toraks BT, hem anormal akciğer parankimini hem de sekestrasyonu besleyen anormal damarları gösterebilir. Ancak BT, doğumsal kistik adenomatoid malformasyon, amfizem, akciğer apsesi, bronşiektazi ya da maligniteden ayırım için yeterli olmayabilir.[7] İntralober sekestrasyondan şüphelenilen olgularda arteriyel dallanmanın ve venöz dönüşün tam olarak gösterildiği anjiografi önerilmektedir. Olgumuzda klinik ve radyolojik olarak apse düşündüğümüz için arteriyel beslenme açısından ileri radyolojik incelemeler yapılmadı.

İntralober sekestrasyonun kesin tedavisi cerrahi rezeksiyondur. Olgular asemptomatik olsa da hastayı sık infeksiyon, hemorajik komplikasyonlar ve malignite gelişme riskinden korumak için elektif şartlarda operasyon önerilmektedir. Extrabober sekestrasyon için sekestrektomi, intralober sekestrasyon için ise lobektomi/segmentektomi daha sık olarak uygulanır.[6] Biz hastamızda torakotomi ile sol alt lobun süperior segmentini koruyarak bazal segmentektomi işlemi uyguladık.

SONUÇ

Sonuç olarak intralober sekestrasyon, rekürren pulmoner enfeksiyonlarda ayırıcı tanıda akılda bulundurulmalıdır. Enfeksiyonları ve gelişebilecek komplikasyonları önlemek ve parankim koruyucu cerrahiyi sağlayabilmek amacıyla erken dönemde cerrahi tedavi uygulanmalı ve bu hastalarda dikkatli preoperatif görüntüleme ve planlama yapılmalıdır.

ETIK BEYANLAR

Aydınlatılmış Onam: Bu çalışmaya katılan hasta(lar)dan yazılı onam alınmıştır.

Hakem Değerlendirme Süreci: Harici çift kör hakem değerlendirmesi.

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Finansal Destek: Yazarlar bu çalışmada finansal destek almadıklarını beyan etmişlerdir.

Yazar Katkıları: Yazarların tümü; makalenin tasarımına, yürütülmesine, analizine katıldığını ve son sürümünü onayladıklarını beyan etmişlerdir.

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Olgu Sunumu / Case Report

Çocuklarda İleusun Nadir Nedeni Transmezenterik İnternal Herni; Olgu Sunumu

Rare reason of ileus in children transmesenteric internal hernia; case report

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Öz

İleus, barsağın fonksiyonel veya mekanik obstrüksiyonu sonucu ortaya çıkan yaygın bir klinik durumdur. Transmezenterik internal herni mekanik bir ileus nedeni olup, nadir görülür. İnternal herni, abdominal organların karın boşluğu içindeki konjenital veya edinsel bir açıklığa doğru ya da retroperitoneal bir fossaya doğru fıtıklaşması şeklinde meydana gelir. Klinik olarak hafif abdominal kramp ağrısından yaygın karın ağrısına ve ileus bulgularına kadar değişen semptom ve bulgular meydana gelebilir. Radyolojik tetkikler operasyon öncesi doğru tanıya katkı sağlayabilir, ama sıklıkla tanı ameliyat sırasında konulur. Altı yaşında ileus tablosuyla gelen peroperatif internal transmezenterik herni saptanan kız hastanın klinik ve medikal seyrini literatür bilgileri eşliğinde sunmayı amaçladık.

Anahtar Kelimeler: İleus, transmezenterik internal herni, çocuk

Abstract

Ileus is a common clinical condition that occurs as a result of functional or mechanical obstruction of the bowel. Transmezenteric internal hernia is a mechanical ileus cause and is rarely seen. Internal hernias occur in the form of hernia of the abdominal organs into a congenital or acquired opening in the abdominal cavity or towards a retroperitoneal fossa. Clinically, symptoms and signs can range from mild abdominal cramp related pain to widespread abdominal pain and ileus findings. Radiological examinations can contribute to the correct diagnosis before surgical intervention; however, most of the time definitive diagnosis is made during surgery. The present paper presents the clinical and medical course of a 6-year-old girl referring to our clinic with an ileus table and preoperatively determined a peripheral internal transmesenteric hernia in the light of the information in the current literature

Keywords: İleus, transmezenteric internal hernia, child

GİRİŞ

İleus ince yada kalın barsakların peristaltizminin kaybedilmesi ya da mekanik bir nedenle tıkanması sonucu ortaya çıkan klinik bir durumdur.[1] Genel olarak ileusun temel bulguları; karın ağrısı, gaz ve dışkı çıkaramama, iştahsızlık, bulantı, kusma ve sonrasında abdominal distansiyondur.[2]

Herniler yaygın bir yelpazede intestinal osrüksiyon nedeni olup, inguinal, ventral ve internal hernileri içerir ve müdahale edilmezlerse barsakların strangülasyonuna kadar giden kötü klinik tabloyla ilişkilidirler. Hernie olan barsak segmentinde boğulma durumunda karın ağrısı, kusma, gaz ve dışkı çıkaramama gibi obstrüksiyon belirtileri meydana gelir. İnternal herniler, iç organların periton veya mezenterik defektlerden protrüzyonu ile oluşurlar, ancak abdominal kavite içinde sınırlı kalırlar. Batın içi operasyonlara sekonder gelişen defektler gibi akkiz nedenli olabilir ya da fossa, foremen, mezenterik bant ve defektler gibi konjenital anatomik nedenli olabilir. İnternal herniasyonlar kapalı loop barsak obstrüksiyonu gelişmesi ile yakından ilişklidirler. Bu durumda hızla barsak iskemisi gelişebilir ve karın muayenesi ile orantısız belirgin şiddetli karın ağrısı ile karakterizedir.[3]

İnternal herniler yaygın olarak anatomik lokalizasyona göre sınıflandırılır; Paraduodenal, periçekal, transmezenterik, transmezokolik, paravezikal, intersigmoid, retroanastomotik ve foramen winslow hernisi tipleri vardır.[4] Tüm internal

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hernilerin %50'si paraduodenal herni olup en sık görülen tiptir.[5]

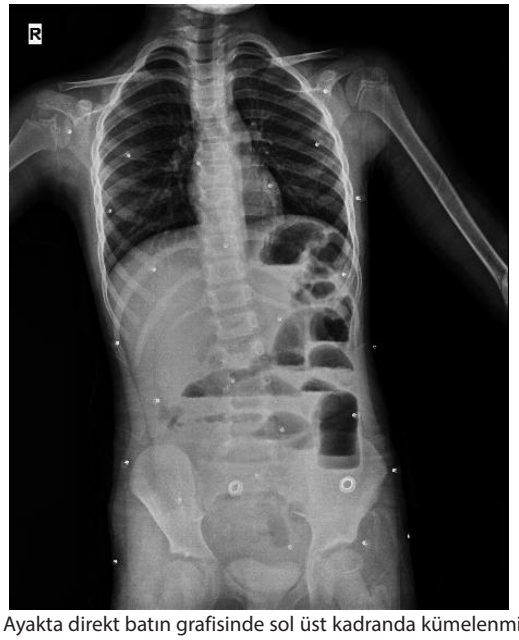
İnternal transmezenterik herni(İTH), barsak mezenterinde konjenital bir defekt nedeni ile oluşan abdominal kavite içindeki ince barsak herniasyonudur. Literatürde bildirilen tüm ince barsak tıkanıklarında İTH insidansı yaklaşık %0.06 5.8 dir.[4] Tüm internal hernilerin %5-10 'unu İTH oluşturur.[6] İTH, sadece doğumsal mezenterik bir kusur nedeniyle oluşur ve fıtık kesesi olmamasına rağmen bağırsak tıkanıklığına yol açabilir. İnternal herni nedeniyle barsak beslenmesi bozulur, zamanında müdahale edilmezse değişen uzunluktaki barsaklar gangrene gidebilir.

Bilgisayarlı tomografi (BT) bulguları ile internal herni tanımlanabilse de İTH tanısı radyolojik olarak da zordur, Bu nedenle ancak peroperatif tanı konabilen vakalar da az değildir.[6-11]

Bu çalışmada 6 yaşında ileus bulguları ile gelen bir kız hastanın, peroperatif görülen İTH tablosunun cerrahi öncesi klinik seyri, cerrahi uygulaması ve ameliyat sonrası takip tecrübemizi literatür bilgileri eşliğinde sunmayı amaçladık.

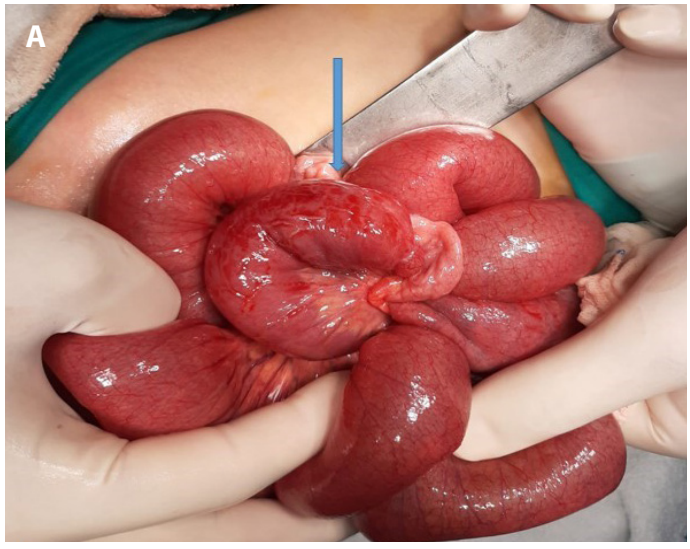
OLGU SUNUMU

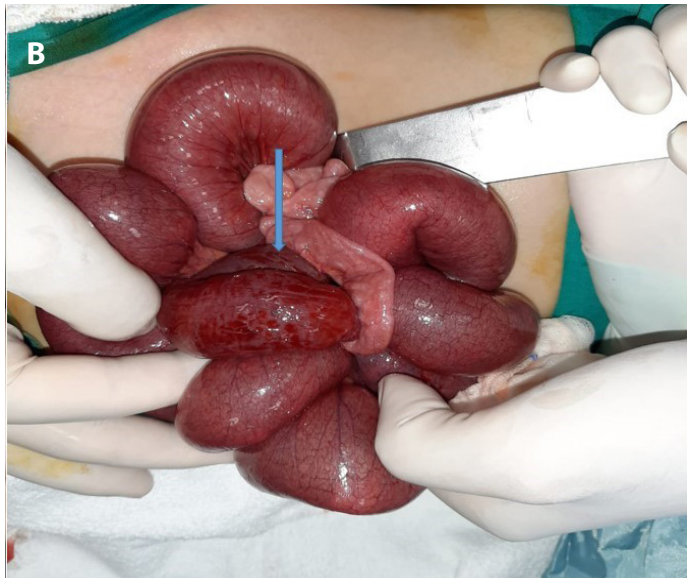
Altı yaş kız hasta öncesinde enterit benzeri dışkılama mevcut iken sonrasında iştahsızlık, kramp tarzında karın ağrısı ile birlikte bulantı ve kusma şikayetleri gelişmesi nedeniyle hastanemiz çocuk acil polikliniğinde değerlendirildi. Batın normalden distandü idi ancak peritonit bulguları mevcut değildi. Ayakta direkt batın grafisinde (**Resim 1**) distal segmentlerde gaz izlenmezken, proksimalde merdiven basamağı şeklinde hava sıvı seviyelerini içeren intestinal obstrüksiyon bulguları görüldü.



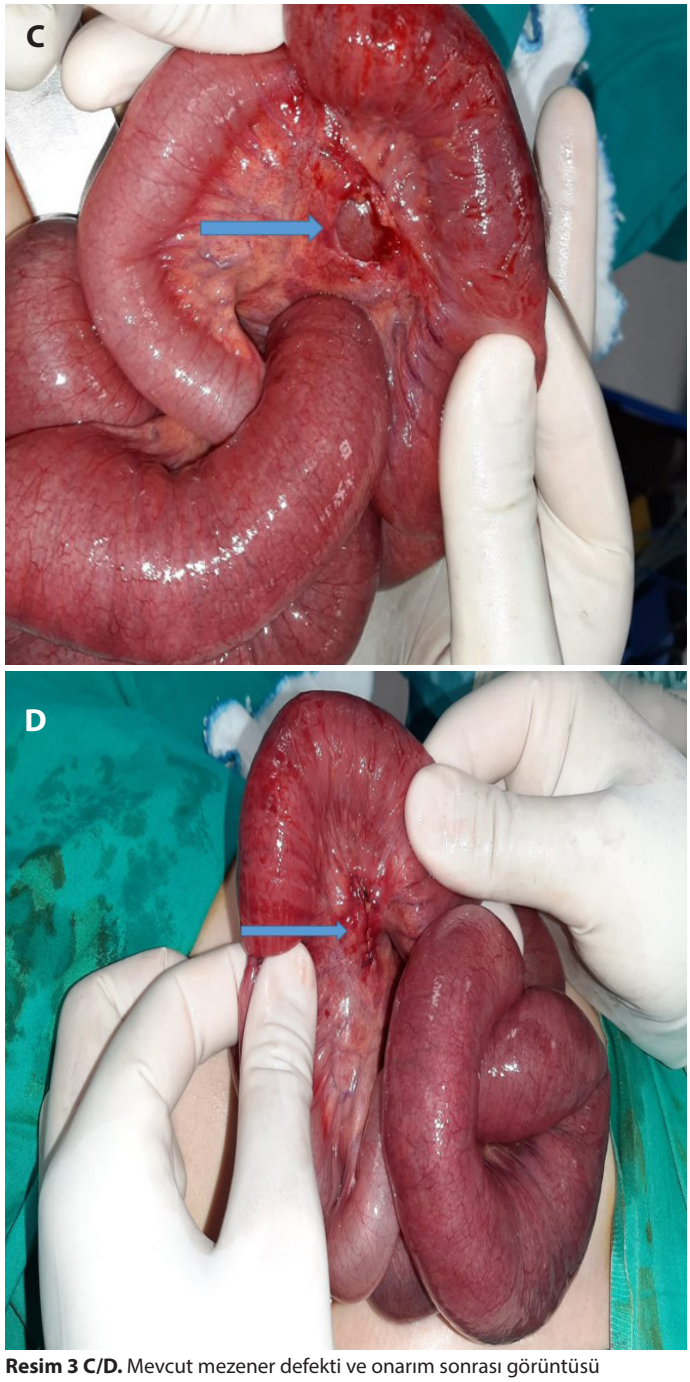
Resim 1. Ayakta direkt batın grafisinde sol üst kadranda kümelenmiş multipl ince barsak havasıvı seviyeleri ile birlikte distale gaz geçişinin olmadığı izlenmektedir.

Batın ultrasonografi incelemesinde dilate barsak ansları ve batında minimal artmış serbest mayii dışında özellik yoktu. Hasta ileus nedeniyle acil operasyona alındı. Batında reaksiyonel mayii aspire edildi. Eksplorasyonda terminal ileumdan 30 cm proksimalde yaklaşık 20 cm'lik ileal ansın mezo defektinden geçip, İTH oluşturduğu görüldü. İlgili barsak segmenti hafif siyanoze olup kanlanması kısmen etkilenmişti. Proksimal segment ileri derece dilateydi (**Resim 2 A/B**). İlgili ans, sıkıştığı mezo defektinden çıkarılıp serbestleştirildi, Siyanoze segmentin renginin normale döndüğü görüldü ve mezenter defekti 4/0 vicryl ile onarıldı (**Resim 3 C/D**). Peroperatif intestinal pasaj devamlılığı teyid edildikten sonra batın, anatomisince uygun şekilde kapatıldı. Postoperatif 6 saat sonra rejim 1 başlandı, hasta postop 1. günde sorunsuz şekilde taburcu edildi.





Resim 2 A/B. Yaklaşık 20 cm'lik ileal ansın, internal transmezenterik herniasyonunun peroperatif görünümü



Resim 3 C/D. Mevcut mezener defekti ve onarım sonrası görüntüsü

TARTIŞMA

İTH, ince barsak mezenteri veya mezokolon defektine sekonder ince barsakların bu defektten protrüzyonu ile oluşur ve tüm internal hernilerin %5-10 'unu oluşturur.[6] Konjenital mezenterik defektler, genellikle Treitz ligamanının proksimalinde ya da ileoçekal valve yakın lokalizasyonda görülür. Konjenital olanlar sıklıkla çocukluk çağında bulgu verir. Erişkinlerde ise en sık akkiz mezenterik defekt sebepleri inflamatuar ve travmatik nedenler ile Roux-enY prosedürü gibi ameliyatlar sonrasında görülen defektler nedeniyle oluşurlar.[12] Ancak nadir de olsa ileri yaşta, ameliyat veya travma öyküsü olmadan da İTH gelişen vakalar bildirilmiştir.[13]

İTH nedenli ileusta klinik gidiş, tutulan barsak segmenti uzunluğu ve lokalizasyonuna göre oldukça değişkendir. Bu nedenle semptomlar, belirsiz karın ağrılarından, aralıklı ileus ve strangülasyona varan peritonit tablolarına kadar değişen yelpazededir ve uğraştırıcıdır.

Ayakta direkt batın grafileri genellikle tanısal olmamakla birlikte, belli bir bölgede lokalize dilate ince barsak ansları izlenebilir. Baryumlu grafide doudenumun solunda kümelenmiş, kontrast madde ile dolu dilate ince bağırsak lupları izlenebilir.

Bilgisayarlı tomografi (BT) tanıda önemli bir seçenektir. Bizim vakamızda şiddetli kusmaya bağlı olarak sıvı elektrolit kaybı mevcuttu. Ayakta direkt batın grafisi bulguları ve klinik bulgular ışığında ileus öntanısı ile acil cerrahi girişim yapıldı, bu nedenle BT inceleme yapılamadı.

BT'de; treitz ligamanı solunda mide ve pankreas komşuluğunda enkapsüle görünümde dilate bir ince bağırsak kümesi izlenir. Belirginleşmiş mezenterik vasküler yapılar herni kesesinin girişine doğru yönlenim gösterirler ve bu alanda paralel konumlu iki ince bağırsak ansı izlenebilir. Herni içindeki jejunal anslarda distansiyon ve sıvı seviyeleri de BT de izlenen bulgulardandır. Üç boyutlu reformat BT görüntüler de ileus tipini anatomik olarak tanımlamaya yardımcı ilave olanaklar sağlar.[14,15] Tedavi açık veya laparoskopik girişimlerle yapılabilir.[16] Tedavide temel prensip, herniye intestinal segmentin redüksiyonu ve defektin onarılmasına dayanan bir cerrahi prosedürdür.

SONUÇ

İleusların yaklaşık %6'dan daha az kısmını oluşturan İTH'ler, ileusların önemli ve sıklıkla ayırıcı tanıda unutulan nedeni olmaya devam etmektedir.[5,6]

İntestinal obstrüksiyonun klinik ve radyolojik özelliklerini taşıyan vakalarda abdominal cerrahi öyküsü bulunmuyorsa ve yapılan tetkiklerde bu tabloyu açıklayan bulguların olmadığı durumlarda İTH'ye bağlı obstrüksiyon ihtimali her zaman akılda tutulmalıdır.

ETİK BEYANLAR

Aydınlatılmış Onam: Bu çalışmaya katılan hasta(lar)dan yazılı onam alınmıştır.

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Review / Derleme

The Significance of Psychological Approach to Terminal Care in Clinical Practices

Klinik Uygulamalarda Terminal Bakıma Psikolojik Yaklaşımın Önemi

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Abstract

Purpose: The aim of the study is to identify the effectiveness of the psychotherapeutic intervention in the terminal ill experience and to ponder on how it delivers quality of life through its person center meaning making psychotherapy.

Material and Method: The present study uses an analytical approach on the existing literatures and documents through critical review.

As a critical medicine meaning in suffering plays a crucial role as terminal ill experience always accompanied several unwanted psychological and emotional sufferings. In the early stages of any terminal ill diagnosis cure becomes the primary concerned for both the patient and the family. However, in the face of medical helplessness psychological approach to terminal illness becomes essential to effectively deal with pain and non-pain symptoms. It is not a mere philosophical approach to terminal ill experience, but a humanistic approach that provides hope even in the face of inevitable death. The psychological approach to health and wellbeing becomes more essential as palliative end-of-life care aims to uplift the meaning making policy and purpose in suffering that contributed health to many. In fact, though there is no easy ways to deliver wellbeing of the whole and quality of life, but psychotherapeutic is an effective mechanism to deal with existential suffering, stress, loneliness, alienation, and discomfort usually inherit in the process of terminal ill experiences. The therapeutic aim is to minimize the existential issues that accompanied the terminal ill experience and act in the best benefit for the patient and family in clinical practices.

Keywords: End-of-Life care, psychotherapeutic, terminal illness, emotional suffering, mental disharmony, and quality of life.

Öz

Amaç: Çalışmanın amacı, psikoterapötik müdahalenin ölümcül hastalık deneyimindeki etkinliğini belirlemek ve psikoterapi yapmak anlamına gelen kişi merkezi aracılığıyla yaşam kalitesini nasıl sağladığı üzerinde ayrıntısı ile düşünmektir.

Gereç ve Yöntem: Bu çalışma, eleştirel inceleme yoluyla mevcut literatür ve belgeler üzerinde analitik bir yaklaşımı kullanır. Ölümcül kötü deneyimler her zaman birçok istenmeyen psikolojik ve duygusal acıya eşlik ettiğinden, kritik tıpta anlam olarak acı çekme, çok önemli bir rol oynar. Herhangi bir ölümcül hastalık teşhisinin erken aşamalarında tedavi, hem hasta hem de aile için birincil endişe kaynağı haline gelir. Bununla birlikte, tıbbi çaresizlik karşısında, ağrı ve ağrısız semptomlarla etkin bir şekilde başa çıkmak için ölümcül hastalığa psikolojik yaklaşım zorunlu hale gelir. Bu, ölümcül kötü deneyime felsefi bir yaklaşım değil, kaçınılmaz ölüm karşısında bile umut veren hümanist bir yaklaşımdır. Hayatın sonu palyatif bakım, birçok kişinin sağlığına katkıda bulunan acı çekmede anlam oluşturma politikasını ve amacını yükseltmeyi amaçladığından, sağlık ve esenliğe psikolojik yaklaşım daha önemli hale gelmektedir. Aslında, bütünüyle ve yaşam kalitesini sağlamanın kolay bir yolu olmasa da, psikoterapötik, varoluşsal ıstırap, stres, yalnızlık, yabancılaşma ve rahatsızlıklarla başa çıkmak için etkili bir mekanizmadır ve genellikle ölümcül hastalık deneyimleri sürecine miras kalır. Terapötik amaç, ölümcül kötü deneyime eşlik eden varoluşsal sorunları en aza indirgemek ve klinik uygulamalarda hasta ve ailesi için en iyi faydayı sağlamaktır.

Anahtar Sözcükler: Yaşam sonu bakımı, psikoterapötik, ölümcül hastalık, duygusal acı, ruhsal uyumsuzluk ve yaşam kalitesi.

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INTRODUCTION

Cancer/terminal ill experience being pre-occupied with several unwanted ill experience is a worldwide phenomenon. In the course of illness patient usually undergoes several mental disharmony and psychological issues that makes life a living hell. Failing to acknowledge the psycho-emotional symptoms in terminal diagnosis greatly affects the patient health and sometime it worsens the patient physical ill condition. Health is a multidisciplinary term that consist the interventions of several medical professional teams including the psychologists, unlike the present existing health care system in India that acknowledge the physical pain symptoms alone and leaving the non-pain symptoms untreated. The psychotherapeutic approach to terminal health is a modern humanistic approach that aims at delivering the whole person treatment through its person centered therapy for quality of life even in the face of inevitable death. The psychotherapeutic approach has nothing to do with the philosophical approach of Sigmund Freud psychoanalysis towards the psychiatric patients, but purely goal oriented humanistic approach to one's illness that address the ultimate needs of the dying individual for the wellbeing of the whole in any given environment. Thus, with an urgent necessity of the psychotherapeutic intervention in terminal diagnosis the present study has been form to uplift the palliative end-of-life care condition in India into its new horizon.

The Concept of Psychological Approach to Health and Wellbeing

It is the individual confrontation with the existential isolation, fear of death, anxiety, and meaninglessness in suffering resulted in inner conflict mainly those with advance medical ill experience. The concept of psychological approach to health is a psychodynamic, which is absolute practicable, concrete in its nature of existence, bearing positive impacts, and after all flexible in its approaches. The psychotherapeutic becomes essential as patients experience alienation, meaninglessness of life, feeling of being outcast in the society, and mental disharmony in the course of their terminal illness. When those confronted mental disharmony and psychological symptoms left untreated, the physical pain symptom treatment mostly produces negative results as mental wellbeing the core to patient recovery and healing.[1,2] However, the acknowledgement of distressing pain symptoms turns out to the most neglected areas of care resulted in leaving the terminally ill patients in the most traumatic conditions. The psychological approach to terminal care is a holistic approach that view human illness in associated with his/her biological, social, emotional, and spiritual needs that need special consideration in the clinical practices. The fundamental beliefs of the psychological approach is to acknowledge the isolation, hopelessness, and meaninglessness that patient usually experience in the course of their illness and to inspire the dying individual that they are still in the condition of limitless achievement possibilities. It is also to help the patient in realizing that they have the freedom to exercise their responsibilities in fulfilling their wishes until the inevitable death strikes.[2,3]

The uniqueness of the psychotherapeutic in terminal experience lies in its phenomenological inquiry towards the dying patient's ill experience by leaving no room for clinician personal beliefs, theories, and assumptions. The psychological intervention focus on encountering with the patient conscious experience and the sub-conscious issues that bothers the patient feeling through its humanistic psychoanalysis. More importantly, it explores and investigates the happening issues and place human experience in its central focus.[4] The aim is to acknowledge the inter-correlation between illness and social responsibility of a person and to strengthen the individual to face the existential challenges through its person center therapy. The psychotherapeutic approach to existential sufferings helps the patient to understand their existential issues that pre-occupied the individual and designs the methodologies to deal with it effectively in the clinical practices.[5] It also serves as a platform where the palliative end-of-life care staff can organize their tools and mechanism to meet the patient needs in the most effective ways. As an agent that responses to the patient needs in the face of medical helplessness and explores what it means to human in the light of limitless possibilities. Moreover, in working with the dying patient the psychotherapeutic approach to care helps in delivering patient self-awareness, freedom and responsibility associated with illness, the search for meaning in suffering, and effective coping mechanism against death anxiety and psycho-emotional challenges.[6]

The Significances of Psychotherapeutic Approach of Care in Terminal Ill Diagnosis

Palliative end-of-life care in an interdisciplinary approach with an ultimate aims to focus on pain and non-pain symptom management and to deliver quality of life through any possible means until the inevitable death strikes a worldwide phenomenon in the clinical practices. The psychological assessment is the key factor that plays important roles in dealing with patient physical discomfort, distressing pain and non-pain symptoms, emotional sufferings, and in quality decision making.[7,8] However, the psychological approach to care is an alien term in Indian medical setting, while in some regions it existed as a mere theoretical approach. On the other hand, the acknowledgement of the psychological dimension of care in clinical practices among the clinical staffs will enhance the quality health care in the palliative care unit. In developed countries psychologists are place in a forefront to help the psycho-emotional needs of patients, families, and the health care professional in the clinical setting. Looking at the nature of its existence the chronic illness, cancer, dementia, and respiratory ailments demands extensive amount of care and support, in which the intervention of psychotherapy has seen as an effective mechanism with extensive amount of positive outcomes. The inclusion of psychologists helps in

examining the psychological consequences of the disease, treatment policy in patient best interest, and in releasing several built-up tensions along the disease continuum.[9,10]

Moreover, with the recent development of the biopsychosocial-spiritual model of medicine in terminal ill diagnosis, the psychotherapeutic intervention becomes imminent mainly to deliver quality of life for the dying individual and the loved ones. The evolution of psychology to health science helps the terminal patient to explore sense of hope, give sense of comfort, certainty of being respect and valued until they die. It restores the sense of dignity as being human apart from being with the terminal illness and deliver a peaceful death with meaning in it.[11] Moreover, it's a worldwide phenomenon that there could be no palliative end-of-life care without the psychological approach to care and it satisfy the meaning of what it means to be a good palliative care. The psychological intervention gives the patient supportive presence in the midst of several existential sufferings, helps in controlling physical pain symptoms, helps in recognizing purpose in life through systematic life review, reframing life goal with limitless possibilities, and helps the patient to focus on healing in the face of medical helplessness. However, failing to acknowledge those unwanted feelings like sense of hopelessness, burden to others and loved ones, loss of will to live, will resulted in worsening patient physical ill condition and sometimes led to suicidal activity.[10,11]

The psychological approach to care is a person-centered therapy deeply rooted in human existential theory and practices; the mechanism that brings awareness about death and dying that makes every act counts. The therapy gives the patient a desire to live in the face of death anxiety, isolation, and the inner conflicts through courage to face the existential challenges and commitment over human responsibility towards his/her choices. Alongside the addressing of the patient psycho-emotional issues, the psychotherapeutic also helps the individual to embrace what life gives and to live courageously with curiosity. The prime focus of the therapy is to explore patient choices and the 'why' of living and the ability to do away with despairs and burdens. Most importantly the sense of ownership over life and death through its person-centered meaning making psychotherapy.[6,12] The therapy also serve as a guiding mechanism for the patient to live more authentically in relationship with life by taking responsibility over their choices that has the advantage of hindsight. The therapist on the other hand does not impose their personal beliefs, rather act as a guiding factor that accompanied and built quality relationship between the patient and the clinicians. The authenticity of the psychotherapy lies in the fact the therapist itself is a human who experience the existential sufferings and psycho-emotional challenges with a prime focus to uplift the patient conditions through transformation experience and deliver quality of life. It focuses on the inter-correlation and intrapersonal nature of human existence that has no room for the philosophical dimensional approach to human existence in its clinical practices and respect human personal values, beliefs, and human limitation. In another sense, a wounded healer therapy recognizes the existence of inner conflict within self through its humility approach of to heal and be healing.[13-15]

The difference between philosophy and psychology lies in the fact that the psychotherapeutic approach to illness is to uphold that everything in life has a meaning in it, meaningless is the process in which the meaning had not been discover yet. The psychological approach to illness and suffering prioritize the search for meaning in every human circumstances and human has the ability to self-discover and reflect upon their existence. Thus, the underlying principle of its therapeutic approach is to promote patient's authentic relationship with self, others, and the world and to promote self-awareness on responsibility and liberation over life, feeling, and choices. The aim of the psychotherapy is to liberate oneself from the captivity of their circumstances and to make them responsible for their life through active participation against the existential challenges.[14,16] However, In the face of inevitable death and suffering finding meaning and purpose is never an easy task that requires specific skills and techniques in the clinical practices. The psychotherapeutic approach enables the terminal ill patient to accept what had already happened and helps them to create a new worldview that gives creative ways of living with an illness alongside the psycho-emotional challenges. Even in the faces the crisis of emotional instabilities, dysfunction, and death anxiety, it is the psychotherapeutic model of care that embraces the individual condition as it is and gives different worldview of life, which has meaning and purpose in it.[4, 13] The therapeutic ultimate aim is to let patient experience freedom of choice over life and death, to widen the clinical domain by allowing the interventions of the socio-spiritual assessment, and to acknowledge the neglected areas of care in its clinical practices to produces quality of life and wellbeing of the whole. Thus, the therapy helps in minimizing the existential anxieties and a platform where the dying individual can construct a new worldview that suits them the best

CHALLENGES AND CONCLUSION

At present, the role of psychologists and its psychotherapeutic approach to care barely existed in the academic realm alone in most cases. The involvement of the psychological approach to terminal care mostly misunderstood with the psychiatric treatment and not an option even in the patient's choices of the treatment policy, due to its unavailability in its clinical practices. Terminal ill diagnosis is always a crucial moment for the patient and the family that requires the whole person treatment which includes the emotional suffering, mental disharmony and the psychological symptoms to deliver quality of life for the patient and the loved ones. Yet, the prime focus in Indian terminal diagnosis mostly deals with the physical pain symptoms alone while leaving the non-pain symptoms untreated. The reason could be the absence of

the psychological approach to care in the curriculum of the oncologists and other clinicians as a whole. On the other hand if effectively implemented, as a critical medicine it could serve as a healing therapy and the meaning making policy in the face of medical helplessness, but the minimal availability of the clinical psychologists in its clinical practices is of the greatest concern. The core emphasis of the psychological approach to terminal care is to make patient realizes on the awareness that they are in the possible condition of limitless achievements, to find meaning in suffering, and to understand the deeper meaning of life that serves as an effective coping mechanism when cure is not possible. Psychotherapy is an effective tool to deal with patient mental disharmony and emotional sufferings and to make the patient utilizes their limited leftover time in the most productive ways.

Moreover, in a country like India, which is a hub for the terminally ill patients the psychological approach to care is the need of the hour. The immediate challenge is to implement the psychological domain of care in the training of the clinicians and the involvement of the psychologists in the terminal diagnosis. Spreading awareness on the importance of the psychological dimension of care in terminal diagnosis and it has nothing to do with the psychiatric treatment among the people is also the emerging challenges in India today.[17] The minimal availability of the palliative care centers with maximum needs is also another great concern. The needful task is to implement proper policy and structure of care of the palliative end-of-life care and the participation of the well-trained health or clinical psychologists in its medical team for quality assessment and positive health outcomes. Meeting the needs of the dying individual place the psychotherapeutic approach to terminal ill becomes the patient preference care as found by many experimental researches and the therapy that deliver healing as an alternative to cure in clinical practices. Not only the patient and the family, the therapy also enables the clinician working in the palliative care centers to be mentally and emotional prepared in the midst of hectic environment. The therapy also extend its domain and works effectively even in the bereavement period and enables the loved ones to have sense of recovery from their lost.

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Review / Derleme

A Comparative Analysis on SARS, MERS, and COVID-19

SARS, MERS ve COVID-19 Üzerine Karşılaştırmalı Bir Analiz

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Abstract

The Severe Acute Respiratory Syndrome 2 (SARS-CoV-2/COVID-19) is on its way to become the pandemic of the century, if not already. As a coronavirus, it is known to cause severe respiratory illness, especially for those with compromised immune systems. The Severe Acute Respiratory Syndrome (SARS-CoV) and The Middle East Respiratory Syndrome (MERS-CoV) are the most notable of past coronaviruses infecting thousands in numerous countries. All three viruses are from a zoonotic origin predominantly from bats, one of the coronavirus's natural reservoir hosts. Therefore, the purpose of this article is to compare and contrast the attributes and features of all three coronaviruses. While SARS-CoV, MERS-CoV, and COVID-19 share many viral similarities due to their similar classification, they are not as closely related genetically. COVID-19 shares about 79% of its genome with SARS-COV and only about 50% with MERS-CoV. One of the most notable genetic similarities between SARS-CoV and SARS-CoV-2 is their shared receptor protein, ACE2. Although all three viruses share the same dominant mode of human-to-human transmission, respiratory droplets, SARS-CoV-2 has a drastically higher infection rate than the other two. Aerosol and asymptotic transmission could be a leading factor for COVID-19's explosive infectivity. Currently, social distancing is the only effective preventive strategy to tackle COVID-19 until an effective vaccine is developed. Remdesivir, a nucleotide analogue drug, is showing positivity in reducing recovery time for patients. Convalescent plasma therapy treatment has also displayed promising recovery in some critically ill patients.

Keywords: SARS-CoV, MERS-CoV, COVID-19, Coronavirus, Vaccine, Social Distancing, Remdesivir

Öz

Şiddetli Akut Solunum Sendromu 2 (SARS-CoV-2 / COVID-19), şimdiden olmasa da yüzyılın pandemisi olma yolunda ilerliyor. Bir koronavirüs olarak, özellikle bağışıklık sistemi zayıflamış olanlar için ciddi solunum yolu hastalığına neden olduğu bilinmektedir. Şiddetli Akut Solunum Sendromu (SARS-CoV) ve Orta Doğu Solunum Sendromu (MERS-CoV), birçok ülkede binlerce kişiyi enfekte eden geçmiş koronavirüslerin en dikkate değer olanlarıdır. Üç virüs de zoonotik bir kökene sahip, ağırlıklı olarak koronavirüsün doğal rezervuar konaklarından biri olan yarasalardan gelmektedir. Bu nedenle, bu makalenin amacı, üç koronavirüsün de niteliklerini ve özelliklerini karşılaştırmaktır. SARS-CoV, MERS-CoV ve COVID-19, benzer sınıflandırmalarından dolayı birçok viral benzerliği paylaşırken, genetik olarak yakından ilişkili değillerdir. COVID-19, genomunun yaklaşık% 79'unu SARS-COV ile ve sadece yaklaşık% 50'sini MERS-CoV ile paylaşır. SARS-CoV ve SARS-CoV-2 arasındaki en önemli genetik benzerliklerden biri, paylaşılan reseptör proteinleri ACE2'dir. Her üç virüs de aynı baskın insandan insana bulaşma modunu paylaşsa da, solunum damlacıkları, SARS-CoV-2 diğer ikisinden çok daha yüksek bir enfeksiyon oranına sahiptir. Aerosol ve asimptotik iletim, COVID-19'un patlayıcı bulaşıcılığı için önde gelen bir faktör olabilir. Şu anda, sosyal mesafe, etkili bir aşı geliştirilinceye kadar COVID-19 ile mücadele için tek etkili önleyici stratejidir. Bir nükleotid analog ilaç olan Remdesivir, hastalar için iyileşme süresini kısaltmada pozitiflik gösteriyor. Nekahet plazma tedavisi tedavisi de bazı kritik hastalarda ümit verici bir iyileşme göstermiştir.

Anahtar Kelimeler: SARS-CoV, MERS-CoV, COVID-19, Koronavirüs, Aşı, Sosyal Uzaklaşma, Remdesivir

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INTRODUCTION

COVID-19 disease has been declared as a pandemic since the beginning of March 2020 by the World Health Organization (WHO).[1] It was first reported in Wuhan, The People's Republic of China, in late December 2019. The causative virus for this disease was isolated and characterized in mid-January 2020.[2,3] Based on its genetic relatedness to existing coronaviruses, WHO named this virus as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Since it first originated in 2019, it is also referred to as COVID-19 (Coronavirus disease 2019). This new coronavirus consists of about 30 kb positive sense single stranded ribonucleic acid (RNA) genome. It is known to infect a wide range of hosts including bats, humans and other mammals. SARS-CoV-2 is a Betacoronavirus, which is known to cause severe disease and outbreaks in humans.[3-5]

Coronaviruses, itself, are not unknown to humans. In November 2002, betacoronavirus Severe Acute Respiratory Syndrome (SARS or SARS-CoV) was the first coronavirus epidemic originating in Guangdong Province, Southern China harboring 8000 cases and 800 deaths.[6,7] In June 2012, Middle East Respiratory Syndrome (MERS or MERS-CoV) was isolated in Jeddah, Saudi Arabia and grew to infect nearly 2,500 cases and 800 deaths predominately in middle eastern countries.[8] SARS-CoV-2 surpasses them both as it has already killed more than 900,000 people worldwide and has infected over 28 million individuals in the last eight months.[9] Evidently, SARS-CoV-2 is drastically more infectious and lethal in humans than any of its predecessors. Therefore, this article's aim is to compare and contrast the attributes and features of SARS-CoV-2, SARS-CoV, and MERS-CoV from a genetic and evolutionary perspective.

ORIGINS/ HISTORY

Within months of SARS-CoV's origins in the Guangdong Province, Southern China, SARS took the responsibility of being the first pandemic of the 21st century.[6,7,10] Other known human coronaviruses, such as HCoV- 229E (betacoronavirus 1) and HCoV- OC43 (betacoronavirus), are vaguely related to SARS as both viruses are primarily associated with the common cold and other minor illnesses.[6,7] SARS-CoV has a zoonotic origin that can be traced back to a SARS like coronavirus present in animal species, specifically Himalayan palm civets and racoon dogs, that evolved through the species barrier to humans. This SARS-CoV-like virus was isolated in a live-animal market in Guangdong, China in October, 2003.[11] From there, cases developed in China predominantly transmitting to healthcare workers. SARS- CoV spread to other east Asian countries such as Hong Kong, Taiwan, Vietnam, and Singapore eventually making its way to Toronto, Canada.[12] On July 5, 2003, the World Health Organization(WHO) announced that the global SARS outbreak was contained and on December 31, 2003, WHO received all reports describing 8,096 cases and 774 deaths in 29 countries and regions.[13]

MERS-CoV was first isolated in Saudi Arabia in 2012.[14] Unlike SARS-CoV, MERS predominantly extended to countries in the Middle East, Africa, and East Asia. Over 27 countries, MERS-CoV had 2,494 cases and 858 deaths since September 2012.[1] Although significantly fewer infections, the high case fatality rate of nearly 34.3% drastically surpasses the SARS-CoV case fatality rate of about 9.6%.[15] MERS was initially suspected of originating from bats as the genetic classification of MERS, as a linage C betacoronavirus, closely associated with that of bat coronaviruses HKU4 and HKU5.[16,17] NEOCoV, a coronavirus found in the South African *Neoromicia capensis* bats, was found to have 85% of its genome identical to that of the nucleotides of MERS-CoV, outlining a possible origin.[18] Furthermore, bat coronavirus HKU4, found in the Guangdong Province, China, was discovered to have the same receptor protein, DPP4, despite their low nucleotide identities with MERS-COV (75.5% to 81.2%).[16] Regardless, no epidemiological links between human infections and bat coronaviruses were present, denying a bat origin of MERS.[17] However, in 2013, the full-human genome of MERS-CoV was found in Dromedary camels in Saudi Arabia, along with 15% of a camel derived coronavirus. Nucleotide Polymorphism signatures between the two strands revealed a possible cross-species transmission of MERS to humans.[19] In 2014, MERS-CoV was isolated from Dromedary camels in Qatar, UAE furthering the evidence of a zoonotic origin.[20] The genetic, epidemiological, and phenotypic connections between human infection and Dromedary camel infection prove a Dromedary origin to be much more likely.[17] It is also accepted that a Dromedary coronavirus originated from bat coronaviruses through cross species transmission in the distant past.[21] MERS has died down drastically since its peak in 2013, however, sporadic outbreaks have occurred, primarily in Saudi Arabia, from 2014 to 2019.[1]

SARS-CoV-2 is the most severe of human coronaviruses so far. Currently, there are about 28,523,343 cases and nearing one million deaths worldwide as the curve continues to increase exponentially. The United States is currently the epicenter of SARS-CoV-2 with more than 6,500,000 cases in and of itself.[9] Unlike the SARS-CoV and MERS-CoV, SARS-CoV-2 has a relatively low mortality rate of 3.5 % (currently) with a significantly higher infection rate. COVID-19 was first reported in Wuhan, China in the Hubei province in December, 2019 as it is said to have originated from a local seafood market.[8,22] Much like SARS-CoV and MERS-CoV, COVID-19, as a coronavirus, was traced back to its natural reservoir host bats.[23] Specifically, bat betacoronavirus RaTG13, which was isolated in Yunnan territory, China, was found to have a 96.2% genome similarity with SARS-COV-2.[22,24,25] Although it was later proven that BatCoV RaTG13 could not have been the exact variant to cause SARS-CoV-2 in humans, a bat origin of COVID-19 is widely accepted.[26] Furthermore, a strand of coronavirus found in Malayan Pangolins is found to have a similar amino acid identity to that of COVID-19. A particular spike gene native to that of SARS-CoV-2 may have partially

been provided by this Pangolin variant.[27] From an evolutionary perspective, SARS-CoV-2 originated in humans, by genetic mutation or recombination, from 1 of 3 theoretically plausible scenarios: (i) natural selection of a coronavirus in an animal host before a cross-species transmission (zoonotic transfer) (ii) zoonotic transfer followed by natural selection in humans (iii) natural selection of experimental viruses during laboratory passing.[28] Ultimately, the most popular theory of SARS-CoV-2 origins is from bat and pangolin coronaviruses evolved by recombination to enter the human population as a zoonotic virus.

Molecular Biology of SARS, SARS-COV-2 & MERS

Viruses, by definition, "are small obligate intracellular parasites which contain either an RNA or DNA genome surrounded by a protective, virus-coded protein coat." Viruses can be classified as a single-stranded or double stranded depending on genome structure. Often composed of basic proteins, the viral genome can be found inside a symmetric protein capsid or head. The nucleocapsid is composed of both the genome together with the nucleoprotein, a nucleic-acid associated protein. Capsids can also be described by one of three shapes: helical, polyhedral (Icosahedral), or complex. In enveloped viruses, such as coronaviruses, a lipid bilayer surrounds the nucleoplacid and an outer layer of virus-coded, glycosylated membrane proteins. Essentially, the nucleocapsid is equivalent to a virus without its envelope. If a virus does not have an envelope, a naked virus, the nucleocapsid describes the virus as a whole. A complete virus particle capable of transmitting its genome information to a host cell is known as a virion.[28] Coronaviruses contain an enveloped, 5^1-capped, single-stranded, positive-strand RNA molecule. As the largest of the known RNA viruses, they have a genome range of 25-32 kb (kilobases) much higher than any other RNA virus.[30] The coronavirus genus falls under the *Coronaviridae* family and the *Nidovirales* order. Coronaviruses can also be classified by four genera: *Alphacoronavirus, Betacoronavirus, Gammacoronavirus,* and *Deltacoronavirus*. These genera are divided by phylogenetic clustering but can easily be identified by their main reservoir host. Alpha- and Betacoronaviruses are known to infect mammalian species, Gammacoronaviruses are known to infect avian species, while Deltacoronaviruses are known to infect both.[31,32]

Although SARS-CoV, MERS-CoV, and SARS-CoV-2 are generally discussed together, they are not as closely related as they may seem at least from genetics perspective. The genome similarly between SARS-CoV-2 and SARS-CoV (about 79%) is only slightly closer than that of SARS-CoV-2 and MERS-CoV (about 50%). RaTG13 seems to be the closest to SARS-CoV-2, in terms of genetic similarity, irrespective of being a bat coronavirus.[25] However, the genome lengths of the three viruses are not too different. SARS-CoV's full length genome has 29,751 base pairs, MERS-CoV's full length genome has 30,150 base pairs and SARS-CoV-2's full length genome has only 28,818.[33-35] Furthermore, each virus codes for a unique number of structural, accessory and non-structural proteins. The SARS-CoV genome expresses 4 structural, 8 accessory, 16 non-structural proteins to make up 28 proteins overall.[35] SARS-CoV-2 forms a total of 27 proteins composed of 4 structural, 8 accessory, and 15 non-structural proteins.[36] MERS-CoV, despite having the largest genome length, only encodes 11 proteins: 4 structural, 2 accessory and 5 non-structural.[37] As one may notice, each of the viruses have 4 structural proteins. These structural proteins, common to most coronaviruses, are the spike surface glycoprotein (S), the small envelope protein (E), the matrix protein (M), and the nucleocapsid protein(N).[38] Specifically, the spike surface glycoprotein is necessary for viral transmission as it plays a key part in the binding to receptor proteins on a host cell.[39] Generally speaking, receptor-binding domains (RBD's) allow for the S-proteins of viruses to bind to host receptors.[38] One of the main receptors of SARS-CoV is known as angiotensin-converting enzyme 2 (ACE2).[38,40] SARS-CoV-2 shares this same human cell receptor, ACE2, while MERS-CoV uses dipeptidyl peptidase 4 (DPP4) as its main receptor.[36,41] Not only does this illustrate a key similarity between SARS-CoV and SARS-CoV-2, but it may also explain one of the reasons behind SARS-CoV-2 and MERS-CoV's low genome similarity. Furthermore, a single nucleotide mutation on SARS-CoV-2's RBD, might have increased its already high pathogenicity.[42]

Epidemiology of Covid-19 in contrast with SARS and MERS

Epidemiology, roughly speaking, refers to the study of the factors that lead to the presence or abundance of a disease.[43] Although Epidemiology concerns a broad spectrum of topics, this article will focus on patterns in disease spread, incubation periods, and possible symptoms. SARS-CoV, although first transmitted by animal-human contact, the most widespread route of transmission through the human community is by respiratory droplets from coughing and sneezing. A person who touches or inhales an infected area with residue may also be infected.[44] Traces of SARS-CoV have also been found in tears, feces, urine of infected individuals. Furthermore, the presence of SARS-CoV in stool may suggest feco-oral transmission although it was not conclusively proven.[45] In terms of international spread, SARS-CoV was also found, during the epidemic, to have transmitted through commercial airlines.[46] A look into the demographics of patients around the world shows consistent patterns. Healthcare workers consisted of quite a large portion. Specifically, in Hong Kong, 22% of patients were healthcare workers while 41% of patients in Singapore had similar professions. Only 6% of Hong Kong SARS cases were under the age of 18 showing that infections in the younger population were relatively uncommon. Furthermore, nearly all of the infected youth population lived in close proximity to an adult with an infection.[47] The median age of all SARS patients was reported to be under 50 years old.[48] 2-10 days is the general incubation period for SARS though an 6.4 days has been estimated by mathematical models.[12] Major preceding symptoms of SARS include chills, fever,

malaise, myalgia, and nonproductive cough while sore throat and rhinorrhea are less common. Respiratory deterioration, watery diarrhea and viral pneumonia were apparent.[49]

Unlike SARS-CoV, MERS-CoV, is more influenced by zoonotic transfer as humans only act as transient hosts for the virus.[50] In humans, MERS-CoV has been detected predominantly in the lower respiratory tract, where the majority of DPP4 receptors are located, and in the upper respiratory tract, urine, stool, and blood of mildly and severely ill patients.[51] In terms of viral transmission, large outbreaks of MERS-CoV were found in healthcare facilities. Specifically, MERS-CoV samples have been cultured from environmental objects such as bed sheets and radiograph devices, indicating possibilities of environmental transmission.[52] Other possibilities of transmission include aerosol transmission, as air samples found in hospital rooms of MERS-CoV patients were found to have viral RNA,[53] as well as fomite transmission, as MERS-CoV was proven to be relatively stable in environmental conditions.[54] Environmental, aerosol, and fomite transmission of MERS-CoV are not definite modes of transmission as definite epidemiologic evidence is yet to be provided. Furthermore, the rate of secondary transmission in the household was only about 5%.[55] Patterns in the spread of MERS-CoV were also quite apparent specifically to the cases in South Korea (SK) and the Kingdom of Saudi Arabia (KSA), where the majority of all cases were found.[56] The average age of a MERS-CoV case in KSA and SK was 51 and 54 years respectively. Referring to transmission by healthcare facilities, most SK cases (about 94%) were hospital related. However, in KSA, the majority (about 60%) of the cases were of unknown origins. In terms of sex distribution, both countries had a slightly higher frequency of male cases. Overall, 65% of all MERS-CoV cases were in males rather than females.[57] The mean incubation period for MERS-CoV is 6.4 days. Furthermore, evidence in South Korean cases suggests a correlation between shorter incubation period and higher risks for death specific to MERS-CoV. Compared to SARS-CoV, MERS-CoV, in the lower respiratory tract, has broader cell tropism and a higher replication rate.[58] Cough was the most frequent symptom of MERS-CoV patients while fever was the most common symptom. Shortness of breath and diarrhea were also common among patients. More severe MERS-CoV symptoms include pneumonia and kidney failure.[13,57]

Human to Human transmission by various means has led to SARS-CoV-2's worldwide spread.[59] While SARS-CoV-2 may not be as severe as SARS-CoV in most cases, its infectivity is drastically higher. Like both SARS-CoV and MERS-CoV, SARS-CoV-2 is mainly transmitted via respiratory droplets coughing or sneezing.[60] One of the possible reasons for high infectivity is due to SARS-CoV-2 having the highest of its viral load, or quantity of a virus in a given fluid, in the nose and throat.[61] Recent studies also propose a fecal-mouth route of transmission due to the detection of SARS-CoV-2 in stool.[62] SARS-CoV-2 has also been isolated in the urine of patients.[63] Transmission from stool and urine is yet to be conclusively proven and is in need of further study. In addition, SARS-CoV-2's ability to remain infectious and viable on surfaces for days gives leeway to the possibility of surface transmission. Naturally, the surface in which the virus is found plays a role in viability.[64] Moreover, airborne transmission of SARS-CoV-2 has proven to be highly virulent and dominant in the spread of the virus.[65] Nevertheless, the Achilles' heel of viral prevention comes from the asymptomatic transmission of COVID-19. Asymptomatic transmission essentially means the transmission of a virus while still in the incubation period or from an individual showing no symptoms of viral infection. Although weak, asymptomatic carriers of SARS-CoV-2 can still be infective.[66,67] The incubation period of COVID-19 is 1-14 days, mostly 3-7 days. SARS-CoV-2 primarily targets the elderly and people with underlying diseases or compromised immune systems. The median age of all patients is between 47-59.[59] Similar to MERS-CoV, the sex distribution of patients show a majority of male patients with the proportions of nearly 50% to 75%.[63] Children, currently, tend to be the least affected by the virus possibility due to less viral contact and healthier immune systems.[68] The clinical symptoms of SARS-CoV-2 are much like SARS-CoV and MERS-CoV. The most common include fever, cough, dyspnea, fatigue, myalgia, headaches, and sputum production. Sore throat, chest pain, conjunctival congestion, nausea, vomiting, diarrhea, rhinorrhea, and hemoptysis were present in some cases.[63]

Treatment/Prevention Strategies

Treatment for disease can come in many forms including vaccines, drugs, plasma therapy or prevention strategies. Specifically, vaccines are weakened versions of a pathogen or virus intended to create an immune response in the body without causing infection. A human's adaptive immune system will then produce an immunological memory and highly specific antibodies to prevent future infections.[69] Drugs are substances that cause a biochemical or physiological change to a cell, tissue, organ, or organism. Currently, there is no vaccine or treatment that has the capability to fully mediate a SARS-CoV, MERS-CoV, or SARS-CoV-2 infection. Supportive care, or measures taken to reduce the effects of the disease symptoms rather than the disease itself, is the only currently implementable practice against any of these coronaviruses. Some examples of supportive care include supplemental oxygen and mechanical ventilation.[13] Several drugs have a possibility in combating SARS-CoV and MERS-CoV. For a total of 66 compounds, 6 drugs can be active against SARS-CoV, 33 drugs can be active against MERS-CoV and 27 can be active against both.[70] Ribavirin was a drug used in 90% of Hong Kong SARS-CoV cases. Although the drug has broad spectrum antiviral activity, it was later proven that it was unable to clear SARS-CoV from patients fully. Other drugs experimented with SARS-CoV include Lopinavir, Ritonavir and Corticosteroid.[71] For MERS-CoV, the primary countermeasure drug to combat was a combination of Ribavirin and interferon-α2b.[72] Some other drugs that have been moderately effective on both include: Chlorpromazine hydrochloride, Triflupromazine hydrochloride, Dasatinib, Imatinib mesylate, Gemcitabine

hydrochloride, and Toremifene citrate.[70] For COVID-19, much experimental data related to drug combat has not been completed yet.

Drugs used against SARS-CoV and MERS-CoV have potential against SARS-CoV-2. Additionally, clinical trials of Azithromycin, which are currently ongoing, may have potential against SARS-CoV-2.[43] Dexamethasone, a corticosteroid, has also been clinically tested in the United Kingdom and has had positive results in treating critically ill COVID-19 patients.[1] Remdesivir, a nucleotide analogue drug, is currently the most anticipated treatment for Covid-19. Clinical trials of Remdesivir are ongoing across the world and is showing positivity in reducing recovery time for patients.[73,74] EIDD-2801 is an orally bioavailable drug being clinically tested in the United Kingdom as it has shown a reduction in the replication of multiple coronaviruses in mice.[75] Furthermore, a treatment known as Convalescent plasma therapy is also being administered for severe Covid-19 cases in many countries. Convalescent plasma therapy essentially gives liquid plasma and antibodies from the donated blood of recovered SARS-CoV-2 patients to current patients.[76,77] As of now, the U.S. food and Drug Administration, as well as many other countries, have authorized the use of Convalescent plasma therapy due to a lack of other viable alternatives.[78] In terms of a vaccine, a large amount of information is still needed to develop a vaccine for any of the 3 coronaviruses. Although SARS-CoV and MERS-CoV infections are quite rare today, COVID-19 continues to infect by the thousands and could potentially evolve into new strains. The changing genetic make-up of SARS-CoV-2 by rapid evolution certainly is one of the main obstacles in developing vaccines in the near future.

Preventative strategies for SARS-CoV, MERS-CoV, and SARS-CoV-2 are mainly the same. The gist of these preventative measures is to simply reduce the number of infections in a given population. Most of these interventions involve proper hygiene and reduced social contact. "Social distancing", such as canceling mass gatherings and closing schools, was the main preventative strategy for SARS-CoV and MERS-CoV and is being implemented today for COVID-19.[79,80] Evidence suggests that 1 meter of physical distancing between people at all times significantly reduces infectivity while 2 meters is more effective. Furthermore, the use of face masks reduces viral infectivity for the user and those around the user. N95 respirator masks reduce the risk of infection more so than that of disposable surgical makes or multilayered cotton masks. However, due to substantially increased numbers of infections throughout the world, only health care professionals have been asked to use this particular kind of mask.[81] Additional strategies related to health and social distancing include isolating individuals travelling from affected regions for at least the length of incubation period, imposing travel restrictions from affected areas, maintaining hygiene such as rigorous hand washing with soap and use of gloves, spreading awareness of virus, and maintaining immunity by consumption of a nutritious diet and exercising at home.[82]

Another prevention strategy that has recently been brought to light during COVID-19 is known as Herd Immunity. Herd Immunity is based on acquired immunity or immunity at an individual level from either natural infection or vaccination. Essentially, herd immunity is individual immunity at a large population level. By cutting down the number of vulnerable people in a given population, the transmission of the pathogen significantly decreases. Herd immunity's primary goal is reaching the herd immunity threshold, or the point at which the vulnerable population falls under the lower limit necessary for successful transmission of the virus.[83] While herd immunity seems adequate theoretically, there are many risks as the majority of the population needs to be infected for herd immunity to function. In the current COVID-19 pandemic, the United Kingdom initially proposed herd immunity but soon backed off as viral growth continued and resulted in higher death rate. Regardless, it appears that herd immunity may be a necessary strategy in tackling COVID-19.[84]

CONCLUDING REMARKS

There are several challenges and uncertainties related to fully understanding each of these viruses. The current pandemic has inspired an enormous amount of studies to uncover every feature of SARS-CoV-2 biology, epidemiology, and evolution. Innovative research coupled with urgency has, in a strikingly short amount of time, presented us with a plethora of structural and functional knowledge that may aid in the effective treatment of Covid-19 soon. Regardless, it is essential to produce a vaccine in record time as infections continue to grow by millions across the globe. The mumps vaccine, the fastest vaccine ever approved, took nearly 4 years to develop. In 2015, however, a ZIKA virus vaccine was ready for testing in an astonishing 7 months but was not approved as the epidemic died out before clinical trials were conducted. Currently, forecasters predict a fully ready COVID-19 vaccine for licensure to be available in early-mid 2021. While none of these predictions may be truly accurate, it does bring hope to the community. Many other aspects must be considered when identifying the best strategy for tackling this pandemic. Even once the effective vaccine is developed, producing it at a large scale across the globe will take a considerable amount of time. Economic challenges also arise during the pandemic. Adapting social distancing measures everywhere puts many businesses at a downfall financially. Not only does this bring down the economy, but also results in a reduction of jobs. In a country where economic growth is a priority, social distancing goes against the political goals and agendas of the nation. Striking a balance to protect both health and wealth is a necessary endeavor. Nevertheless, protecting the wellbeing of citizens should be the top priority for any nation. We should continue to enforce strict social distancing measures until necessary and provide access to funding research and clinical testing for a faster vaccine release are the solutions to the this current predicament.

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Letter to the editor / Editöre Mektup

Leishmania Hepatitli Bir Olgu

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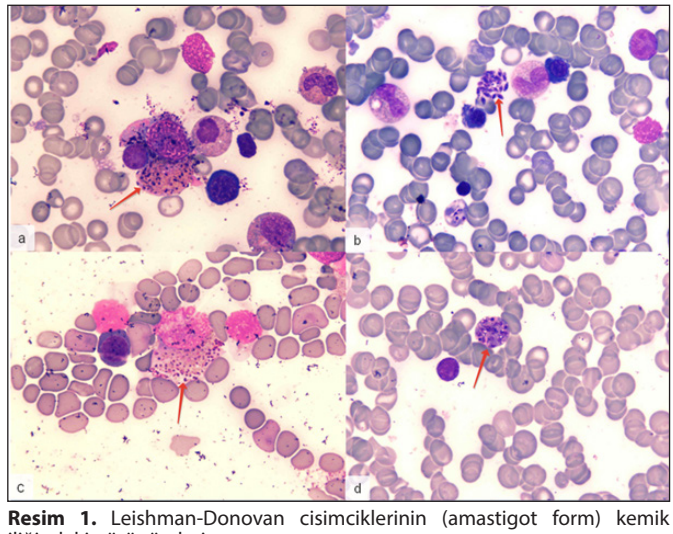
Sayın Editör

Hatice Köse ve ark.[1] nın Cağdaş Tıp Dergisi'nin 2018 yılı ikinci sayısında (Cağdaş Tıp Dergisi 2018;8(2);165-167) yayımlanan "Erişkin bir visseral leishmaniazis olgusu: Tanı ve tedavi seçeneklerinin irdelenmesi: Olgu Sunumu" başlıklı olgu sunumunu ilgi ile okudum. Bu olgu sunumu ülkemizde ateş, pansitopeni ve hepatosplenomegalisi (HSM) olan hastalarda mutlaka visseral leishmaniazisin (VL) hatırlanması ve vurgulaması yönüyle değerli bir çalışmadır.

Bizim de İnönü Üniversitesi Tıp Fakültesi Çocuk Sağlığı ve Hastalıkları Anabilim Dalı Çocuk Gastroenteroloji, Hepatoloji ve Beslenme Birimi'nde daha önce izlediğimiz leishmania hepatitli olgumuzu, çocuk hastalarda da uzamış ateş, karın şişliği, halsizlik, iştahsızlık, HSM, lökopeni, trombositopeni ve hepatit gibi bulgularla karşımıza çıkabileceği konusunda dikkatli olunması gereğini vurgulama amacıyla özetlemek istiyorum.

Üç yaşında erkek hasta, yaklaşık beş aydır devam eden halsizlik, iştahsızlık, ateş ve karın şişliği şikâyetleri ile kliniğimize başvurdu. Özgeçmiş ve soy geçmişinde özellik olmayan hastanın fizik muayenesinde genel durumu orta, düşkün, cilt rengi soluk, kalp ritmik, solunum sesleri doğal, karaciğer kot altında 8 cm ve sert, dalak kot altında 10 cm ele geliyordu ve nörolojik muayenesi normaldi. Tam kan sayımında WBC:3,5 (103/M), HGB:9,3 g/dL, PLT:129 (103/M), INR:1, biyokimyasında total protein: 7,9 g/dL, albümin: 3,2 g/dL, globülin: 4,7 g/dl, total bilirubin: 0,7 mg/dL AST: 127 U/L, ALT: 94 U/L olarak geldi. Abdominal USG ve Dinamik üst batın tomografisinde karaciğer kraniokaudal 9 cm boyutta (hepatomegali), homojen parankim ekosunda olup konturlar düzenli, intrahepatik safra yolları normal izlendi, ana portal ven ve hepatik venler ve dalları normaldi, dalak kraniokaudal 10 cm boyutta (splenomegali), homojen parankim yapısında ve konturları düzenli izlendi. Pansitopenisi olan hastaya kemik iliği yapıldı ve kemik iliğinde leishmania amastigot formunda görüldü (**Resim 1**).



Resim 1. Leishman-Donovan cisimciklerinin (amastigot form) kemik iliğindeki görünümleri

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VL tanısıyla hastaya antimon içeren 10-20 mg/kg/g glucantim başlandı. Üç hafta sonunda halen klinik düzelme olmaması üzerine 3 mg/kg lipozomal amfoterisin B 0. 1. 2. 3. 4. ve 10. günlerde günde tek doz olmak üzere, toplam 18 mg/kg dozunda uygulandı.[2] Herhangi bir yan etki ile karşılaşılmadı. Klinik ve laboratuvar değerleri düzelen hasta ayaktan takip edilmek üzere taburcu edildi. 6. Ay İzleminde hastanın splenomegalisinin düzeldiği görüldü.

Zoonotik bir enfeksiyon olan VL'in ana rezervuarı köpekler ve kemiricilerdir. Akut başlangıçlı hastalıkta ateş yüksekliği, iştahsızlık, halsizlik, solukluk ve karın şişliği en sık başvuru nedenlerindendir. Fizik muayenede en belirgin bulgu ileri boyutlara ulaşabilen dalak büyüklüğüdür. Yurdumuzda, çocukluk çağında yapılan leishmaniasis araştırmalarında HSM %97,7-99 oranında, solukluk ise %50-99 oranında saptanmıştır.[3] Bu nedenle özellikle splenomegalisi ön planda hepatitik tabloda gelen hastalarda ateş varlığında VL düşünülmelidir. Bazı olgularda splenomegalinin tedavi sonrası uzun sürede düzeleceği de unutulmamalıdır.

Çıkar çatışması: Bildirilmemiştir.

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Letter to the editor/ Editöre Mektup

Recommendations Regarding Covid-19 Management for the Family Healthcare System

Aile Hekimliği Sistemi için Covid-19 Yönetim Önerileri

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Dear Editor,

Primary preventive healthcare services have always been the easiest and fastest way for the patientto access healthcare services. In addition to the emergency departments, these centers come to mind first to be referred in case of pandemics.[1] Primary healthcare personnel undertake a great responsibility in this new and special case of Covid-19 viral pandemic. The basis for the emergency action plan should be established by taking necessary measures in these primary healthcare centers and easing the workload in order to prevent a bottleneck in the health system.

Necessary equipment should be provided, or diagnosis centers should be established so that Covid-19 virus can be diagnosed through all primary preventive healthcare services. People should stay in isolated environments as much as possible and the contagion risk for the virus should be minimized in order to ease the workload of hospitals and to take the pandemic under control. It is clear that the delayed diagnosis of people infected with the virus increase the risk of getting infected. In countries where family healthcare system runs properly, a good planning and designation of family healthcare centers as the basis for emergency action plans to minimize the riskof infection could help limiting the contagion areas.[2] Cities should be separated into regions and isolated. Healthcare needs other than urgent ones should be met by the family healthcare center in order to minimize the risk for contagion and to ease the workload of hospitals to prevent a bottleneck in the health system.

Family healthcare centers should employ Covid-19 diagnosis kits[3] giving fast results. However, they are not being as valid and reliable as PCR (polymerase chain reaction) diagnosis methods.[4] Patient referral system should operate without any compromise in order to minimize the risk for contagion. The borders of small areas in cities should be determined and a single-family healthcare center should be designated to each region to limit the virus.

We believe that primary preventive healthcare services always forming the first and basic step of healthcare systems should be well-organized and public cooperation should be ensured to limit Covid-19 viral pandemic. It would be helpful in terms of minimizing loss of life until vaccine and medicine studies prove their success.

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