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COVID-19 Pandemi Sürecinde Türk Toplumunun Sağlık Çalışanlarına Yönelik Damgalayıcı Tutumlarının COVID-19 Korkusu İle İlişkisi

The Relationship Between the Stigmatizing Attitude of Turkish Society Towards Healthcare Professionals During the COVID-19 Outbreak and Fear of COVID-19

Seval CÜCELER[1], Behire SANÇAR[1]

Özet: Bu tanımlayıcı ve kesitsel araştırma, COVID-19 pandemisi sürecinde Türk toplumunun sağlık çalışanlarına yönelik damgalayıcı tutumları ile COVID-19 korkusu arasındaki ilişkiyi incelemek amacıyla 556 kişi ile gerçekleştirilmiştir. Veriler, kişisel bilgi formu, Covid-19 Pandemi Sürecinde Sağlık Çalışanlarını Damgalayıcı Tutum Anketi ve Koronavirüs Korkusu (COVID-19) Ölçeği kullanılarak çevrimiçi olarak toplanmıştır. COVID-19 Korkusu Ölçeği ile damgalayıcı tutum anketi arasındaki ilişki Pearson korelasyon katsayısı kullanılarak incelenmiştir. İlköğretim düzeyindeki katılımcıların damgalayıcı tutum anketi puanları diğer eğitim düzeyindeki katılımcılara göre daha yüksekti ve aradaki fark istatistiksel olarak anlamlıydı ($p<0,05$). Ayrıca ilköğretim düzeyinde eğitime sahip katılımcıların COVID-19 Korkusu Ölçeği puanları lise ve lisansüstü eğitim düzeyine sahip katılımcılara göre daha yüksek bulundu ve aradaki fark istatistiksel olarak anlamlıydı ($p<0,05$).Yakınını COVID-19 nedeniyle kaybeden katılımcıların damgalayıcı tutum anketi puanları ve COVID-19 Korkusu Ölçeği puanları, yakınını kaybetmeyen katılımcılara göre daha yüksekti ve aradaki fark anlamlıydı ($p<0,05$). Yapılan korelasyon analizi sonucunda, Covid-19 korkusu ölçek puanları ile damgalayıcı tutum anketi puanları arasında istatistiksel olarak anlamlı pozitif ve orta düzey bir ilişki olduğu görüldü. (r: 0.377; $p<001$). Topluma en yakın sağlık profesyoneli olarak hemşirelerin, COVID-19 hakkında toplumu doğru bilgilendirmesi ve damgalama karşıtı faaliyetler yürütmesi, bizim çalışmamız doğrultusunda daha geniş katılımlı çalışmaların yapılması önerilmektedir.

Anahtar Kelimeler: COVID-19 korkusu, damgalama, sağlık profesyonelleri.

Abstract: This descriptive and cross-sectional research was carried out with 556 individuals in order to examine the relationship between the stigmatizing attitudes of Turkish society towards healthcare workers and fear of COVID-19 during the COVID-19 outbreak. Data were collected online using a demographic characteristics form, the Attitudes Stigmatizing Healthcare Workers During the COVID-19 Outbreak questionnaire, and the Fear of Coronavirus (COVID-19) Scale. The relationship between the Fear of COVID-19 Scale and the stigmatizing attitude questionnaire was examined using Pearson's correlation coefficient.The stigmatizing attitude questionnaire scores of the participants at the primary education level were higher than the participants at the other education level, and the difference was statistically significant ($p<0.05$). In addition, Fear of COVID-19 Scale scores of the participants with primary level education were higher than those of the participants with high school and graduate education levels, and the difference was statistically significant ($p<0.05$).The stigmatizing attitude questionnaire scores and the Fear of COVID-19 Scale scores of the participants whose relatives had died due to COVID-19 were higher than those of the participants who had not lost relatives, and the difference was significant ($p<0.05$). The correlation analysis showed a statistically significant positive and moderate level correlation between the Fear of COVID-19 Scale scores and the stigmatizing attitude questionnaire scores (r: 0.377; $p<001$). It is recommended that nurses, the healthcare professionals in closest contact with the public, supply correct information about COVID-19 and engage in anti-stigmatization activities, and that research with wider participation be carried out in line with this study.

Keywords: Fear of COVID-19, stigma, healthcare professionals.

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INTRODUCTION

Epidemics throughout history have led to the stigmatization of individuals, managers, and especially healthcare workers who have the disease and are likely to get it (Erkin, 2021). The fear of the unknown and the unfamiliar has created a justification for the exclusion and disenfranchisement of individuals with a seemingly incurable medical illness (L. Williams et al., 2011). The COVID-19 outbreak, which has affected the whole world, has also brought many difficulties. One of the challenges is stigma(Yılmaz et al., 2021). The concept of stigma is generally expressed as unjust treatment of a person or group because of a different characteristic they have (Ertem, 2020). During the COVID-19 outbreak, individuals diagnosed with COVID-19 and their family members, individuals receiving treatment, and even individuals recovering have been stigmatized by society. However, the stigmatization of healthcare workers during this period has been the most destructive kind of social stigma (Bhattacharya et al., 2020). In some countries, healthcare workers were evicted from rental homes, suffered verbal and physical violence, and were not allowed to use public transport (Bagcchi, 2020). Nurses participating in a qualitative study reported that society considered nurses caring for COVID patients infected with the virus and labeled them “COVID nurses”. One of the participants conveyed the feelings she/he felt as a result of stigma, stating that "It's so annoying when people call me "COVID"; I felt like a virus in my own society" (Pasay-an et al., 2022). Furthermore, the COVID-19 outbreak has caused intense fear in society(Lin, 2020). COVID-19 is considered a new and unknown disease and fear of the unknown is the basis of the stigma associated with it (Social Stigma Associated with COVID-19, n.d.).

Healthcare workers were even seen as a source of COVID-19 infection by some people, and the fear of COVID-19 among the public made healthcare workers the target of stigmatization (Bagcchi, 2020). The fear and stigma involving the COVID-19 outbreak may have negative consequences on disease control (Ornell et al., 2020). Stigmatized healthcare workers may experience a sense of burnout, their already heavy burden may increase further, and their social support systems may decrease during this process. This can result in an increase in stress levels and psychological (Atac & Kaplan, 2021; Yılmaz et al., 2021). Considering all these, it becomes important to combat the stigma against healthcare professionals and to increase research on this issue during the outbreak. When the literature is reviewed, it is noteworthy that the relationship between the stigmatizing attitudes of society towards healthcare workers and the fear of COVID-19 during the COVID-19 outbreak has not been adequately investigated. In this context, this research was carried out to examine the relationship between the stigmatizing attitudes of society towards healthcare workers and the fear of COVID-19 during the COVID-19 outbreak.

Research Hypotheses;

H0: There is no relationship between the stigmatizing attitudes of the society towards healthcare workers and the fear of COVID-19 during the COVID-19 outbreak.

H1: There is relationship between the stigmatizing attitudes of the society towards healthcare workers and the fear of COVID-19 during the COVID-19 outbreak.

METHOD

Participants

The participants in this descriptive and cross-sectional study were individuals in Turkey over the age of 18. The research data were collected online with a questionnaire created using the Google Forms application. Participants volunteering to fill out the data collection form were asked to convey the form to those around them and 556 individuals formed the sample group of the study by means of snowball sampling. The power of the study was calculated using the program G*Power 3.1.9.2. As a result of the analysis applied to 556 people with α=0.05, effect size was 0.377 and the power of the study, which was calculated post hoc, was 1.00.

The minimum required power value for post hoc analysis is 0.67. Thus, the power was acceptable and the sample size was sufficient.

Measures

A demographic characteristics form, the Attitudes Stigmatizing Healthcare Workers During the COVID-19 Outbreak questionnaire, and the Fear of COVID-19 Scale were used. In the demographic characteristics form prepared by the researchers in light of the literature (Bagcchi, 2020; Bhattacharya et al., 2020; Pasay-an et al., 2022; Taylor et al., 2020). 11 questions were asked to obtain introductory information about the participants (age, sex, occupation, marital status, number of children, education level, having had COVID-19, having received a COVID-19 vaccine).

Stigmatizing Attitudes to Healthcare Professionals During the COVID 19 Outbreak:

The questionnaire was created by the researchers based on the relevant literature (Bagcchi, 2020; Bhattacharya et al., 2020; Pasay-an et al., 2022; Taylor et al., 2020). There are 8 questions in the survey to measure the attitude of society towards healthcare workers during the COVID-19 outbreak. The questionnaire was sent to 13 instructors who are experts in their fields, and their expert opinions were obtained and the coverage validity rate (CVR) was checked. Based on the values reported by Ayre and Scally (2014),(Ayre & Scally, 2014) the CVR was a minimum of 0.538 at the p=0.05 significance level for 13 experts. With the adjustments made in line with the expert opinions, the CVR of the questionnaire was found to be 0.9423 and the final version of the questionnaire contained 8 questions.

Fear of COVID-19 Scale:

This scale, developed by Ahorsu et al. (2020), (Ahorsu et al., 2022) was adapted into Turkish by Bakioglu et al. (2020). (Bakioğlu et al., 2021). Consisting of a single dimension and 7 items, it is a 5-point Likert-type scale (1 = I strongly disagree with 5 = I strongly agree). There is no reverse item in the scale, and the total score obtained from all items reflects the level of fear of Coronavirus (COVID-19) experienced by the individual. The scores that can be obtained from the scale range from 7 to 35. A high score from the scale means experiencing a high level of fear of coronavirus. In the Turkish version, the Cronbach's alpha internal consistency coefficient was calculated by using confirmatory factor analysis and item analysis, and the coefficient for the reliability of the scale was .88. (Bakioğlu et al., 2021). For this study, the Cronbach's alpha internal consistency coefficient was 91.

Data Analyses

The data obtained in the research were analyzed using SPSS for Windows 25.0. Descriptive statistical methods (number, percentage, mean, and standard deviation) were used in the evaluation of the data. For variables with continuous and normal distribution; Minimum, maximum, mean and standard deviation values were used, and percentage values were used for categorical variables. In addition to the normality tests whether the data is normally distributed or not, with histogram, Q-Q graph and box-plot graphics; skewness and kurtosis; It can be evaluated with distribution measures such as the coefficient of variation (Hayran&Hayran., 2011). In order to ensure normality, the values should be observed close to a 45-degree line in the scattering diagram of the data and should be positioned by centered the median line of the box in the box line graph (Büyüköztürk., 2011). The normal distribution was checked with conformity tests of normality and kurtosis skewness values. The normal distribution of the data depends on the skewness and kurtosis values being between ±3 (Shao &Zhou, 2002). In this study, the Skewness value for the fear of COVID-19 scale scores was 0.720 (S.E: 0.14) and the Kurtosis value was -0.288 (S.E: 0.207). The Skewness value of the stigmatizing attitude questionnaire scores was 1.038 (S.E: 0.104), and the Kurtosis value was 0.375 (S.E: 0.207). It was determined that the scale and questionnaire scores met the assumption of normal distribution. Therefore, in the comparison of the quantitative data, the independent samples t-test was used for

paired groups, one-way analysis of variance for comparison of more than two groups, and the Bonferroni paired comparison test to determine from which group the difference originated. The relationship between the Fear of COVID-19 Scale and the stigmatizing attitude questionnaire was examined using Pearson's correlation coefficient. When interpreting correlation analyses, values between 0.01-0.029 were low; values between 0.30 and 0.70 were considered moderate and values between 0.71 and 0.99 were considered high correlated values (Köklü et al.,2019).. In addition, in this study, since the age of the participants was not categorical and was expressed with mean and standard deviation (mean: 29.43±11.28), correlation analysis was performed to test the relationship.

Data Collection

The research data were collected online with a questionnaire created using the Google Forms application. The researchers delivered the surveys they created in the Google Forms application to the participants via online platforms such as social media, whatsapp and e-mail. Participants who met the inclusion criteria (over the age of 18, could read and write in Turkish, and agreed to participate in the study) answered the forms.

Ethical Approval

In order to carry out the research, ethics committee approval was obtained from the scientific research and publication ethics committee of a university (decision no. 93 dated 09/09/2021). In addition, consent was obtained from the participants included in the study with the online informed consent form prescribed by the ethics committee, and the study was conducted in accordance with the principles of the Declaration of Helsinki.

RESULTS

Demographic Characteristics

According to the findings we obtained, the participants were in the 18-66 age range (mean: 29.43±11.28), 64.6% were women, 30.8% had children, and the number of children was 1 or 2 (mean: 1.69±0.46). Moreover, 41.4% of the participants had associate degree/undergraduate degrees and 80.2% were working in sectors other than healthcare. While 38.8% of the participants had COVID-19 previously, 79.9% had a relative with COVID-19, and 96.6% received a COVID-19 vaccine.

Stigmatizing Attitude Survey Scores According to Demographic Characteristics

As seen in Table 1, there was a statistically significant difference between the stigmatizing attitude questionnaire scores according to the education level of the participants ($p<0.05$). The scores of the participants with primary level education were higher than those of the participants with other education levels. The scores of the participants who did not have relatives with COVID-19 were higher than those of the participants whose relatives did have COVID-19, and the difference between them was statistically significant ($p<0.05$). The scores of the participants whose relatives had died due to COVID-19 were higher than those of the
participants who had not lost relatives, and the difference was significant ($p<0.05$) (Table 1)

Fear of COVID-19 Scale Scores According to Demographic Characteristics

There was a statistically significant difference between the Fear of COVID-19 Scale scores according to the sex of the participants, and the scale scores of the female participants were higher than those of the male participants ($p<0.05$). In addition, the scores of the participants with primary level education were higher than those of the participants with high school and graduate education levels, and the difference was statistically significant ($p<0.05$). The scores of the participants who had had COVID-19 previously were higher than those of the participants who had not, and the difference was statistically significant ($p<0.05$). Moreover, the scores of the participants who had a relative who had died due to COVID-19 were higher than those of the participants who had not

lost a relative, and the difference was significant ($p<0.05$). Finally, the scores of the participants who had received a COVID-19 vaccine were higher than those of the participants who were not vaccinated, and there was a statistically significant difference ($p<0.05$) between them (Table 2).

Table 1: Stigmatizing attitude survey scores by demographic characteristics

Characteristic	Mean±SD	Test Value	p (Post Hoc)
Sex			
Female	14.01±6.72	-0.326[t]	0.745
Male	14.21±6.73		
Marital status			
Single	14.06±6.78	-0.117[t]	0.907
Married	14.13±6.61		
Status of having a child			
Yes	14.35±6.66	0.627[t]	0.531
No	13.96±6.75		
Educational level			
Primary education[1]	18.39±8.25	10.976[f]	**0.000***
High school[2]	14.21±6.41		
Ass.deg/ Undergraduate[3]	14.01±6.65		(1>2,3,4)
Graduate or higher[4]	12.04±5.59		(2>3)
Sector			
Health sector	12.99±6.66	-1.907[t]	0.057
Others	14.35±6.72		
Previous COVID-19 disease status			
Yes	14.31±6.73	0.636[t]	0.525
No	13.94±6.72		
Status of having COVID-19 patients in their relatives			
Yes	13.73±6.47	-2.96[t]	**0.023***
No	15.5±7.51		
The state of being relative to someone who died due to COVID-19			
Yes	15.16±7.33	2.750[t]	**0.006***
No	13.47±6.28		
Any COVID-19 vaccination status			
Yes	14.10±6.64	0.302[t]	0.766
No	13.47±9.01		

Ass.deg: Associate degree *$p<0.05$ [t]:independent sample t test [f]:one-way analysis of variance

Table 2: COVID-19 Fear scale scores by demographic characteristics

Characteristic	Mean±SD	Test Value	p (PostHoc)
Sex			
Female	16.58±7.21	3.044[t]	**0.002***
Male	14.66±6.89		
Marital status			
Single	15.93±7.06	0.155	0.877
Married	15.83±7.39		
Status of having a child			
Yes	16.24±7.48	0.740[t]	0.460
No	15.75±7.01		
Educational level			
Primary education[1]	18.53±9.01	2.627[f]	**0.050***
High school[2]	15.58±7.21		
Ass.deg/ Undergraduate[3]	15.8±7.08		(1>2,4)
Graduate or higher[4]	15.4±6.03		
Sector			
Health sector	16,45±7,21	0.888[t]	0.375
Others	15,77±7,14		
Previous COVID-19 disease status			
Yes	16.70±7.80	2.038[t]	**0.042***

No	15.39±6.68		
Status of having COVID-19 patients in their relatives			
Yes	15.94±7.26	0.253[t]	0.801
No	15.75±6.76		
The state of being relative to someone who died due to COVID-19			
Yes	17.32±7.82	3.412[t]	**0.001***
No	15.09±6.62		
Any COVID-19 vaccination status			
Yes	16.06±7.13	2.762[t]	**0.006***
No	11.47±6.48		

Ass.deg: Associate degree *p<0.05 [t]:independent sample t test [f]:one-way analysis of variance

A statistically significant and positive low level correlation was found between the age of the participants and the Fear of COVID-19 Scale scores (r: 0.089; p<0.05). There was no statistically significant relationship between the age of the participants and the scores of the stigmatizing attitude questionnaire (p>0.05) (Table 3).

Table 3: Relationship between COVID-19 fear scale and stigmatizing attitude questionnaire and age

		COVID-19 Fear Scale	Stigmatizing Attitude Questionnaire
Age	**r**	0.089*	0.071
	p	0.037	0.093
	N	555	555

*p<0.05

The correlation analysis performed to test the relationship between the Fear of COVID-19 scale and the stigmatizing attitude questionnaire used in this study is shown in Table 4. There was a statistically significant positive and moderate level correlation between the Fear of COVID-19 Scale scores and the stigmatizing attitude questionnaire scores (r: 0.377; p<001) (Table 4).

Table 4: Relationship between fear of COVID-19 scale and stigmatizing attitude questionnaire

		Stigmatizing Attitude Questionnaire
COVID-19 Fear Scale	**r**	0.377*
	p	0.000
	N	556

*p<0.01

DISCUSSION

In this study, the relationship between the stigmatizing attitudes of Turkish society towards healthcare workers and the fear of COVID-19 during the COVID-19 outbreak was examined.

It was observed that the participants with a lower education level had higher stigmatizing attitudes towards healthcare professionals (p<0.05). In a previous study, those with lower education levels had higher social stigma scores (Zhang et al., 2021). That study supports this_finding. Considering that knowledge and awareness increase as the level of education increases, this finding is not surprising.

In this study, the participants who did not have relatives with COVID-19 exhibited more stigmatizing attitudes towards healthcare workers compared to those whose relatives did have the disease (p<0.05). In another study, it was reported that people with a relative with COVID-19 are stigmatized (Jafree et al., 2020). That study supports this finding. Since the participants who had relatives with COVID-19 experienced stigma and faced the negative consequences of this

experience, it is expected that they will display less stigmatizing attitudes towards healthcare professionals. Furthermore, the participants who had relatives with COVID-19 may have witnessed the disease process up close. Therefore, they may have exhibited a less stigmatizing attitude as they showed gratitude and an empathic approach to the healthcare workers who are battling the COVID-19 outbreak under difficult circumstances.

In this study, the participants whose relatives had died due to COVID-19 displayed more stigmatizing attitudes towards healthcare workers compared to those who had not lost relatives ($p<0.05$). This finding can be explained by the grieving process. Individuals may have more difficulty with this process in the face of unexpected death and may resort to blaming others (Özel & Özkan, 2020). Individuals who have lost relatives due to COVID-19 may blame healthcare workers for the loss, which may lead to their displaying a stigmatizing attitude.

According to this research, the female participants, those who had had COVID-19 previously, those who had a relative who had died due to COVID-19, and those who had received a COVID-19 vaccine had greater fear of COVID-19 ($p<0.05$). Studies in the literature(Andrade et al., 2022; Broche-Pérez et al., 2022; Sánchez-Teruel et al., 2022; Trapp et al., 2022). reveal that female participants experience greater fear of COVID-19 than males, and this study is consistent with this. Burani and Nelson reported that women show a greater startle response than men against an unforeseen threat (Burani & Nelson, 2020). In this context, considering the unpredictable nature of COVID-19 and the threat to life, it is understandable that women experience more fear than men.

This finding that participants who had previously had COVID-19 experienced more fear of COVID-19 isn't consistent with the research findings published by Kalafatoğlu and Yam (2021) (Kalafatoğlu & Yam, 2021). This finding can be explained by the fact that individuals do not want to experience COVID-19 and social isolation, which is a negative experience, and this triggers fear of COVID-19.

The fact that the participants who had a relative who had died due to COVID-19 experienced more fear of COVID-19 suggests that the losses triggered the fear of death in individuals and therefore they experienced more fear of COVID-19.

According to this findings, participants who had received a COVID-19 vaccine had more fear of COVID-19. Bendau et al. (2021) found that anxiety and health-related fears related to COVID-19 were associated with higher vaccine acceptance, which supports this finding (Bendau et al., 2021). Therefore, the fact that the participants who had received a COVID-19 vaccine had more fear of COVID-19 can be interpreted as the participants getting the vaccine due to their fear of the virus.

As a result of the correlation analysis, it was observed that there was a statistically significant positive correlation between the Fear of COVID-19 Scale scores and the stigmatizing attitude questionnaire scores ($r: 0.377$; $p<001$). In other words, as the fear of COVID-19 increases, the stigmatizing attitude towards healthcare professionals increases. In a previous study, stigma towards COVID-19 was associated with a high level of fear of COVID-19 (Cassiani-Miranda, Campo-Arias, et al., 2021). Similarly, in another study, high fear of COVID-19 was associated with high stigma (Haddad et al., 2021).

In a qualitative study conducted with healthcare professionals, all participants felt stigmatized and some of the participants cited the fear of being infected as the reason for stigmatization by people (Kwaghe et al., 2021). To the best of this knowledge, there are limited studies in the literature examining the relationship between the stigmatizing attitudes of society towards healthcare workers and the fear of COVID-19 during the COVID-19 outbreak. Similar to this research finding, Cassiani et al. (2021), in their study with university students, concluded that high stigma/discrimination against healthcare professionals is associated with high fear of

COVID-19(Cassiani-Miranda, Álvarez-Solorza, et al., 2021).

Another similar result was reported by Taylor et al. (2020) (Taylor et al., 2020). In their study, it was reported that more than a third of the individuals who participated in the survey avoided healthcare workers due to fear of infection (Taylor et al., 2020). This finding is consistent with the literature. Fear of the unknown was thought to be at the root of the stigma associated with COVID-19 (Social Stigma Associated with COVID-19, n.d.)

However, the fact that the stigmatizing attitude towards healthcare professionals is associated with the fear of COVID-19 shows that healthcare professionals are seen as a source of infection by society. This suggests that the public has inaccurate or insufficient information about COVID-19 and the working environment (use of personal protective equipment) of healthcare workers.

Limitations

The online data collection process and 556 participants are the limitations of this study.

CONCLUSION

The level of education and the presence of a relative who had died due to COVID-19 predict the stigmatizing attitude towards healthcare workers and fear of COVID-19. As the fear of COVID-19 increases among the public, the stigmatizing attitude towards healthcare professionals increases.

It is recommended that nurses, as the healthcare professionals in closest contact with the public, provide correct information about COVID-19 and engage in anti-stigmatization activities, and that research with wider participation be carried out in line with this study

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Trombosit İndekslerinin Meme Kanseri Prognozuna Etkileri

Effects of Platelet Indices on Breast Cancer Prognosis

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Özet: Amaç: Trombosit sayısı(PLT), trombosit dağılım genişliği (PDW), ortalama trombosit hacmi (MPV) ve trombositkriti (PCT) içeren trombosit indekslerinin yaşa göre değerini değerlendirmek ve meme kanseri (MK) ile ilişkisini belirlemek. Yöntem:Etik Kurul'dan 05.07.2022 tarih ve 2022/95 sayılı izinler alındı. Çalışmaya 01/01/2015-10/06/2022 tarihleri arasında Şırnak devlet hastanesine başvuran meme kanserli 68 hasta dahil edildi. Hastaların Trombosit İndeks düzeyleri hastane kayıt sisteminden retrospektif olarak taranarak yapıldı. Hastalar 18-45 ve 46-90 yaş grubu olarak iki gruba ayrıldı. Verilerin analizinde SPSS 21.0 paket programı kullanıldı. $p<0.05$ anlamlı kabul edildi. Bulgular:Yaşa göre trombosit sayısı, MPV, PDW ve PCT grupları arasında istatistiksel olarak farklılık göstermedi. Ancak MPV, PDW ve PCT ortalamalarının 18-45 yaş aralığında, ortalama trombosit sayısının ise 46-90 yaş aralığında daha yüksek olduğu belirlendi. PLT, MPV, PDW, PCT sırasıyla (p=0,917, p=0,159, p=0,419, p=0,285) bulundu. 18-45 yaş arası hastalarda PDW ile MPV arasında orta derecede güçlü pozitif korelasyon (r=0.546), PCT ile PLT arasında yüksek-güçlü pozitif korelasyon (r=0.828) ve zayıf-güçlü pozitif korelasyon (r=0.370) vardı. PCT ve MPV arasında. 46-90 yaş arası hastalarda PCT ile PLT arasında anlamlı bir pozitif korelasyon (r=0.872) bulundu. Sonuç:MK'nin trombosit sayısı ve hacmi üzerinde etkisi olmadığı söylenemez; MK'ye bağlı inflamasyonun trombosit indeksleri üzerindeki zıt (hem artırıcı hem de azaltıcı) etkilerinin kombinasyonu nedeniyle, MK'li hastaların trombosit indekslerinde kantitatif olarak anlamlı bir değişiklik olmadığı şeklinde bir yorum yapmanın daha uygun olacağını düşünüyoruz.

Anahtar Kelimeler: Meme kanseri, MPV, PDW, Platelet, Yaş.

Abstract: **Objective:** To assess the importance of platelet indices such as platelet count (PLT), mean platelet volume (MPV), platelet distribution width (PDW), and plateletcrit (PCT) in connection to age and to ascertain their relationship to breast cancer (BC). Methods:Permissions dated 05.07.2022 and numbered 2022 /95 were obtained from the Ethics Committee. 68 patients with breast cancer who applied to Şırnak state Hospital between 01/01/2015 and 10/06/2022 were included in the study. The patients' Platelet Index levels were performed by retrospectively screening from the hospital registry system. The patients were split into two groups 18-45 and 46-90 age groups. SPSS 21.0 package program was used in the analysis of the data. $p<0.05$ was considered significant. Results:Platelet count for age did not differ statistically between MPV, PDW and PCT groups. However, it was determined that the mean of MPV, PDW and PCT were higher in the 18-45 age range, and the mean platelet count was higher in the 46-90 age range. PLT, MPV, PDW, and PCT were found, respectively (p=0.917, p=0.159, p=0.419, p=0.285). Patients aged 18-45 years had a moderately strong positive correlation (r=0.546) between PDW and MPV, a high-strong positive interaction (r=0.828) between PCT and PLT, and a weak-strong positive correlation (r=0.370) between PCT and MPV. A substantial interaction (r=0.872) was found between PCT and PLT for patients aged 46-90 years. Conclusion:It's not that BC has no impact on platelet volume and number; We think that it would be more appropriate to interpret that there is no quantitatively important change in the platelet indices of patients with BC due to the combination of opposing (both increasing and decreasing) effects of inflammation due to BC on platelet indices.

Keywords: Breast cancer, MPV, PDW, Platelet, Age.

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INTRODUCTION

Breast cancer (BC) is the most common form of cancer diagnosed in women and the second greatest cause of death from cancer (Fahad,2019). BC is responsible for 18% of all deaths in women from cancer. Although BC is rarely seen in women under the age of 30, it is known that it increases more rapidly in the years following this age and this increase continues to increase slowly after menopause (Ozmen,2014; Çakır et al, 2016). When the results obtained from BC incidence and epidemiological studies are examined, it is seen that not a single factor is responsible for the formation of breast cancer, but there are many risk factors (Yıldız,2014; Rojas and Stuckey,2016).

When the results obtained from BC incidence and epidemiological studies are examined, it is seen that not a single factor is responsible for the formation of breast cancer, but there are many risk factors (Yıldız,2014; Rojas and Stuckey,2016). These risk variables include racial and ethnic diversity, age at first menstruation, number of live births, age at first live birth, age at menopause, and reproductive history. Family history has also been linked to an increased risk of BC (Koça et al., 2011). In addition to all these factors, studies are showing that inflammation might play an significant role in cancer progression and metastasis through platelets (Menter et al, 2017). This study's objective is to assess the significance of platelet indices such as platelet count, mean platelet volume (MPV), platelet distribution width (PDW), and plateletcrit (PCT) in relation to age and to ascertain their relationship to BC.

MATERIALS AND METHODS

Approval for this study, dated 05.07.2022 and numbered 2022/95, was obtained from a state university ethics committee. 68 breast cancer patients who applied to Şırnak state hospital between 01/01/2015-10/06/2022 were included in the study. Data were collected retrospectively in the automation system of the hospital. Patients' Platelet Index levels were determined using a retrospective review of the hospital registration system. The patients were split into two age groups: 18–45 and 46–90. The relationship of platelet indices according to these two groups was investigated. Platelet indices were obtained by measuring PCT, PDW and MPV values using a hemogram device (Sysmex Corporation, Kobe, Japan).

Statistical analysis

SPSS 21.0 package program was used for statistical analysis. The conformity of the data to the normal distribution was examined with the Kolmogorov-Smirnov test. With the Student's t-test, statistical analysis was performed. The data were displayed as mean ± standard error. To ascertain the correlation between the platelet indices, Pearson correlation analysis was used. A value of $P<0.05$ was considered significant.

RESULTS

There was no statistical difference between PLT, MPV, PDW and PCT groups according to age, respectively ($p=0.917$, $p=0.159$, $p=0.419$, $p=0.285$). However, it was found that the mean of MPV, PDW, and PCT was higher in the 18-45 age range, and the mean PLT was higher in the 46-90 age range (Table 1). PDW and MPV were found to have a moderately strong positive association ($r=0.546$), PLT and PCT to have a high-strong high association ($r=0.828$), and PCT and MPV to have a weak-strong high association ($r=0.370$) in individuals between the ages of 18 and 45. (Table 2 and Figure 1). Significant correlation of patients aged between 46-90 years A high strong positive correlation ($r=0.872$) was found between PCT and PLT. (Table 3 and Figure 2).

Table 1: Mean platelet indices by age

Parameters	**18-45 age**	**46-90 age**	**P**
PLT(THSD/CU)	273,47±11,47	275,25±12,41	0,917
MPV(fL)	9,47±0,24	9,06±0,17	0,159
PDW(fL)	13,65±0,44	13,08±0,53	0,419
PCT(%)	0,27±0,01	0,25±0,01	0,285

PLT: Platelet count; MPV: Mean platelet volume; Pct: Plateletcrit; PDW: Platelet distribution width

Table 2: Correlation table for data between 18-45 years old

	MPV	**PDW**	**PCT**
PLT	,040	-,135	,828*
MPV		,546*	,370*
PDW			-,046

*Correlation is significant at the 0.05 level (2-tailed).

Table 3: Correlation table for 46-90 age data

	MPV	**PDW**	**PCT**
PLT	-,227	,035	,872*
MPV		,146	,112
PDW			-,092

*Correlation is significant at the 0.05 level (2-tailed).

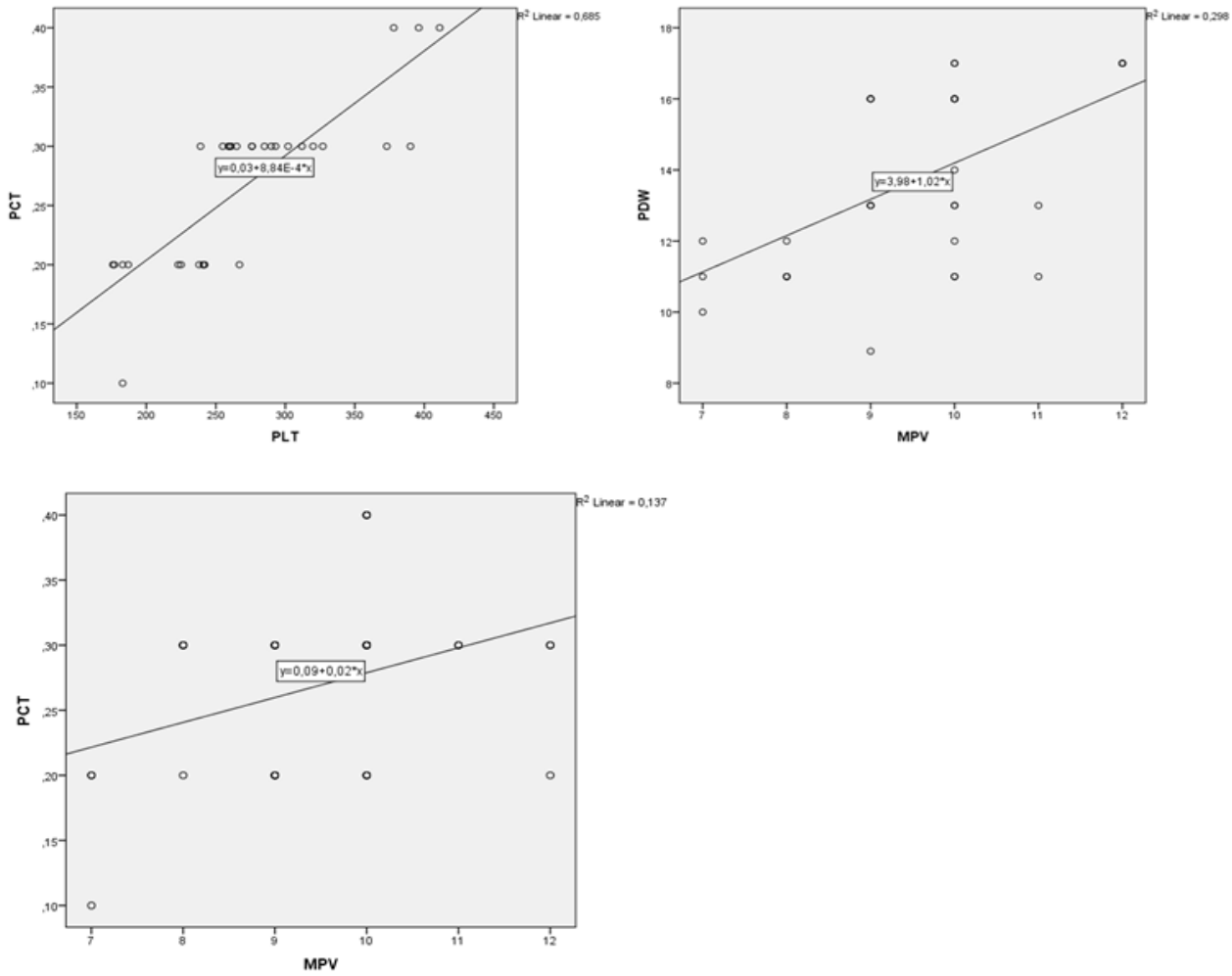

Figure 1: Correlation graphs for the 18-45 age range

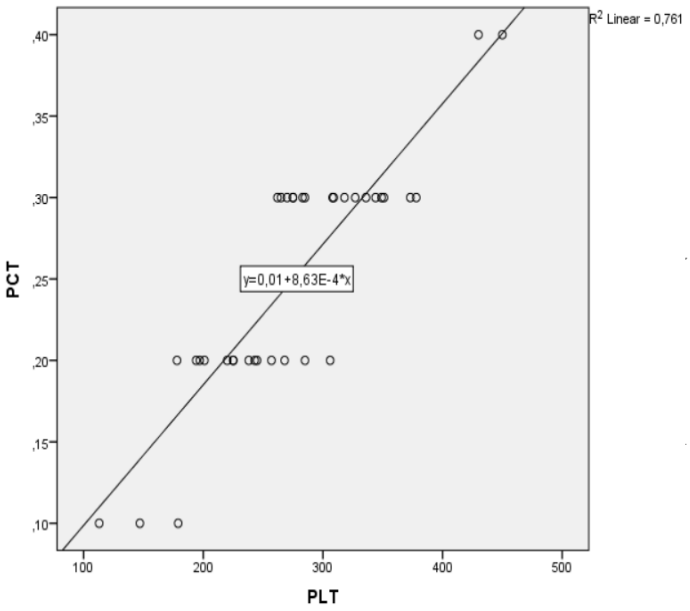

Figure 2: Correlation graph for the age range of 46-90

DISCUSSION

In this investigation, there was no discernible variation in platelet count, mean platelet volume, plateletcrit, or platelet distribution width between the age groups. Recently, it has been established that platelet indices are helpful indicators in several malignancies (Mezouar et al, 2016). It has been reported that there is a bidirectional interaction between platelets and cancer. The development of cancer is said to involve every stage, including platelet activation, aggregation, and activated platelets (Mezouar et al, 2016).

Long-term inflammation has been linked in studies to the growth and development of malignancies (Grivennikov et al, 2010; Wu et al, 2014). In our study, it is noteworthy that the tendency to decrease in platelet count in the 18-45 age group is more pronounced than in the 46-90 age group. However, there was no significant statistical change. In addition, the total platelet count in the 46-90 age group tended to be higher than in the 18-45 age group. The reason for this is also some platelet consumption occurs in the inflammatory area, and on the other hand, there may be an increase in production in the bone marrow that exceeds the consumption amount. Inflammation in breast cancer may partly explain the decreasing trend in thrombopoietin (TPO) levels. Because more platelets can internalize TPO in plasma and lower blood levels of TPO (Kaushansky, 2015).

Hematological parameters, and noninvasive routine blood test, have also been used as markers for systemic inflammatory response for a long time (Bozan et al, 2016). Sun et al. conducted on the clinical importance of the inflammatory index related to routine blood test in MC patients, the mean platelet count in groups aged below 50 years and above was 207.50± 54.24 for those under 50 years of age, 205.20± 52.43 for those above 50 years of age, and for those below 50 years of age for MPV. They reported 9.12± 1.20 for those over 50 years of age as 9.10± 1.35 (Sun et, 2017). In our study, we found a mean platelet count of 273.47±11.47 in the 18-45 age group, and 275.25±12.41 in the 46-90 age group.

For MPV, it was found 9.47±0.24 in the 18-45 age group and 9.06±0.17 in the 46-90 age group. We think that the reason for the difference in the number of platelets will depend on the stages. There is yet no established mechanism to explain how PDW functions in MC. Affected PDW may be caused by the dysregulation of bone marrow cells, especially megakaryocytes. Platelet heterogeneity is quantified by platelet distribution width. Megakaryocyte heterogeneous limitation has been observed to cause heterogeneity in platelet volume (Paulus,1981). In our study, the mean PDW in the 18-45 age group was found to be higher than the average in the 46-90 age range. The reason for this may be that malignant rates are higher in patients between the ages of 18-45 compared to the rates of patients between the ages of 46-90.

The reason why we could not find a significant difference in PDW levels in the 18-45 age group compared to the 46-90 age group in our study may be due to the consumption of large-volume platelets in the inflammation area as well as the large-volume young platelets produced in the bone marrow. Looking at the literature, fu et al. reported that the PDW value of the malignant group was higher than the benign group (Fu et al, 2017). In another study, it was reported that PDW is an effective and appropriate indicator of cancer prognosis. In the same study, they also pointed out that PDW differs in young and old individuals (Xia et al, 2018). PCT is the total volume occupied by platelets in the blood and is expressed as a percentage (%).

It is known that in cases affecting platelet count and MPV, plateletcrit will change (Budak et al,2016; Sirois ,2014). In our study, the mean PCT in the 18-45 age group was found to be higher than the average in the 46-90 age group. We think that this situation is due to the relationship between cancer stages, as we have stated above. In our study, there was a moderately strong positive correlation (r=0.546) between PDW and MPV in patients aged

18-45 years. In recent studies, it has been found that MPV and PDW levels increase with platelet activation; however, PDW has been shown to be a more specific marker of platelet activation than MPV (Akarsu et al,2006 Vagdatli et al,2010; Jindal et al,2011). The reason for this is thought to be a more specific indicator of platelet activation than MPV, since the PDW value does not increase in single platelet distension caused by platelet volume increase (Vagdatli et al, 2010). There was a strong positive connection (r=0.828) between PCT and PLT, and a weak strong positive connection (r=0.370) between PCT and MPV. Correlation of patients aged 46-90 years A strong positive connection (r=0.872) was found between PCT and PLT. It has been reported that in cases affecting platelet count and MPV, plateletcrit will change in the same direction (Budak et al,2016; Sirois ,2014).

Limitations of the Study

Our study's retrospective design, limited patient population, and undetermined lag time between blood collection and analysis are all drawbacks. Had the prospective study method been used, different results could have been obtained.

CONCLUSION

As a result; It was determined that BC did not cause a clear change in the platelet indices (platelet count, MPV, PDW and plateletcrit) of the patients examined. When this finding is evaluated in the light of information obtained from previous scientific studies, it is not that BC does not affect the number and volume of platelets; It seems that it would be more appropriate to interpret that there is no quantitatively significant change in the platelet indices of patients with BC, due to the combination of opposing (both increasing and decreasing) effects of inflammation because of BC on platelet indices. Especially this study is very important in terms of addressing age levels. Greater research is required to comprehend the function of platelets in the pathogenesis and diagnosis of BC disease.

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COVID-19 Pandemisi Süresince Huzurevinde Kalan Yaşlıların Hijyen Alışkanlıkları Üzerine Bir İnceleme*

*An Evaluation on Hygiene Habits of Individuals Residing in Residential Homes During the COVID-19 Pandemic Process**

Mehmet EFE[1], Yalçın DİCLE[2], Deniz PAMUK[1]

Özet: Amaç: Bu tanımlayıcı çalışmanın amacı huzurevlerinde ikamet eden yaşlıların COVID-19 Pandemisi süresince hijyen alışkanlıklarını değerlendirmektir. Yöntem: Çalışma; birisi normal diğeri ise büyükşehir statüsünde olmak üzere Doğu Anadolu Bölgesi sınırları içerisindeki iki şehirde bulunan huzurevlerinde ikamet eden 100 yaşlı birey ile yüz yüze görüşmeler yolu gerçekleştirilmiştir. Veriler Sosyo-demografik bilgi anketi ve hastalığa karşı korunmak için maske-mesafe-temizlik üçlemesi ile ilgili davranışları inceleyen soru formu ile toplanmıştır. Gruplar arasındaki ilişkiyi ifade etmek için pearson ki-kare analizi uygulanmıştır. Bulgular: Yaşlıların COVID-19 sonrası iyileşme durumu ve huzurevi içerisinde maske kullanma davranışları arasında anlamlı bir ilişki olduğu görülmüştür (p: 0,008; r= .514). Bununla beraber, bulaş düzeyi ve el dezenfektanı kullanma davranışı arasında da anlamlı bir ilişki bulunmaktadır(p: 0,001; r= .646). Bir diğer anlamlı bulgu ise, yaşlıların odalarına yapılan ziyaret sıklığı ve COVID-19 varlığı arasındaki anlamlı ilişkidir. Sonuç: Pandemi süresince bulaşı önlemek ve azaltmak amacıyla kazanılan hijyen davranışlarında ideal düzeye yaklaşmakla beraber, maske kullanımı ve sosyal mesafe konusunda daha çok dikkat edilmesi gerektiği anlaşılmıştır.

Anahtar Kelimeler: COVID-19, Hijyen, Huzurevi, Pandemi, Yaşlılar.

Abstract: Objective: Because the number of aging population is rising gradually this descriptive study is to evaluate the behaviors of individuals' hygiene residing in residential homes during COVID-19 Pandemic. Method: The study was conducted through face-to-face interviews with 100 elderly individuals residing in nursing homes in two cities within the borders of the Eastern Anatolia Region, one of which has normal and the other metropolitan status. Data were collected with a socio-demographic information questionnaire and a questionnaire examining behaviors related to the mask-distance-cleanliness triad to protect against disease. Pearson chi-square analysis was applied to express the relationship between the groups. Results: A statistically significant relationship was found between the variable of the participants' COVID-19 recovery status and the use of masks indoors. (p: 0,008; r= .514) It was determined that there was a statistically significant relationship between the variable of COVID-19 transmission status of residential home residents and the use of hand sanitizer also there was a statistically significant relationship between the variable of the participants' status of having COVID-19 and the frequency of visitors to their rooms (p: 0,001; r= .646). Conclusions: Although the hygiene behaviors gained in order to prevent and reduce transmission during the pandemic are approaching the ideal level, it has been understood that more attention should be paid to the use of masks and social distance.

Keywords: COVID-19, Hygiene, Residential Home, Pandemic, Older people.

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INTRODUCTION

Aging is a process of change that begins in the womb and ends with death, during which there might be various losses (Tufan, 2020) The total number of older people in the world and Turkey is increasing gradually due to medical and technological developments, and the control of infectious diseases (Yuvakgil, 2020). The world population in 2019 was approximately 7.5 billion people and the older population was 700 million people. According to these numbers, 9.3% of the world population belongs to old age group.

It is estimated that by 2025, one-third of Japan's population will be over the age of 65 (OECD, 2022). According to the data of the Turkish Statistical Institute (TURKSTAT), based on the last five years, the population growth rate of aged 65 and overshowed an increase of 22.5%, has reached 7.853,555 people in total. Nevertheless, while the population rate aged 65 and over in the total population is expected to be 11% in 2025, it is thought that it will reach 12.9% in 2030, 22.6 in 2060, and 25.6% in 2080 (TURKSTAT, 2022).

The increase in the aging population leads to problems related to accommodation, economy, health, and old age. Old people have more chronic diseases or problems. Just like in the world, the increase in the older population in the society occupies an important place among the causes of the increase in chronic diseases in our country, and it is seen that non-communicable diseases take place near the top among the causes of death (TURKSTAT, 2022; WHO, 2021).

However, having an infectious disease in old age is also a significant cause of mortality, and it has been reported that 1/3 of deaths are caused by infection (CDC, 2020). They also have a significant influence on morbidity, exacerbate the underlying diseases, and lead to an increased risk of secondary and functional impairment in the old age group. Pneumonia, influenza, and nosocomial infection are among the top 10 causes of death in people aged 65 and over (Zhou et.al. 2020).

Coronaviruses (CoV) are a large family of viruses that cause illnesses ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). A novel coronavirus (nCoV) is a new strain that has not been previously identified in humans. The source of the disease, which was first seen in Wuhan City, China in December 2019, was detected on January 7, 2020, as a new coronavirus not identified in humans before, and the disease caused by this virus was accepted as COVID-19 (Çiçek et.al. 2020). As a result of the spread of the disease due to the lack of information about it, World Health Organization accepted it as a pandemic on March 11, 2020 (CDC, 2019). While all age groups are at risk for COVID-19, older adults are at risk for serious illness due to aging and underlying medical conditions. The older people face a higher risk of COVID-19 infection due to physiological and biological changes in organs and systems and underlying medical conditions along with aging (Mueller et.al., 2020; WHO, 2020a).

The World Health Organization/Europe Weekly Surveillance Report revealed the relationship between the COVID-19 virus transmitting from person to person and age and stated that the incidence of the disease is higher in individuals over the age of 65, and 89% of deaths from COVID-19 occur in individuals over the age of 65 (Verity et.al. 2020). Similarly, in a study performed in China, they reported that the hospitalization rates with the diagnosis of COVID-19 increased with age as follows: 1% between the ages of 20 and 29, 4% between the ages of 50 and 59, and 18% in those over the age of 80 (UNFPA, 2020). In the technical note prepared by the United Nations Population Fund on the elderly, they reported that today elderly people generally live in residential homes due to the changing sociocultural structure, and elderly people in residential homes are more vulnerable to the COVID-19 pandemic (Adhikari et.al. 2020).

Coronavirus is transmitted from person to person by droplets released via talking, sneezing, or coughing through the mucous membranes of the

mouth, nose, or eyes to healthy individuals who come into contact with surfaces where these droplets spill from sick people with/without symptoms. To prevent the spread of the disease, some traditional public health measures such as quarantine, isolation, hygiene, and distancing have been taken all over the world (Güner et.al. 2020).

In the process after March 11, 2020, the date of the first case sample, guidelines for the basic rules that citizens should follow have been published in our country in order to prevent the spread of COVID-19. Said guidelines contain various hygiene rules that should be regarded by individuals. In general, some of these are measures such as hand washing after coughing/sneezing, touching mouth/nose or touching contaminated surfaces, using a sanitizer, washing hands for at least 20 seconds, and washing with soap, especially social distancing. As a result of the COVID-19 pandemic, for which these and similar measures are necessary, it is envisaged that social habits for cleaning and hygiene shall completely change (Derlenski & Stankov, 2020).

Purpose of this study is to examine the preventive behaviors (such as handwashing, use of sanitizer, social withdrawal, avoiding social contact, use of masks/gloves) and attitudes of the individuals in residential homes during the COVID-19 pandemic period, investigate the hygiene behaviors of these individuals and reveal how they differ according to some demographic variables.

MATERIAL AND METHOD

Research Methodology

The purpose of the study was explained to the individuals participating in the study and their consent was obtained with an informed consent form.

Population and Sample

The population of this study consists of elderly individuals residing in two nursing homes located in two different cities in the Eastern Anatolia Region of Turkey, one of which is a normal city and the other is a metropolitan city. Our sample group consists of a total of 100 elderly individuals who are distant to face-to-face interviews due to pandemic conditions in both nursing homes.

Data Collection

The data were collected between January 01, 2022 and February 01, 2022 by preparing questionnaires that included questions about socio-demographic characteristics, questions about the triad of cleanliness-mask-distance to prevent disease, and questions about their behaviors regarding hygiene habits. These questionnaires were collected through face-to-face interviews after obtaining permission from the dormitory management and the participants. Although it is not appropriate to conduct face-to-face interviews under pandemic conditions, considering the current age group, this method was compulsory due to the limited use of digital communication tools. Before starting the surveys, the informed consent form was read to the individuals one by one and their consent was obtained by signing the "Informed Consent Form". It was also emphasized that answering the survey questions sincerely was extremely important for obtaining valid and reliable results.

Data Analysis

The analyses in the study were carried out using IBM SPSS 21.0 package program. Descriptive statistics were used in the study. Statistical techniques such as Pearson chi-square analysis were used to express the relationship between the groups in the study.

RESULTS

The findings regarding the demographic data of the study are presented in Table 1.

Table 1: Statistical distribution of the participants according to their demographic characteristics,

City Type of Nursing Homes' Locations	**N**	**%**	**Gender**	**N**	**%**
City	25	25.0	Male	66	66.0
Metropolitan	75	75.0	Female	34	34.0
Total	100	100.0	Total	100	100.0
Age			**Civil Status**		
65-74 years old	55	55.0	Married	37	37.0
75-84 years old	36	36.0	Single	63	63.0
85 years and above	9	9.0	Total	100	100.0
Total	100	100.0	Educational background		
Level of Income			**Illiterate**	**49**	**49.0**
Below minimum wage	88	88.0	Literate	12	12.0
Minimum wage and above	12	12.0	Primary School	21	21.0
Total	100	100.0	Secondary School	4	4.0
Dispolsal of used masks			**High School**	**14**	**14.0**
to the closest wastebasket	84	84.0	Total	100	100.0
to the medical waste bin	10	10.0	**PSEYS**		
I don't throw it away, I reuse it	16	6.0	Yes	91	91.00
Total 100	100.0		No	9	9.00
PSEKD			Total	100	100.0
Yes	17	17.0	**Roommate's Disease Status with COVID-19**		
No	83	83.00	Yes	45	45.0
Total	100	100.0	No	55	55.0
			Total	100	100.0

PSEKD (Participation in post-pandemic events), PSEYS (Post-Pandemic handwashing frequency)

Table 1 shows that 25.0% of the participants were in residential homes in the city and 75.0% in the metropolis. 66.0% of them were male, and 34.0% were female. We found that 55.0% of the participants were between the ages of 65 and 74, 36.0% were between the ages of 75 and 84, 9.0% were 84 years old and over, 37.0% were married and 63.0% were single. We determined that 88.0% of the participants have a level of income below the minimum wage, and 12.0% of them have a level of income at the minimum wage and above. When the distribution of the educational status of the participants is examined, it was found that 49.0% are illiterate, 12.0% are literate, 21.0% are primary school graduates, 4.0% are secondary school graduates, and 14.0% are high school graduates. The use of masks within the residential home was found to be 84.0%. While 84.0% of the participants threw the masks used in the closest wastebasket, 10.0% of them threw them in the medical waste bin, and 6.0% stated that they did not throw them away for reuse. While 91.0% of the participants stated that the post-pandemic frequency of handwashing increased, 9.0% stated that the post-pandemic frequency of handwashing did not increase. The hand sanitizer use rate of the participants was determined to be 57.0%. While 17.0% of the participants stated that they participated in the post-pandemic activities, 83.0% stated that they did not participate in the post-pandemic activities. While 45.0% of the roommates of the participants got COVID-19 disease, 55.0% did not get COVID-19 disease. We found that 61 of the participants were diagnosed with COVID-19 during the pandemic, and 31 of them were male and 30 were female.

Results of the Pearson Chi-square Test performed In order to determine the relationship between the variable of having COVID-19 status and the daily hand washing frequency of participants are explained below.

While the handwashing rate one to six times a day was 32.8% for the participants who had COVID-19, the rate of handwashing seven times a day or more was 67.2%. It is seen that the handwashing rate one to six times a day is 46.2%, and the handwashing rate seven times a day or more is 53.8% for the participants who did not have COVID-19. No statistically significant relationship was found between the variable of having COVID-19 status and the frequency of daily handwashing (χ2:1.804; r=0.179; p> 0.05) according to the results of the Pearson chi-square test performed to test the dependence between the variable of having COVID-19 status and the frequency of daily handwashing of the participants.

The results of the Pearson chi-square analysis performed to determine the relationship between the variable of having COVID-19 status and the mask use of participants are explained below.

We found that the general mask use rate of the participants who had COVID-19 was 98.4%, and 1.6% did not use masks in general, while the general mask use rate of the participants who did not have COVID-19 was 100.0%, in other words, all of the participants who did not have COVID-19 used masks. No statistically significant relationship was found between the variable of having COVID-19 status and the mask use (χ2:0,646; p=0,422; p>0.05) according to the results of the Pearson chi-square test performed to test the dependence between the variable of having COVID-19 status and the mask use of the participants.

The results of the Pearson chi-square analysis performed to determine the relationship between the variable of having COVID-19 status status and the indoor mask use of participants are presented in table 2. It was found that 91.8% of the participants who had COVID-19 used masks, and 8.2% did not use any mask when meeting with other individuals indoors, while the mask use rate of the participants who did not have COVID-19 was 71.8% and 28.2% of them did not use any mask when meeting with other individuals indoors. The coefficient of correlation (r= .514) calculated by taking into account the coefficient of contingency (C=0.257) can be interpreted as the relationship between the variable of having COVID-19 status and indoor mask use at a moderate level. A statistically significant relationship was found between the variable of having COVID-19 status and the indoor mask use (χ2:7,086; p=0,008; p<0.05) according to the results of the Pearson chi-square test performed to test the dependence between the variable of having COVID-19 status and the indoor mask use of the participants (Table 2).

Table 2: Analysis results for the relationship between the variable of having COVID-19 status and the indoor mask use of participants

Having COVID-19 Status	**Indoor Mask Use Status**					
	Yes		**No**		**Total**	
	S	%	S	%	S	%
Yes	56	91.8	5	8.2	61	61.0
No	28	71.8	11	28.2	39	39.0
Total	84	84.0	16	16.0	100	100.0

Pearson χ2:7,086; s.d.:1; p=0,008; Minimum expected value: 6,244; Proportion of cells with an expected value less than 5: 0%
Coefficient of contingency C: 0.257; Cmax:0.50; Cters:2.00; Calculated coefficient of correlation r: 0.514 (Moderate).

The results of the Pearson chi-square analysis performed to determine the relationship between the variable of having COVID-19 status and the use of hand sanitizer of participants are presented in table 3. It was found that the use rate of hand sanitizer of the participants who had COVID-19 was 70.5%, and 29.5% did not use any hand sanitizer, while the use rate of hand sanitizer of the participants who did not have COVID-19 was 35.9%, and 64.1% did not use any hand sanitizer. The coefficient of correlation (r= .646) calculated by taking into account the coefficient of contingency (C=0,323) can be interpreted as the relationship between the variable of having COVID-19 status and the use of hand sanitizer at a moderate level. A statistically significant relationship was found between the variable of having COVID-19 status and the use of hand sanitizer (χ2:11,616; p=0,001; p<0.05) according to the results of the Pearson chi-square test performed to test the dependence between the variable of having COVID-19 status and the use of hand sanitizer of the participants (Table 3).

Table 3: Analysis results for the relationship between the variable of having COVID-19 status and the use of hand sanitizer of participants

Having COVID-19 status	**Use Status of Hand Sanitizer**					
	Yes		**No**		**Total**	
	S	%	S	%	S	%
Yes	43	70.5	18	29.5	61	61.0
No	14	35.9	25	64.1	39	39.0
Total	57	57.0	43	43.0	100	100.0

Pearson χ2:11,616; s.d.:1; p=0,001; Minimum expected value: 16,77; Proportion of cells with an expected value less than 5: 0%
Coefficient of contingency C: 0.323; Cmax:0.50; Cters:2.00; Calculated coefficient of correlation r: 0.646 (Moderate).

The results of the Pearson chi-square analysis performed to determine the relationship between the variable of having COVID-19 status and the frequency of visiting other rooms by the participants are presented in table 4. While 29.5% of the participants who had COVID-19 stated that they did not visit other rooms, 55.7% visited once a day, and 18.8% twice a day or more. We see that the rate of not visiting other rooms by the participants who do not have COVID-19 is 48.7%, the rate of those who visited once a day is 41.0%, and the rate of those who visited twice a day or more is 10.3%. No statistically significant relationship was found between the variable of having COVID-19 status and the frequency of visiting other rooms (χ2:3,773; p=0,152; p>0.05) by the participants according to the results of the Pearson chi-square test performed to test the dependence between the variable of having COVID-19 status and the frequency of visiting other rooms by the participants (Table 4).

Table 4: Analysis results for the relationship between the variable of having COVID-19 status and the frequency of visiting other rooms by the participants

Having COVID-19 Status	**Frequency of Visiting Other Rooms**							
	I don't visit		**I visit once a day**		**I visit two or more times a day**		**Total**	
	S	%	S	%	S	%	S	%
Yes	18	29.5	34	55.7	9	14.8	61	61.0
No	19	48.7	16	41.0	4	10.3	39	39.0
Total	37	37.0	50	50.0	13	13.0	100	100.0

Pearson χ2:3,773; s.d.:1; p=0,152; Minimum expected value: 5,07; Proportion of cells with an expected value less than 5: 0%

The results of the Pearson chi-square analysis performed to determine the relationship between the variable of having COVID-19 status and the frequency of allowing visitors to the rooms by the participants are presented in table 5. While it was found that 26.2% of the participants who had COVID-19 did not allow visitors to their rooms, 54.1% allowed once a day, and 19.7% allowed twice a day or more, it was determined that 51.3% of the participants who did not have COVID-19 did not allow visitors to their rooms, 35.9% allowed once a day, and 12.8% allowed twice a day or more. The coefficient of correlation (r= .646) calculated by taking into account the coefficient of contingency (C=0,247) can be interpreted as the relationship between the variable of having COVID-19 status and the frequency of allowing visitors by the participants at a moderate level. A statistically significant relationship was found between the variable of having COVID-19 status and the frequency of allowing visitors (χ2:6,841; p=0,039; p<0.05) by the participants according to the results of the Pearson chi-square test performed to test the dependence between the variable of having COVID-19 status and the frequency of allowing visitors by the participants (Table 5).

Table 5: Analysis results for the relationship between the variable of having COVID-19 status and the frequency of allowing visitors to the rooms by the participants

Having COVID-19 status	Frequency of Allowing Visitors to Their Rooms							
	I allow no visitors		I allow once a day		I allow twice a day or more		Total	
	S	%	S	%	S	%	S	%
Yes	16	26.2	33	54.1	12	19.7	61	61.0
No	20	51.3	14	35.9	5	12.8	39	39.0
Total	36	36.0	47	47.0	17	17.0	100	100.0

Pearson χ2:6,841; s.d.:2; p=0,039; Minimum expected value: 6,63; Proportion of cells with an expected value less than 5: 0%
Coefficient of contingency C: 0.247; Cmax:0.50; Cters:2.00; Calculated coefficient of correlation r: 0.494 (Moderate).

DISCUSSION

During the COVID-19 pandemic period people over 65 years old and those with diseases that require long-term treatment such as cancer, chronic respiratory disease, cardiovascular diseases, and diabetes experienced more disadvantages, and their mortality rates are also rising. In the study of Ayhan et al., a total of 118 gerontological patients were included, and the mean age of the patients was 74. Hypertension (41.5%), diabetes (30.0%) and dementia (18.6%) were the most common comorbid diseases in this gerontological patient group (Ayhan et.al., 2022). In addition to this, residential homes, which generally provide long-term care services to mentally and physically disabled elderly people, are vulnerable areas with more exposure to infection since elderly individuals are more affected by the adverse effects of this disease and shared living arrangements, (Machida et.al. 2020).

In a study by Yeşilyurt and Dicle (2021), it was reported that the rate of those who answered that they would throw their used mask in the closest wastebasket was 86.8%, and the rate of those who said that they would throw it in the medical waste bin was 9.9%. It is seen that the answers given by the residents of the residential home have similar rates to the answers given by the students of the faculty of health sciences.

In a study by Ünal et al. (2020), they stated that the pre-pandemic handwashing habit with soap and water for at least 20 seconds was 88.9%, while the post-pandemic handwashing habit changed to 98.4% (19) This study has similar rates, the reason for the slightly higher rate in the study by Ünal et al. (2020) can be interpreted as the fact that the population they work with consists of healthcare professionals with a certain hygiene perception.

However, to prevent the spread of COVID-19 infection, physical distance should be ensured in group activities in the residential home, and when

it is not possible, it is recommended to cancel group activities (WHO, 2020b). All traveling activities outside the residential home and some non-essential services (such as barber, hairdresser, etc.) provided to the residential home should be canceled or postponed to an appropriate time (WHO, 2020c). In this study 83% of the participants answered "no" to the question of whether residential home residents participated in several group activities routinely held in pre-pandemic residential homes, as well as post-pandemic. Social activities are extremely important for people in residential homes to spend quality time.

Karameşe et al. (2021) examined 7853 symptomatic cases in their COVID-19 prevalence study conducted in three neighboring provinces in Eastern Anatolia. 156 (41.8%) of them were male and 217 (58.2%) were female (Karameşe et.al. 2020). In our study, we determined that 61 (61%) of the participants were diagnosed with COVID-19 during the pandemic, and 31 (51.7%) of them were male and 30 (48.3%) were female. Although the gender-based distribution of COVID-19 positivity was similar in our study, the overall positivity was considerably higher than in the existing studies. Its reason can be interpreted as our study's constitution of a disadvantaged sample group with a high rate of chronic diseases. In their study, Yeşilyurt and Dicle (2021) reported that 30.2% of the people living in the same house had COVID-19 disease, and 69.8% did not have COVID-19 disease (19). In our study, we determined that 45 (45.0%) of them got COVID-19 disease from their friends with whom they shared the same room in a residential home, while 55 (55.0%) of them did not get any COVID-19 disease.

Although there are similarities in the studies, since our study covers the recent period, it can be interpreted as an increase due to the increase in the spread rate with the effect of new COVID-19 variants. Çiçek et al. (2021) reported a significant difference between the age of the participants and the hand hygiene sub-dimensions (Çiçek et.al., 2021). In our study also no statistically significant relationship was found between the variable of having COVID-19 status and the frequency of daily hand washing. One of the recommendations of The International Association of Gerontology and Geriatrics (IAGG) during the isolation period to prevent COVID-19 in the elderly and keep them healthy was "Actively (A) wash your hands with sanitizer or soap." (Chettri et.al. 2020).

When examining the transmission characteristics of SARS-CoV-2 and the previous studies on viruses that spread rapidly and cause pandemics such as influenza virus and coronavirus, the most effective protection measures are expressed as mask use and hand hygiene (Leung et.al. 2020; Arai et.al. 2021). In international studies, there exist studies in which the tendency to have protective behaviors against the COVID-19 pandemic differs according to the educational level (Arai et.al. 2021; Chen et.al. 2020). It is stated that fear and anxiety against COVID-19 are generally effective in mask use and hygiene measures (Panchal et.al., 2020; Voltmer et.al. 2021). Yeşilyurt and Dicle (2021) reported in their study that 43.0% of the participants answered the question of how many masks they use daily, in terms of their attitudes and behaviors regarding mask use, as "I use only one mask" and 28.3% of the participants answered the question of at what intervals they replace their masks, as "I don't replace all day long". In a study by Tang and Wong (2004), it is stated that individuals aged 50 to 59 were more attentive to mask use compared to other age groups.

In Sweden, young people stated that mask use is to protect both themselves and those around them, but the elderly only to protect themselves (Asri et.al. 2021). In this sense, another possibility is that residents diagnosed with COVID-19 have developed a faith that they do not need to protect themselves. Palcu et al. (2022) stated that mask use has a restrictive effect as well as a protective effect for individuals. Therefore, reducing measures such as mask use, maintaining social distance by individuals who have had the disease, and keeping social distance can be considered the need to get away from the restrictive situation. The reason why those living in residential homes who have COVID-

19 infection wear more masks indoors can be interpreted as the abundance of internal stimuli, peer pressure, or the perception of hygiene acquired over time, and the importance of wearing masks indoors where shared common areas are higher.

Instead of allowing visitors to residential homes, alternative methods such as telephone, video conferences should be developed and used (CDC, 2019). All visitors coming to the residential home should be asked by the nurses in charge whether they show any symptoms in terms of COVID-19 risk factors. Especially entrance of visitors who show symptoms of an acute respiratory tract infection, fever (≥ 38°C), or any of the symptoms of COVID-19 should not be allowed into the building. If visitors are required to be admitted due to mandatory reasons (such as close relatives of seriously ill patients, emotional and psychological care), these people should be warned about respiration and hand hygiene, they should be allowed to approach a maximum distance of 1 to 2 meters, and they should be ensured to leave the building immediately after the visit (WHO, 2020d).

CONCLUSION AND RECOMMENDATIONS

In this study, the hygiene habits of residential home residents during the COVID-19 pandemic process were examined. Although hygiene behaviors, which are significant in reducing and preventing transmission, have reached ideal levels during the pandemic period, it is understood that they should behave more carefully in terms of mask use and social distancing. In general, it is seen that people with improved hygiene behaviors are protected from COVID-19 infection or display the required sensitivity in this regard. All employees in charge who share the same environment with the nursing home residents must display the same sensitivity about hand hygiene, mask, and distancing triplets. It is required to provide more education on hygiene behaviors to individuals in high-risk groups such as nursing homes.

Research Limitations

The limitation of this study was that individuals staying in nursing homes did not accept face-to-face interviews during the pandemic period, and therefore, this study was conducted with fewer elderly people than expected. As another limitation, data was collected only from two nursing homes located in two different cities. Therefore studies from different geographical regions of Turkey, and a more representative national study can be performed.

Acknowledgment

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Ethics Committee Approval

This study is approved by Muş Alparslan University Local Ethics Committee of an university (date: 04.01.2021, number: 49/1). Before starting the questionnaires, the informed consent form was read to the individuals and their consent was obtained by signing the "Informed Consent Form".

Funding and Conflict of Interest

There is no funding for this study. All authors declare that there is no conflict of interest.

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Göğüs Ağrısı Olan Hastalarda Kararsız Anjina Pektorisi Ayırt Etmede End-Tidal CO2'nin Tanısal Rolü

The Diagnostic Role Of End-Tidal CO2 To Distinguish Unstable Angina Pectoris In Patients With Chest Pain

Serhat GÜNLÜ[1], Ahmet YEŞİL[2], Fethullah KAYAN[1], Mehmet Zülkif KARAHAN[1]

Özet: Amaç: Akut koroner sendrom (AKS) türlerinden biri olan kararsız angina pektoris (UAP), kalp dışı göğüs ağrısından (non-CCP) ayırt edilmesi zordur, bu nedenle doğru tanı için çeşitli stratejiler uygulanır. Bu çalışma, kardiyovasküler öyküsü olmayan göğüs ağrısı ile acil servise (AS) başvuran hastalarda non-invaziv olarak ölçülen end-tidal CO2'nin (ETCO2) UAP'yi saptayıp saptayamayacağını incelemeyi amaçlamaktadır. **Yöntemler:** Bu araştırma prospektif gözlemsel bir çalışma olarak yürütülmüştür. Bireyler, dahil etme ve hariç tutma kriterlerine göre iki gruba ayrıldı: CCP olmayan 75 hasta ve 75 UAP. Teşhis değeri kesimini tanımlamak için alıcı işletim özelliklerinin (ROC) analizlerinden yararlanılmıştır. Tek değişkenli regresyon analizi kullanılarak, UAP tahmini için ETCO2'nin olasılık oranı (%95 CI ile) hesaplandı. **Bulgular:** ETCO2 seviyeleri UAP grubunda CCP olmayan grupla karşılaştırıldığında önemli ölçüde daha düşüktü (p<0.001). ROC eğrisinin analizi, %78 duyarlılık ve %89 özgüllükle (EAA:0.81, p <0.001) azalmış bir ETCO2 <35'in UAP'yi öngördüğünü ortaya koydu. Ayrıca negatif prediktif değer %71.6, pozitif prediktif değer ise %79.4 olarak bulundu. UAP'li hastaların ETCO2 <35'e sahip olma olasılığı ÇKP olmayan hastalara göre 8.84 kat daha fazlaydı. **Sonuç:** UAP, göğüs ağrısı olan hastalarda non-invaziv bir parametre olarak ölçülen ETCO2 ile CCP olmayandan ayırt edilebilir.

Anahtar Kelimeler: Akut koroner sendrom, kalp dışı göğüs ağrısı, kararsız anjina, koroner bakım ünitesi, soluk sonu karbondioksit.

Abstract: **Objective:** Unstable angina pectoris (UAP), one of the acute coronary syndrome (ACS) types, is difficult to identify from non-cardiac chest pain (non-CCP), hence various strategies are applied for accurate diagnosis. This study aims to examine whether non-invasively measured end-tidal CO2 (ETCO2) can detect UAP in patients admitted to the emergency department (ED) with chest pain in the lack of a cardiovascular history. **Methods:** This research was conducted as a prospective observational study. The individuals were separated into two groups based on the inclusion and exclusion criteria: 75 patients with non-CCP and 75 UAP. Analyses of receiver operating characteristics (ROC) were utilized to define the diagnostic value cutoff. Using univariate regression analysis, the odds ratio of ETCO2 (with 95%CI) was computed for UAP prediction. **Results:** ETCO2 levels were substantially lower in the UAP group compared to the non-CCP group (p<0.001). Analysis of the ROC curve revealed that a decreased ETCO2 <35 predicted UAP with 78% sensitivity and 89% specificity (AUC:0.81, p <0.001). In addition, the negative predictive value was 71.6%, and the positive predictive value was 79.4%. Patients with UAP were 8.84 times more likely to have ETCO2 <35 than patients with non-CCP. **Conclusion:** UAP may be differentiated from non-CCP by ETCO2 measured as a non-invasive parameter in patients with chest pain.

Keywords: Acute coronary syndrome, non-cardiac chest pain, unstable angina, coronary care unit, end-tidal carbon dioxide.

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INTRODUCTION

The number of individuals presenting to health institutions with symptoms of chest pain increases daily. This patient population accounts for around 5 to 20% of emergency department (ED) admissions (Kargoli et al., 2020). The etiology of chest pain in patients covers a wide spectrum. Although 50% of the applicants were diagnosed with musculoskeletal disease and 12% with acute coronary syndrome, 17% were not diagnosed with any disease (Wertli et a., 2019).

Chest pain that is not diagnosed directly or after exclusion is considered non-cardiac chest pain (non-CCP). On the other hand, the number of acute coronary syndrome (ACS) patients who are undiagnosed or misdiagnosed is rising day by day (Writing Committee, Kontos et al., 2022). Correct diagnosis of these patients is of vital importance for patients. Numerous strategies have been developed to establish an accurate diagnosis, and there will always be a need for new strategies (Ford et al., 2021).

Unstable angina pectoris (UAP) is challenging to diagnose despite using many cardiac biomarkers and risk-scoring algorithms at first admission (Tilea et al., 2021). Several biomarkers such as troponin have been used (Collet et al., 2021). Currently, there is no UAP-specific cardiac biomarker that makes a true diagnosis.

End-tidal carbon dioxide (ETCO2) from breathed air is measured as CO2 from cell metabolism disperses across the alveolar membrane of the lungs (Ghorbani et al., 2018). Alterations in ETCO2 levels are diagnostic indicators of metabolic, circulatory, and ventilation abnormalities (Finet et al., 2021). ETCO2 is a reflection of the pulmonary blood flow and cardiac output (Long et al., 2017). ETCO2 indirectly indicates coronary perfusion pressure since the venous system transports CO2 to the right ventricle before it pumps to the lungs (Paiva et al., 2018). We hypothesized that ETCO2 may be utilized to diagnose UAP due to its correlation with coronary perfusion pressure.

The purpose of this research was to examine whether ETCO2 could be utilized to differentiate between non-CCP and UAP in individuals presenting with chest pain to the hospital.

MATERIALS AND METHODS

Study design and settings

This study was carried out as a prospective observational study between January 2020 and July 2022 at the Mardin Artuklu University, Mardin Training and Research Hospital, a tertiary hospital. The study was approved by the Ethics Committee of the University of Health Sciences Turkey, Gazi Yaşargil Training and Research Hospital (No: 2023-325, Date: 27th January 2023). Informed consent was obtained from the patients. It conforms to the Declaration of Helsinki's ethical criteria for human testing (2013).

Sample size

A priori power analysis was conducted to distinguish unstable angina pectoris in patients with chest pain by ETCO2, where a differential of 0.50 standard deviations was judged clinically significant between-group means (Norman et al., 2003), the required sample size was determined as 75 in each group, with a lower power of 0.80 and the highest error of 0.05.

Selection of participants

Patients over the age of 18 who were hospitalized with chest pain in the emergency department (ED) were included in the study. Patients with preexisting coronary artery disease, and diagnosed with STEMI or NSTEMI after serial ECG and hs-cTnT were excluded from the study. Furthermore, patients with pulmonary disease, neuromuscular disease, diabetes mellitus, pregnancy, undergoing oxygen therapy (>4L/min), hyperthermia, or bicarbonate were excluded since they impacted the ETCO2 values.

Study protocol

The patients admitted with chest pain simultaneously underwent ETCO2 measurement and were monitored for vital signs at ED. Serial

ECG was performed and hs-cTnT was measured at least twice. After instructing the patients to breathe normally, they underwent a five-breath test. The average ETCO2 value measurement period was accepted. ETCO2 was obtained using a mainstream capnometer (Masimo EMMATM, Danderyd, Sweden). Vital signs, mean ETCO2 value, and laboratory values were recorded. Patients with persistent chest pain underwent coronary angiography to determine whether their chest pain was cardiac in origin. Stenosis of 70% or more was deemed severe, and stenosis of 50 to 69% was deemed moderate (Cury et al., 2022). Patients with undocumented ischemia and angiographically intermediate stenoses were evaluated by using FFR according to guidelines recommendations (Lawton et al., 2022). Coronary angiographies were evaluated by two separate experts who were blind to the study. A significant agreement was found between the cardiologists (κ=0.921). Following the assessment, individuals were separated into two groups: those with UAP and those with non-CCP. Figure 1 shows a flow diagram of the patients.

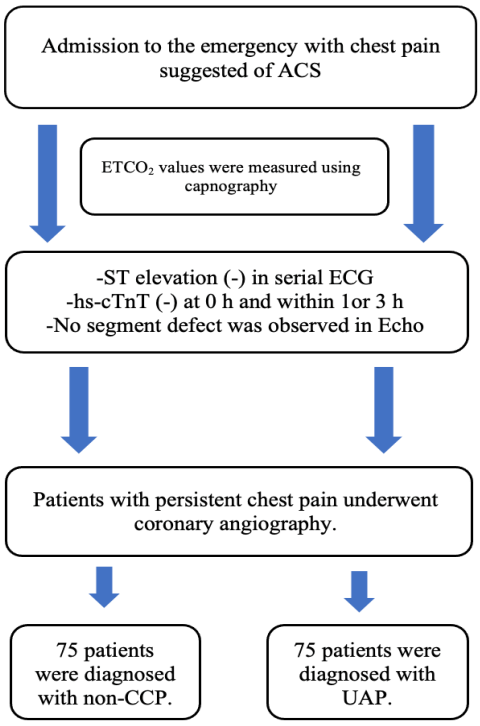

Figure 1: Study flow diagram

Statistics

The IBM SPSS 24.0 package software was applied for the analysis. The initial continuous variables are presented as mean ± standard deviation or median (interquartile range). Frequencies and percentages were used to represent categorical variables. The chi-Square test was used to compare nominal variables between groups. Student's t-test was conducted to determine potential differences between groups for continuous variables. Furthermore, the cut-off in diagnostic value measurements was determined using Receiver Operating Characteristic (ROC) analysis. Using univariate and binary logistic regression analysis, the odds ratio of ETCO2 (with 95%CI) was computed for UAP prediction. The level of statistical significance for the data was set at $p<0.05$.

RESULTS

A total of 150 patients, 75 patients with non-CCP and 75 patients with UAP were enrolled in the research. The mean age of the research population was 61.2±11.3 years, with 34 females (22.7%) and, 116 males (77.3%). The patient's clinical characteristics and laboratory parameters were shown in Tables 1 and 2 respectively.

Table 1: Clinical characteristics of the groups

Parameters	Total *N=150*	Uap *N=75*	Non-Cardiac Chest-Pain *N=75*	*P*-Value
Age (Years)	61.2±11.3	60.1±10.5	62.2±12.6	0.46
Gender, Female, N (%)	34 (22.7)	14 (18.6)	20 (26.6)	0.25
Systolic Blood Pressure (Mmhg)	143.8±16.4	142.2±15.6	144.2±18.4	0.75
Diastolic Blood Pressure (Mmhg)	90.5±12.6	90.3±12.6	91.1±12.2	0.78
Respiratory Rate (Pulse/Min)	14.8±2.1	14.8±2.4	14.8±1.8	0.82
Heart Rate (Beats/Min)	84.2±18.2	83.1±19.1	85.2±18.3	0.67
Spo_2 (%)	96.9±1.2	96.8±1.6	97.1±1.5	0.91
$Etco_2$ (Mmhg)	36.1±2.5	34.2±2.6	38.1±2.5	<0.001
Fever (°C)	36.5±0.2	36.4±0.2	36.6±0.3	0.93
Dl, N (%)	22 (14.6)	12 (16)	10 (13.3)	0.82
Htn, N (%)	28 (18.6)	16 (21.3)	12 (16)	0.59
Lvef (%)	62.7±2.5	62.2±2.8	63.1±2.1	0.71
Smoking, N (%)	38 (25.3)	17 (22.6)	21 (28)	0.52

Data are expressed as mean SD, number (percentage), or median (interquartile range) as appropriate. SpO_2: Oxygen saturation, $ETCO_2$: End-tidal carbon dioxide, DL: dyslipidemia, HTN: Hypertension, LVEF: Left ventricular ejection fraction.

Table 2: Hematological and biochemical parameters of patients

Parameters	Total *N=150*	Uap *N=75*	Non-Cardiac Chest-Pain *N=75*	*P*-Value
WBC count ($\times 10^3/\mu L$)	9.7±3.0	9.9±2.7	9.5±3.2	0.51
Hemoglobin (g/dL)	12.2±1.7	12.0±1.8	12.2±1.6	0.59
Platelet count ($\times 10^3/\mu L$)	262.5±62.7	261.1±62.3	263.1±63.1	0.89
Sodium (meq/L)	138.5 ± 2.7	138.3 ± 2.9	138.6 ± 2.5	0.61
Potassium (meq/L)	4.2±0.4	4.2±0.3	4.2±0.4	0.68
Glucose (mg/dL)	92.7±7.7	93.7±8.6	91.6±6.7	0.75
Creatinine (mg/dL)	0.9±0.4	0.9±0.2	1.1±0.3	0.78
AST (U/L)	28.9±20.5	29.7±19.2	28.1±21.7	0.82
ALT (U/L)	21.8±16.3	22.1±19.6	21.6±12.3	0.88
LDL (mg/dl)	132.5±17.5	133.5±17.8	131.5±17.2	0.56
HDL (mg/dl)	46.6±13.7	47.0±13.6	46.2±13.8	0.84
TSH (µIU/mL)	65.7±4.3	65.5±4.2	65.8±4.5	0.91

Data are expressed as mean ± SD and median [interquartile range] as appropriate. WBC: White blood cell, AST: Aspartate aminotransferase, ALT: Aspartate aminotransferase, LDL: Low-density lipoprotein, HDL: High-density lipoprotein, TSH: Thyroid-stimulating hormone.

There is no statistically significant between the groups regarding dyslipidemia (p=0.59), hypertension (p=0.82), smoking (p=0.52), and LVEF (p=0.71). There were no substantial differences across the groups including age, gender, vital signs (fever, blood pressure, SpO2, heart, and respiratory rates), laboratory parameters (white blood cell, fasting plasma glucose, platelet, sodium, potassium, creatinine, aspartate or alanine aminotransferase, low or high-density lipoprotein, and thyroid stimulating hormone) (p>0.05). ETCO2 levels were substantially lower in the UAP group compared with the non-CCP (p<0.001). Analysis of the ROC curve revealed that a decreased ETCO2 <35 predicted UAP with 78% sensitivity and 89% specificity (AUC:0.81, p <0.001, Figure 2).

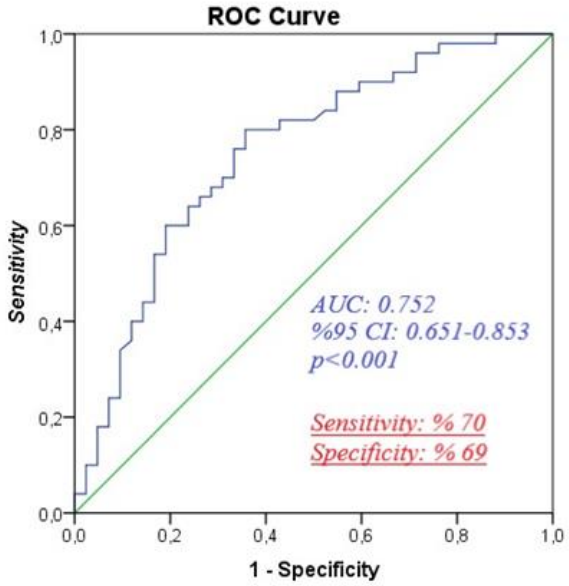

Figure 2: ROC curve of end-tidal CO2 for the diagnosis of UAP

In addition, the negative predictive value was 71.6%, and the positive predictive value was 79.4%. In univariate binary logistic regression, patients with UAP were 8.84 times more likely to have ETCO2 <35 than patients with non-cardiac chest pain [OR (95%CI), 9.84 (3.9-21.8), p<0.001].

DISCUSSION

The results of the study showed that ETCO2 with an optimum cut-off value of 35 was a strong predictor for differentiating UAP from those non-CCP. The ETCO2 may be useful for diagnosing UAP in patients with chest pain without documented ischemia.

ACS includes a broad array of clinics, ranging from UAP to STEMI. This syndrome may continue pain-free without complications or may result in sudden death (Roffi et al., 2016). If there is persistent ST elevation on the ECG, it is classified as STEMI; otherwise, it is classified as ACS without ST elevation. NSTEMI is identified when a cardiac biomarker in the blood rises as a result of myocardial necrosis (Ibanez et al., 2018). On the other hand, since individuals with UAP have myocardial ischemia but no cell damage at minimal exertion or rest, there is no rise in the levels of cardiac biomarkers (Roos et al., 2021). Due to the challenges in distinguishing the diagnosis of NSTEMI from UAP, cardiac biomarkers such as hs-cTn, copeptin, and myosin-binding c protein have been developed currently (Kaier et al., 2017). Despite this, and even though several algorithms have been established, there is no consensus about the diagnosis of UAP.

ETCO2 is often used to identify the response to therapy in acute respiratory distress and to decide on mechanical ventilation, to check ventilation adequacy in sedated patients, to offer prognostic signs in patients with septic shock, to detect metabolic acidosis in patients with diabetes and gastroenteritis, to monitor trauma patients, and to assess the efficacy of resuscitation during cardiac arrest (Sousa et al., 2022; Long et al., 2022; İnan et al., 2022; Tremont et al., 2022; Mueller et al., 2022).

ETCO2 reflects accurately pulmonary blood flow and cardiac output in the absence of metabolic and ventilation disorders (Mossing et al., 2015). In myocardial ischemia, reduced ETCO2 signifies impaired tissue perfusion or oxygenation (Smit et al., 2020). The association between decreased coronary blood flow and myocardial oxygen utilization is linear. The heart's aerobic metabolic product, CO2, similarly declines as oxygen consumption decreases (Crystal et al., 2015). In

addition, since the increase in respiratory rate causes hypocapnia in UAP patients, carbon dioxide in exhaled air may reduce (Cornwell et al., 2021). These result in a low ETCO2 measurement. In some studies, an ETCO2 value of less than 10 mmHg during the 20th minute of resuscitation was regarded as the termination criterion (Javaudin et al., 2020). Dong et al. showed that an increased risk of postoperative mortality in individuals who had general anesthesia with an ETCO2 value of less than 35 (Dong et al., 2022). Parr et al. observed a greater percentage of functional independence in stroke patients who received successful thrombectomy under general anesthesia when ETCO2 levels surpassed 35 (Parr et al., 2022). On the other hand, Kwong et al. found no correlation between ETCO2 value and VF termination for successful defibrillation (Kwong et al., 2021). In parallel with other studies, we found that an ETCO2 value of <35 provides sufficient discriminatory power between UAP and non-CCP.

Limitations

According to the exclusion criteria, the sample size of our research was small. No patient mortality was observed in the hospital. After discharge, patients were not followed up properly.

CONCLUSION

Our study showed that ETCO2, a non-invasive biomarker, may be used to diagnose UAP-induced chest pain. Patients with an ETCO2 <35 were observed to be 8.84 times more likely to develop UAP compared to patients with an equal or more than 35 of ETCO2. With its clinical use, the rate of not being diagnosed or misdiagnosed will decrease in patients with UAP who apply to the hospital, particularly the ED without a cardiovascular disease history.

Conflict of interest

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Tüberküloz Temasında Koruyucu Tedavi: Profilaksi Düzenli Kullanılmadığında Ne Olur?

Preventive Treatment In Tuberculosis Contact: What Happens If Preventive Treatment Is Not Used Regularly?

Sema AYTAÇ[1], Özlem OVAYOLU[1]

Özet: Tüberküloz (TB), en sık akciğerleri (AC) etkileyen Mycobacterium Tuberculosis (MTB) isimli bakteriden kaynaklanan, tedavi edilebilen ve önlenebilen bulaşıcı bir hastalıktır. Temaslı ise TB hastası ile aynı ortamı paylaşan ve TB basiline maruz kalan kişidir. Rutin uygulamada temaslı taramasında; hasta yakınlarından Tüberkülin Cilt Test (TCT) ve AC filmi istenir, gerekli ise balgam alınır. Bu tarama sürecinden sonra TB hastalığı saptanmaz ise temaslı kişiye altı ay süre ile koruyucu (INH) tedavi verilir. Bu yazıda iki yıl önce annesi yayma (+) AC TB olan bir kişi o dönemde temaslı iken, koruyucu ilaç tedavisini düzenli kullanmadığı için daha sonra kendisinde de AC TB gelişen bir olgunun irdelenmesi amaçlanmıştır.

Anahtar Kelimeler: Hasta eğitimi, hemşirelik, koruyucu tedavi, temaslı taraması.

Abstract: Tuberculosis (TB) is an infectious disease, which stems from the bacterium Mycobacterium Tuberculosis (MTB) commonly affecting the lungs and can be treated and prevented. The Contacted Person is the one who shares the same environment with the TB patient and who is exposed to TB bacillus. The Tuberculin Skin Test (TCT) and chest X-ray film are requested from the relatives of the patient, and sputum is taken if necessary in the contact screening in routine practice. If the TB disease is not detected after this screening process, the contact person is given protective (INH) treatment for six months. In this article, it is aimed to examine a case whose mother had spread (+) AC TB two years ago, while she was in contact at that time, and who later developed AC TB because she did not use preventive medication regularly.

Keywords: Patient education, nursing, preventive treatment, contact screening.

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GİRİŞ

Tüberküloz (TB), en sık akciğerleri (AC) etkileyen Mycobacterium Tuberculosis (MTB) isimli bakteriden kaynaklanan, tedavi edilebilen ve önlenebilen bulaşıcı bir hastalıktır (WHO. Tuberculosis, 2018). Hastalık genellikle akciğerleri etkiler. Dünya nüfusunun yaklaşık dörtte biri MTB ile enfektedir (Global tuberculosis Report 2021). Ülkemizde ise yürütülen Ulusal Tüberküloz Kontrol Programı sayesinde her yıl hasta sayısında azalma gözlenmektedir. 2005 yılında 20.535 olan tüberküloz hasta sayısı, 2019 yılında 11.401'e, 2020 yılında 8.925'e, 2005 yılında yüz binde 29,4 olan insidans hızı da 2020 yılında 10,6'ya düşmüştür. 2005 yılına göre 2020 yılında toplam olgu hızında %56,5 azalma olmuştur (Türkiye'de Verem Savaşı 2020 Raporu).

Hastalık geliştiren kişilerin yaklaşık %90'ı yetişkin olup, erkeklerde kadınlardan daha fazla görülmektedir. Tüberküloz hastalarının karşı karşıya kaldığı sorunlar arasında, ekonomik sıkıntılar, kırılganlık, ötekileştirme, damgalanma ve ayrımcılık sayılabilir (Türkiye'de Verem Savaşı 2020 Raporu). TB hastası ile aynı ortamı paylaşan ve TB basiline maruz kalan kişi temaslı olarak kabul edilmektedir.

Rutin uygulamada temaslı taramasında; hasta yakınlarından Tüberkülin Cilt Test (TCT) ve AC filmi istenir, gerekli ise balgam alınır. Bu tarama sürecinden sonra TB hastalığı saptanmaz ise temaslı kişiye altı ay süre ile koruyucu (INH) tedavi verilir (TC. Sağlık Bakanlığı. Tüberküloz Tanı ve Tedavi Rehberi). TB enfeksiyonunun aktif TB hastalığına ilerleme riskini azaltmak için temel sağlık müdahalesi TB önleyici tedavidir. DSÖ, TB enfeksiyonunun önlenmesi ve kontrol altına alınabilmesi için özellikle çocukların BCG (Basil Calmette-Guérin) ile aşılanması, HIV (+) kişilerin tedavi edilmesi ve bakteriyolojik olarak doğrulanmış TB vakalarının ev temaslıları ve klinik risk gruplarına (ör: Diyaliz tedavisi alan) TB koruyucu tedavi önermektedir (Global Tuberculosis Report 2021).

Bu yazıda annesi (+) AC TB iken temasta bulunan ve iki yıl sonra (2019 da) kendisinde de kültür (+) AC TB gelişen bir olgunun irdelenmesi amaçlanmıştır. Hasta ve yakınından sözlü ve yazılı bilgilendirilmiş onam alınmıştır.

OLGU SUNUMU

22 yaşında olan erkek olgunun annesine, yayma (+) AC TB nedeniyle anti-TB tedavisi uygulanmaktadır. Bu tarihte yapılan temaslı taramasında belirtilen olgunun; TCT'si 20mm, AC filmi ve balgam örneğinde TB şüphesi görülmemesi sebebiyle Izoniasid (INH) 1×1 altı ay kullanmak üzere başlanmıştır. Fakat olgu reçete edilen koruyucu tedaviyi hem düzenli kullanmamış hem de altı aya tamamlamadan tedaviyi bırakmıştır. Hastanın iki yıl sonra öksürük, balgam ve gece terlemesi şikayetleri olması üzerine yapılan bakteriyolojik ve radyolojik incelemelerde hastaya önce klinik ve radyolojik olarak TB tanısı konulup, Verem Savaş Dispanseri (VSD)'ne yönlendirilerek anti-TB tedavi başlanmıştır. Hastanın tedavi öncesi verdiği balgam örneklerinde TB kültüründe (+) üreme olmuştur.

TARTIŞMA

Tüberküloz bulaşıcı bir hastalık olması nedeniyle toplum sağlığını ilgilendiren önemli bir konudur. Koruyucu ilaç tedavisinin amacı, tüberküloz riski taşıyan kişilerin hastalık geliştirmesini önlemektir (TC. Sağlık Bakanlığı. Tüberküloz Tanı ve Tedavi Rehberi). Primer korumadaki amaç, vücuda yeni giren basillerin PPD (purified protein derivative, saflaştırılmış protein türevi) pozitifleşmeden yok edilmesidir. Sekonder korumada da hastalık profilaksisi denilen TDT pozitif kişilerin ilaçla korunması ve inaktif basillerin reaktivasyonla tüberküloz oluşturmasını önlemek amaçlanır.

Her iki durumda da hedef subklinik latent tüberküloz enfeksiyonunun tedavisidir. İlacın koruyucu etkisi organizmada bulunan ancak henüz hastalık tablosu oluşturmamış basillerin yok edilmesi veya sayılarının azaltılması yoluyla olur (Özlü T, 2012).

Tüberküloz prevalansının TB hastalarının temaslıları arasında %3,1 olduğu ve insidansının

maruziyetten sonraki ilk yılda en yüksek düzeye ulaştığı tahmin edilmektedir (StopTB Field Guide 6; WHO. Tubercülosis,2018).

Ülkemizde yapılan bir çalışmada koruyucu tedaviye alınan temaslıların %41.8'inin ilaçlarını düzenli kullanmadığı, %38.4'ünün tedaviyi tamamlayamadığı, %22,4'ünün bir-üç ay, %69,4'ünün dört-altı ay ve %8,2'sinin yedi-dokuz ay arasında ilaç kullandığı tespit edilmiştir (Kolsuz M. Ve ark, 2003). Büyük çoğunluğu yüksek gelirli ülkelerden olmak üzere 750.000 çocuk ve yetişkin üzerinde yapılan meta-analizde, INH koruyucu tedavi başlanan hastaların yalnızca %18'inin tedaviyi tamamladığı bildirilmiştir (Alsdurf H. ve ark, 2016).

Bu nedenle temaslı taraması yapıldıktan sonra, temaslıların koruyucu tedaviyi altı ay süreyle ve ara vermeden kullanmasını sağlamak son derece önemlidir. DSÖ 2014 yılında ilk kez teşhis, tedavi ve önleme müdahalelerini temel önleme faaliyetlerine "Bütünleşik hasta merkezli bakım ve önleme" yi ekleyerek 'End TB' Stratejisini başlatmıştır. Bu stratejinin hedefleri şu şekildedir (Global Tuberculosis Report 2021);

- Evrensel ilaca duyarlılık testi ve temaslıların ve yüksek risk gruplarının sistematik olarak taranması, TB'nin erken teşhis edilmesi,
- İlaca dirençli tüberküloz dahil tüm tüberkülozlu kişilerin tedavisi ve hasta desteği sağlanması,
- İşbirliğine dayalı TB/HIV faaliyetleri ve komorbiditelerin yönetimi,
- Yüksek risk altındaki kişilerin koruyucu tedavi alması ve aşılama (Global Tuberculosis Report 2021).

SONUÇ ve ÖNERİLER

Sonuç olarak TB hastalarının temaslılarında hastalık gelişiminin önlenmesi için altı aylık INH koruyucu tedavinin düzenli kullanılması ve altı aylık ilaç tedavisine uyum, TB'nin yayılmasının önlenmesi açısından hayati öneme sahip olduğu düşünülmektedir. Uzun süreli tedavilerde hastaların tedaviye uyumunu artırmak için hasta eğitimi, mobil-tele sağlık hizmetleri, ilaç hatırlatıcıları vb. gibi yöntemlerin kullanılması önerilebilir.

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Derleme/Review

Tamamlayıcı ve Bütünleşik Tıp ile Menopozda Semptom Yönetimi

Symptom Management in Menopause with Complementary and Integrated Medicine

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Özet: Menopozda yaşanan vazomotor semptomlara yönelik uzun süreli hormonal tedavi kullanımına bağlı birçok hastalık riski ortaya çıkmakta ve bireyleri tamamlayıcı tıp yöntemlerini kullanmaya yöneltmektedir. Bu makalede, menopozda görülen semptomlar ve bunlara yönelik kullanılan tamamlayıcı ve bütünleşik tıp yöntemleri hakkındaki bilgilerin derlenmesi amaçlanmıştır. Konu ile ilgili yapılan çalışmalarda, tamamlayıcı tıp yöntemi olarak kullanılan "klinik hipnoz"un tamamlayıcı tedavi olarak önerilebileceği; "gevşeme ve rahatlama programı", "farkındalık bazlı stres azaltma pogramı" ve "akupunktur"un vazomotor semptomlar üzerinde etkisinin sınırlı olduğu; "diyet kaynaklarınınn kullanımı ve yaşam tarzı değişikliklerinin" semptomları azaltmanın yanı sıra kalp ve kas iskelet problemlerinde de yararlı olabileceği; "aromaterapi"nin özellikle de lavanta aromaterapisi kullanımının vazomotor semptomları azalttığı ve yaşam kalitesinin arttığı fakat kanıtların yetersiz olduğu; "homeopati"nin vazomotor semptomlar üzerine kanıtlarınyetersiz olduğu; vazomotor semptomların tedavisi için "egzersiz" ve "yoganın" önerilmemesi gerektiği; apiterapinin bilişsel ve kardiyovasküler problemlerde yararlı olduğu fakat kanıtların yetersiz olduğu belirtilmektedir. Sık kullanılan yöntemlerden biri olan "fitoterapi"de ise farklı bitkiler kullanılabilmektedir. Şerbetçi otu, çin melekotu, çuha çiçeği, karayılan otu, kedi otu ve sarı kantaron için klinik kanıtların sınırlı olduğu; soyanın dikkatli bir şekilde önerilebileceği; kırmızı yonca ve keten tohumunun klimakterik dönemde vazomotor semptomların hafifletilmesinde desteklenmediği; mabet ağacının bilişsel sağlık üzerine faydalarının olduğu fakat kanıtların yetersiz olduğu; ginsengin menopoz semptomları azaltmada etkili olmadığı fakat kardiyovasküler hastalıklar üzerine olumlu etkilerinin olduğu bildirilmiştir. Sağlık çalışanlarının menopoz dönemindeki kadınlara farkındalık kazandırması ve bu konuda danışmanlık yapması önerilir.

Anahtar Kelimeler: Menopoz, Tamamlayıcı Tıp, Vazomotor Semptomlar.

Abstract: Many disease risks arise due to the use of long-term hormonal treatment for vasomotor symptoms experienced in menopause and lead individuals to use complementary medicine methods. In this article, it is aimed to compile information about the symptoms seen in menopause and the complementary and integrated medicine methods used for them. In studies on the subject, "clinical hypnosis", which is used as a complementary medicine method, can be recommended as a complementary treatment; "relaxation and relaxation program", "mindfulness-based stress reduction program" and "acupuncture" had limited effects on vasomotor symptoms; "the use of dietary sources and lifestyle changes" may be beneficial in heart and musculoskeletal problems as well as reducing symptoms; the use of "aromatherapy", especially lavender aromatherapy, reduces vasomotor symptoms and improves quality of life, but the evidence is insufficient; the lack of evidence on vasomotor symptoms of 'homeopathy'; that "exercise" and "yoga" should not be recommended for the treatment of vasomotor symptoms; It is stated that apitherapy is beneficial in cognitive and cardiovascular problems, but the evidence is insufficient. Different plants can be used in "phytotherapy", which is one of the frequently used methods. Limited clinical evidence for hops, angelica, evening primrose, black cohosh, valerian, and St. John's Wort; soybean can be recommended with caution; red clover and flaxseed did not support alleviation of vasomotor symptoms in the climacteric period; the temple tree has benefits on cognitive health, but the evidence is insufficient; It has been reported that ginseng is not effective in reducing menopausal symptoms, but has positive effects on cardiovascular diseases. It is recommended that healthcare professionals raise awareness and provide counseling to women in menopause.

Keywords: Menopause, Complementary Medicine, Vasomotor Symptoms.

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GİRİŞ

Kadın için yaşam çocukluk, ergenlik, cinsel olgunluk, menopoz ve yaşlılık olmak üzere beş dönemden oluşur. Hepsi kendi içinde farklı özellikler barındırsada menopoz kadın yaşamının önemli dönemlerinden biridir (Özcan ve Oskay, 2013). Menopoz eski Yunanca "men" (ay) ve "pausis" (sonlanma) sözcüklerinin bir araya gelmesiyle retrospektif olarak tanımlanan, çoğu kadında doğal olarak görülen ve hormonal değişiklikler ile karakterize menstrual siklusun durması anlamında kullanılan bir kavramdır (Demirci, 2019; Johnson ve ark., 2019). Dünya çapında ortalama menopoz yaşı 52'dir (Shifren ve Gass, 2014). Gelişmiş ülkelerde ortalama 49.3-51.4 yaş aralığında değişirken, gelişmekte olan ülkelerde 43.5-49.4 yaş arasındadır. Ülkemizde ise ortalama menopoz yaşı 47'dir (Özcan ve Oskay, 2013). Menopoz dönemi; sıcak basması, gece terlemesi, baş ağrısı ve buna eşlik eden migren, baş dönmesi, çarpıntı, bulantı, gastrointestinal spazmlar, karıncalanma ve parestezi, anksiyete, irritabilite, iştahsızlık, uyku problemleri, hafıza problemleri, depresyon ve ürogenital problemlerle ilişkilidir (Çelik ve Pasinlioğlu, 2013; Santoro ve ark., 2015; Delamater, 2018). Ayrıca cilt ve deride kuruluk, tırnaklarda da incelme kırılma görülür (Kaymak ve Tırnaksız, 2006; Delameter, 2018; Kilci ve Ertem, 2019; Pinkerton ve ark., 2019).

Kadınlarda hormon seviyelerini stabilize edebilmek ve vazomotor septomları (VMS) hafifletmek için hormon replasman tedavileri (HRT) bilim adamları tarafından tartışmalı olsa da uzun yıllardır yaygın olarak kullanılmıştır (Guo ve ark., 2019). Ulusal Kalp, Akciğer ve Kan Enstitüsü (National Heart, Lung, and Blood Institute (NHLBI)) tarafından desteklenen Kadın Sağlığı Girişimi (Women's Health Initiative (WHI)), menopoz sonrası kadınlarda kalp hastalığı, meme kanseri, kolorektal kanser ve osteoporozu önleme stratejilerine odaklanan uzun vadeli bir ulusal sağlık çalışmasıdır. Kadın Sağlığı Girişimi çalışması 2002'de HRT'nin olumsuz etkilerini ilk kez rapor ettiğinden bu yana ise HRT kullanımı önemli ölçüde azalmıştır (Rossouw ve ark., 2022).

Kuzey Amerika Menopoz Derneği (North American Menopause Society-NAMS) ve Avrupa Menopoz ve Andropoz Derneği (European Menopause and Andropause Society) tarafından onaylanan Menopozal Hormon Tedavisi Küresel Beyanında HRT'nin 60 yaşından önce ya da menopozdan sonraki 10 yıl içinde semptomatik kadınlar için en etkili tedavi olduğu ancak faydalarının yanı sıra risklerinin de takip edilmesi gerektiği belirtilmiştir (Villiers ve ark., 2013). Tüm bu riskler insanları bütünleşik tıp yöntemlerini kullanmaya yöneltmiştir. Konvansiyonel tıp uygulamaları, tamamlayıcı tıp uygulamaları ile birlikte sunulduğunda bütünleşik tıp olarak adlandırılmaktadır (Moore ve ark., 2017; Johnson ve ark., 2019). Dünya Sağlık Örgütü (DSÖ) tarafından; Bütünleşik, Tamamlayıcı ve Alternatif Tıp Uygulamaları, o ülkenin kendi geleneğinin veya konvansiyonel tıbbın bir parçası olmayan, egemen sağlık sistemi içine tam olarak entegre edilmemiş sağlık hizmetleri sunumu olarak tanımlanmaktadır (WHO, 2020).

Menopoz semptomlarının yönetiminde; hipnoz, gevşeme ve rahatlama teknikleri, yoga, meditasyon, aromaterapi, fitoterapi, vitaminler, mineraller, diyet takviyeleri, refleksoloji, akupunktur ve homeopati sıklıkla kullanılmaktadır (Moore ve ark., 2017; Johnson ve ark., 2019). Bu derlemede menopozda görülen semptomlara yönelik kullanılan tamamlayıcı ve bütünleşik tıp yöntemleri hakkında literatür doğrultusunda güncel durumun gözden geçirilmesi amaçlanmıştır.

Menopozal Semptom Yönetiminde Tamamlayıcı ve Bütünleşik Tıp Uygulamaları

Hipnoz

Derin, odaklanmış, kişiselleştirilmiş, zihinsel görüntüler ve önerileri içeren bir zihin-vücut terapisidir (Johnson ve ark., 2019). Hipnoz sıklıkla derin bir gevşeme sayesinde ağrı gibi semptomları azaltmak için kullanılmaktadır (Carpenter ve ark., 2015; Moore ve ark., 2017). Yapılan çalışmada hipnozun, menopozal semptomların yönetiminde

sıcak basmasının şiddeti ve sıklığını klinik olarak anlamlı düzeyde azalttığı saptanmıştır (Johnson ve ark., 2019). Menopoz sonrası sıcak basması ve gece terlemesinin tedavisinde klinik hipnozun etkisini değerlendiren ve 187 kadın ile yapılmış olan randomize kontrollü bir çalışmada müdahale grubuna haftada beş seans hipnoz uygulanmış, 12 haftalık takip sonunda sıcak basmasının %56,86 oranında azaldığı saptanmıştır (Elkinsve ark., 2013). Guo ve ark.'nın (2019) vazomotor semptomların yönetiminde tamamlayıcı ve alternatif uygulamaların etkinliğini değerlendiren sistematik inceleme ve meta analiz bulgularını değerlendiren çalışmada, hipnozun VMS iyileştirmek için faydalı olduğu bildirilmiştir (Guo ve ark., 2019). Menopozdaki kadınlarda VMS'yi hafifletmek için farklı zihin-vücut terapilerinin etkinliğini araştırmak için yapılan sistematik bir derlemede, hipnoz tedavisi ile ilgili kanıtların yetersiz olduğu ancak VMS azaltmada yararlı olabileceği belirtilmiştir (Stefanopoulou ve Grunfeld, 2017). NAMS raporunda, klinik hipnozun nispeten risksiz bir tedavi olarak önerilebileceğini bildirmektedir (Carpenter ve ark., 2015; Moore ve ark., 2017).

Gevşeme ve Rahatlama Teknikleri

Gevşeme ve rahatlama tekniklerinden en bilineni; derin soluk alıp vermedir ve yükselmiş sempatik sinir sistemi aktivasyonuna bağlı olarak gelişen sıcak basmasında yararlı olabileceği belirtilmektedir (Özcan ve Oskay, 2013; Akarsu, 2017; Johnson ve ark., 2019; Kilci ve Ertem, 2019). Yapılan çalışmalarda, diyafragmatik solunum teknikleri ile anksiyete, depresyon, kan basıncı artışı ve sıcaklık basmasının şiddetinin ve sıklığının azaltılabileceği gösterilmiştir (Özcan ve Oskay, 2013; Johnson ve ark., 2019; Kilci ve Ertem, 2019). Guo ve ark. (2019) çalışmalarında gevşeme ve derin soluk alıp vermenin VMS iyileştirmek için faydalı olduğu bildirilmiştir (Guo ve ark., 2019). Buna karşın gevşemenin, menopozal sıcak basmasında etkinliğinin değerlendirildiği bir cochrane incelemesinde kanıtların tutarsız ve yetersiz olduğu bildirilmektedir (Seansek ve ark., 2014). NAMS 2015 yılı raporunda mevcut kanıtların sıcak basması için sınırlı olduğunu belirtmektedir (Carpenter ve ark., 2015).

Gevşeme ve rahatlama teknikleri için kanıtların yetersiz olduğu görülmekle birlikte konu ile ilgili daha fazla müdehale çalışmasına gereksinim vardır.

Farkındalık Temelli Stres Azaltma Programı (FTSAP)

Farkındalık temelli stres azaltma (FTSA), stresle başa çıkma mekanizması olarak kabul görmekte, genellikle farkındalık meditasyonunu ve yogayı kapsamaktadır (Carpenter ve ark., 2015). Farkındalık meditasyonu, dikkatin "şimdiki an"a yöneltilerek, anlık deneyimlerin yargılanmadan ve kabullenmeyle gözlemlenmesine dayanmaktadır. Farkındalık Temelli Stres Azaltma Programı (FTSAP) ise stres yaşayan hastalar ve sağlık bakım hizmeti sunanlar tarafından kanser, depresyon ve kalp hastalıkları dahil çoğu alanda kullanılmakta ve güvenilir bir seçenek olarak görülmektedir. Mevcut kanıtlar FTSAP'nin psikolojik iyiliği artırdığını, anksiyete ve depresyonu hafiflettiğini, psikolojik rahatsızlıkları azalttığını ve tekrarlamasını engellediğini, bağışıklık fonksiyonunu güçlendirdiğini, çiftler arasındaki ilişkiyi kuvvetlendirdiği ve ebeveynlik memnuniyetini artırdığını belirtmektedir (Körükcü, 2013).

Guo ve ark. (2019) FTSAP gibi psikolojik müdahalelerin sıcak basmalarını iyileştirmek için faydalı olduğunu bildirilmiştir (Guo ve ark., 2019). FTSAP'nın sıcak basmaları ve gece terlemelerinde etkisini inceleyen ve 110 kişiyi kapsayan randomize kontrollü bir çalışmada, sıcak basması şiddetinde farklılık olmadığı fakat yaşam kalitesinde, öznel uyku kalitesinde, anksiyetede ve algılanan streste klinik olarak anlamlı iyileşmeler sağladığı bildirilmiştir (Carmody ve ark., 2017). Menopozdaki kadınlarda farklı zihin-vücut terapilerinin etkinliliğinin incelendiği bir sistematik derlemede bilişsel davranışçı terapinin VMS azaltmada etkili olduğu belirtilmiştir (Stefanopoulou ve Grunfeld, 2017). Tüm bu çalışmalarda FTASP'nın VMS'yi azaltmada etkili olduğu yönünde bulgular olsa da NAMS raporunda,

mevcut kanıtların sınırlı olduğunu bildirmektedir (Carpenter ve ark., 2015).

Yoganın menopoz semptomlarından; sıcak basması (Özcan ve Oskay, 2013; Guoa ve ark., 2019), uykusuzluk üzerine ve yaşam kalitesini artırmaya yönelik olumlu etkileri saptanmış ve vazomotor semptomlarını azalttığı bildirilmiştir (Özcan ve Oskay, 2013; Kilci ve Ertem, 2019).

Ayrıca yoganın artan psikolojik sorunları, kardiyo-vasküler riskleri, kalp hızını ve kan basıncını azalttığı ve sağlığı olumlu etkilediği de bildirilmektedir (Özcan ve Oskay, 2013). Menopozal kadınlarda VMS'yi hafifletmede farklı zihin-vücut terapilerinin etkilinliğinin incelendiği sistematik derlemede yoganın değerlendirildiği çalışmalarda kanıtların yetersiz olduğu fakat VMS azaltmada yararlı olabileceği belirtilmektedir (Stefanopoulou ve Grunfeld, 2017). Moore ve ark. (2017), menopozal semptomlarda tamamlayıcı ve alternatif tıp tedavilerinin etkinliğini inceledikleri çalışmada, yoganın menopozal semptomları azaltması ile ilgili mevcut kanıtların sınırlı olduğunu bu nedenle potansiyel faydalarını doğrulamak için daha fazla çalışma yapılmasını önermişlerdir (Moore ve ark., 2017). Özetle yoga menopozda vazomotor semptomların tedavisinde etkinlik için sınırlı verilere sahiptir ve NAMS durum raporunda, vazomotor semptomların tedavisi için yoganın önerilmemesi gerektiğini belirtmiştir (Carpenter ve ark., 2015; Moore ve ark., 2017).

Aromaterapi

Aromaterapi, bitkilerden doğal olarak edilen aromatik uçucu yağların vücuda deri veya solunum yoluyla uygulanması içeren bir tedavidir. Aynı zamanda esansiyel yağ terapisi olarak da tanımlanmaktadır (Babakhanianve ark., 2018). Aromaterapide kullanılan yağların menopoz dönemindeki kadınların semptomları azalttığı belirtilmektedir (Kilci ve Ertem, 2019). Lavantanın psikolojik, fiziksel ve vazomotor semptomlar ile uyku kalitesi ve cinsel istek üzerindeki etkisini incelemek için yapılan sistematik bir derlemede olumlu etkilerinin olduğu bildirilmiştir (Roozbeh ve ark., 2019). Aromaterapinin postmenopozal ve yaşlı kadınlarda psikolojik semptomların tedavisine etkisinin değerlendirdiği bir meta-analiz çalışmasında ise psikolojik semptomları önemli ölçüde iyileştirdiği saptanmıştır (Babakhanian ve ark., 2018). Aromaterapinin VMS'yi zaltmada yararlı olduğu görülmekte fakat daha fazla kanıt temelli çalışmaya ihtiyaç duyulmaktadır.

Refleksoloji

Refleksoloji, el ve ayaklardaki refleks noktalarına basınç uygulandığında, hastalığa neden olan enerji tıkanıklıklarının ilgili vücut bölgesinde ortadan kaldırıldığı esasına dayanmaktadır (Asltoghiri ve Ghodsi, 2012; Akarsu, 2017; Johnson ve ark., 2019). Asltoghiri ve Ghodsi (2012) refleksolojinin uyku bozuklukları üzerine etkilerini incelediği çalışmada, refleksoloji uygulanan grubunun uyku problemlerinde önemli ölçüde azalma olduğu bildirilmiştir (Asltoghiri ve Ghodsi, 2012). Kadınlara uygulanan ayak refleksolojisinin vazomotor şikayetler ve yaşam kalitesine etkisinin incelendiği 120 kişiyi kapsayan randomize kontrollü çalışmada, refleksoloji uygulamasının kontrol grubuna oranla müdahale grubunda sıcak basması, terleme ve gece terlemesini önemli ölçüde azalttığı bildirilmiştir (Gözüyeşil ve Baser, 2016). Refleksoloji'nin VMS'yi azaltmada yararlı olduğu fakat daha fazla kanıta ihtiyaç duyulduğu görülmektedir.

Homeopati

Homeopati Yunanca homes=benzer ve pathos=acı kelimelerinin birleşmesinden meydana gelmiştir (Akarsu, 2017). Homeopatinin temelinde; "bir madde sağlıklı insanlara verildiğinde, o insanlarda hangi hastalığa benzer belirtilere yol açıyorsa, o hastalığa gerçekten yakalanmış hasta kişiler bu etken madde ile tedavi edilebilir" ilkesi bulunmaktadır. Homeopati gerçekte doğadaki bütün remedi'leri (bitki, hayvan, mineral gibi) kullanarak yapılan bir tedavi şeklidir (McCarthy, 2005). Homeopati tedavisinin menopozda VMS üzerine etkisinin incelendiği sistematik bir derlemede; faydalarına dair kanıtların yetersiz olduğu sonucuna varılmıştır (Thompson, 2009).

Mevcut kanıtlar menopoz için homeopatik yaklaşımların gözden geçirilmesi ve daha fazla çalışma gerçekleştirilmesi gerektiği yönündedir (Johnson ve ark., 2019).

Akupunktur

Geleneksel Çin tıbbından gelen akupunktur, enerji veya chi akışını dengelemek için vücudun kilit noktalarında cilde ince iğnelerin sokulduğu en eski tedavi yöntemlerinden biridir (Carpenter ve ark., 2015; Akarsu, 2017; Kilci ve Ertem, 2019). Temelinde bireyin yaşam enerjisindeki bozulmalar nedeniyle hastalıkların ve semptomların ortaya çıktığı inancı yer almaktadır (Johnson ve ark., 2019; Kilci ve Ertem, 2019). Akupunkturun menopozda VMS üzerine etkilerinin incelendiği çalışmalarda VMS sıklığını ve şiddetini azaltmanın yanı sıra psikiyatrik, somatik ve ürogenital sorunları iyileştirmede etkili olduğu bildirilmiştir (Chiu ve ark., 2015; Guo ve ark., 2019). Yapılan bir sistematik derlemede akupunkturun VMS'ı azaltmak ve yaşam kalitesini iyileştirmek için yardımcı bir tedavi olarak kullanılabileceği bildirilmektedir (Befus ve ark., 2018). Fakat NAMS durum raporunda, akupunkturun VMS'ı azaltmada çok etkili olmadığını ve daha fazla kanıta ihtiyaç olduğunu bildirmektedir (Carpenter ve ark., 2015).

Diyet ve Yaşam Biçimi Değişiklikleri

Menopozdaki kadınlarda vazomotor semptomların sıklığının azaltılmasında diyet ve yaşam biçimi değişiklikleri sıklıkla önerilmektedir (Carpenter ve ark., 2015). Sıcak basması yaşayan kadınların diyetlerinde; sıcak içecek ve baharatlı yiyecek tüketimi, çay, kahve, alkol ve kafeinden, günlük yaşamlarında ise aşırı stres, gergin ve heyecanlı ortamlardan kaçınmaları önerilmektedir. Sıcak basması bireylerin uyku kalitelerini de olumsuz etkilemektedir.

Uyurken sıcak basması semptomlarını azaltmak için, hava geçirgenliği yüksek ve ince giysiler, başucu fanı, uyanma periyotlarında soğuk su yudumlama ve yastık altına soğuk paketler konulmasının faydalı olacağı ifade edilmektedir (Carpenter ve ark., 2015; Akarsu, 2017). Bununla birlikte, hiçbir klinik araştırmanın kanıtı, soğutma müdahalelerinin VMS tedavisi için etkinliğini desteklememektedir (Carpenter ve ark., 2015). Yüksek fiber içeren diyetlerin kardiovasküler hastalık riskini azalttığı, düşük yağ içerikli diyetin kolesterol profilini düzelttiği bilinmekle birlikte sıcak basması, baş ağrısı, baş dönmesi, yorgunluk, sinirlilik, çarpıntı sıklığını azaltmakta ve kalsiyum metabolizmasında düzenleyici rol oynadığı bilinmektedir (Özcan ve Oskay, 2013)**.** Vitamin D eksikliği vücutta anatomik, fizyolojik ya da biyokimyasal bozukluklar oluşturmaktadır. Menopozal dönemde vitamin D alımı kemiklerde kırılma riskini önlemektedir (Özcan ve Oskay, 2013; Kilci ve Ertem, 2019). Vitamin E'nin meme kanseri riskini azalttığı ve sıcak basmaları yakınmalarını rahatlattığı bildirilmektedir (Özcan ve Oskay, 2013; Carpenter ve ark., 2015). Vitamin A alımının; kemik gücünü artırdığı, kanser riskini azalttığı, eksikliğinin ise inme, ölüm gibi olaylarla doğrudan ilişkili olduğu saptanmıştır (Özcan ve Oskay, 2013)**.** Guo ve ark., (2019) çalışmalarında Omega-3'ün VMS iyileştirmek için faydalı olduğu bildirmektedir. Yaşam tarzı değişiklikleri ve diyet kaynaklarının kullanımı VMS azaltmanın yanı sıra ileri dönemlerde görülebilecek kalp ve kas iskelet problemlerinde de yararlı olabileceği görülmektedir (Guo ve ark., 2019).

Apiterapi

Tamamlayıcı tıp yöntemi olan apiterapi, bal, polen, propolis ve arı sütü gibi arı ürünleri kullanılarak yapılan tedavilere odaklanan tedavi şeklidir (Münstedt ve Männle, 2020). Apiterapi içerikli kitapların sadece %29,5'inde menopoz sorunlarından bahsedilmekte ve öncelikli tedavinin arı sütü, ardından polen, polen ve arı sütü kombinasyonu ve propolis olduğu bildirilmektedir (Münstedt ve Männle, 2020). Ab Wahab ve ark. (2018), menopoz sonrası 45-65 yaş arası kadınlarda balın uzun vadeli etkilerini inceledikleri araştırmada müdahale grubundaki kadınlara günde 20 gr Tualang balı ile 20 gr bal kokteyli (bal, arı ekmeği ve arı sütü) karşılaştırarak verilmiş müdahalenin başlangıç, 6 ve 12. ayında kardiyovasküler parametreler ve antropometrik

ölçümler değerlendirilmiştir. Çalışmada yer alan kadınların kan basıncında önemli bir düşüş ile açlık kan şekerinde önemli bir azalma olduğu ve 12 ay boyunca BKİ'nin değişmediği tespit edilmiştir. Apiterapinin bilişsel ve kardiyovasküler problemlerde yararlı olduğu fakat etkinliğini değerlendirmek için daha fazla kanıta ihtiyaç duyulduğu belirtilmektedir.

Fiziksel Egzersiz

Menopoz dönemindeki kadınlarda hem fiziksel hem de zihinsel sağlığın geliştirilmesi ve sürdürülmesinde egzersiz basit, ucuz ve etkili bir yöntemdir (Kilci ve Ertem, 2019). Kardiyovasküler ve kemik sağlığını iyileştirmek gibi birçok yararı vardır. Haftada üç kez az 30 dakika veya daha uzun süren fiziksel aktivitenin vazomotor ve/veya diğer semptomları azaltıcı etkisinin olduğu aksi durumun ise yüksek menopoz semptomları ile ilişkili olduğu bilinmektedir (Moore ve ark., 2017; Kilci ve Ertem, 2019). Fiziksel egzersiz ile menopoz döneminde görülen psikolojik semptomlar arasındaki ilişkinin incelendiği çalışmalarda, egzersizin depresyon ve anksiyete gibi psikolojik semptomlar üzerine yararlı olduğu, sıcak basmalarını azalttığı ve postmenopozal dönemde yaşam kalitesini önemli ölçüde artırdığı bildirilmektedir (Özcan ve Oskay, 2013; Kilci ve Ertem, 2019).

Menopoz dönemindeki kadınlarda over fonksiyonlarının durması ve östrojen yapımının kesilmesi veya azalması ile yaşla bağlantılı olarak kemik kaybı hızlanmakta ve osteoporozun şiddeti artmaktadır (Kilci ve Ertem, 2019). Asyalı kadınlar arasında menopozal semtomlar üzerinde zihin-vücut terapilerinin ve egzersize dayalı müdahalelerin değerlendirdiği bir metaanalizde, egzersiz temelli müdahalelerin ve zihin-vücut terapilerinin yaşam kalitesi, menopoz semptomları ve depresyon üzerinde olumlu etkilerinin olduğu ancak sıcak basmasında etkin olmadığı bildirilmiştir (Shorey ve ark., 2020). Aerobik egzersizlerin ve lazer akupunkturun VMS üzerine etkisinin karşılaştırıldığı, 48 kadını içeren randomize kontrollü bir çalışmada akupunktur grubuna kıyasla egzersiz grubunda sıcak basmasının şiddetinin önemli ölçüde azaldığı saptanmıştır (Elhosary ve ark., 2018). Yapılmış olan çalışmaların örneklem gruplarının sınırlı olması nedeniyle daha geniş örneklemli çalışmalara ihtiyaç duyulmaktadır.

Fitoterapi

Bitkisel ilaç veya tıbbı bitki olarak isimlendirilen bitkilerin yaprak, çiçek, tohum, kök veya kabuğu tedavi amacıyla kullanılmaktadır. Bitkisel preparatlar, tamamlayıcı terapiler içerisinde, menopoz semptomları ile başa çıkmada kadınlar tarafından yaygın olarak kullanılmakta ve sınırlı bir oranda yararlı olduğu belirtilmektedir (Akarsu, 2017). Fitoöstrojenler bitkilerde, meyvelerde veya sebzelerde bulunan doğal olarak oluşan östrojen benzeri bileşiklerdir. Vazomotor semptomlar için en yaygın kullanılan doğal ürün grubunun fitoöstrojenler olarak da bilinen bitki östrojenleridir. Fitoöstrojenler genellikle 3 ana sınıfa ayrılır: izoflavonlar, lignanlar ve kumestanlar. Bunlardan en çok kullanılan izoflavonlardır. İzoflavonların plasebo ile karşılaştırıldığında vazomotor semptomları iyileştirdiğine dair düşük düzeyde kanıt olduğu sonucuna varılmıştır (Moore ve ark., 2017). Aşağıda menopoz semptomlarında en sık kullanılan bitkiler ve etkileri ele alınmıştır:

1. Şerbetçi Otu (Hop) *(Humulus Lupulus)*

Şerbetçi otu, güçlü fitoöstrojenik bileşikleri, östrojenik, yatıştırıcı, hipnotik, antipiretik, anti inflamatuar ve antiseptik etkiler yaratma yeteneği sayesinde tıbbi ve endüstriyel uygulamalarda yer bulmuştur (Abdi ve ark., 2016). Yapılan araştırmalarda şerbetçi otunun sıcak basmalarını azalttığı, vazomotor belirtiler ve menopoz semptomları üzerinde olumlu etkilerinin olduğu bildirilmiştir (Aghamiri ve ark., 2015; Kilci ve Ertem, 2019). Kuzey Amerika Menopoz Derneğiise raporunda şerbetçiotu için kanıtların sınırlı olduğu bildirmektedir (Carpenter ve ark., 2015).

2. Çin Melekotu (*Angelica Sinensis Oliv*.) (Dong Quai)

Çin Melekotu 0.4-1 m yüksekliğinde, silindirik dallı ve etli kökleri aromatik, fitoöstrojenik bir

bitkidir (Kilci ve Ertem, 2019). Türkiye'de Doğu Karadeniz'de yetişmektedir. Geleneksel Çin tıbbında her derde deva olarak kabul edilmekte lumbago, menopoz semptomları, nevralji, anjin, uykusuzluk, artrit, kan basıncı sorunları ile jinekolojik şikayetlerde sıklıkla kullanılmaktadır. Çin Melekotu'nun tek başına kullanılmadığı, bunun yerine terapötik etki için gerekli sinerjiyi sağlamak amacıyla diğer bitkilerle birlikte kullanılması gerektiği belirtilmektedir (Carpenter ve ark., 2015).

Bir diğer randomize kontrollü çalışmada ise Çin Melekotu'nun menopozal fiziksel ve psikolojik sorunları önemli ölçüde iyileştirdiği ve vazomotor semptomları azalttığı belirtilmiştir (Wang ve ark., 2013).

Literatürde ise Çin Melekotu'nun menopozal semptomları azalttığına yönelik yeterli kanıt bulunmamakta ve kullanımı desteklememektedir (Kilci ve Ertem, 2019).

3. Çuha Çiçeği (*Oenothera Biennis L.*) (Primrose oil)

Çuha çiçeği, linolenik asit ve g-linolenik asit açısından zengin çiçekli bir bitkidir (Carpenter ve ark., 2015). Çiçeğin tohumları ezildiğinde bir yağ çıkmakta ve bu yağ içindeki bileşenlerin menopozal sıcak basmasını azaltmaya yardımcı olduğu belirtilmektedir (Guo ve ark., 2019; Kilci ve Ertem, 2019). Bitki ayrıca alerjiler, egzama, artrit, diyabetik nöropati ve irritabl bağırsak hastalığı dahil pek çok enflamatuar ve otoimmün bozukluklar için de kullanılmaktadır (Carpenter ve ark., 2015). Çuha Çiçeği'nin sıcak basması üzerine etkisini belirlemek amacıyla menopozdaki 45-59 yaşlarında olan toplam 56 kadın üzerine yapılan randomize kontrollü çalışmada, altı haftalık uygulamanın sonunda Çuha Çiçeği'nin sıcak basmasını azalttığı saptanmıştır (Farzaneh ve ark., 2013). Fakat VMS'yi azaltmada etkili olduğuna ilişkin kanıtlar yetersizdir (Carpenter ve ark., 2015).

4. Soya (İsoflovan) (*Glycine Soja*)

Soya, en yaygın kullanılan izoflavon içeren besin olup, Doğu Asya'ya özgü bir baklagil türüdür ve fitokimyasal içeriği nedeniyle önemlidir (Carpenter ve ark., 2015; Guo ve ark., 2019, Kilci ve Ertem 2019). Ülkemizde Ege ve Akdeniz bölgelerinde yetişmektedir. Uyku bozukluğu, anksiyete, depresyon, vajinal kuruluk, libido kaybı ve kemik ağrısı gibi semptomların hafifletilmesinde etkili olduğu belirlenmiştir. Ayrıca soya isoflovanlarının menopozda sıcak basmalarını ve diğer vazomotor semptomları azaltmada etkili ve önemli olduğu belirtilmektedir (Kargozar ve ark., 2017; Moore ve ark., 2017; Guo ve ark., 2019; Kilci ve Ertem, 2019). Menopoz sonrası kadınlarda soya izoflavonunun klimakterik semptomlar üzerindeki etkinliğini araştırmak için 80 kadını içeren randomize çalışmada, soya izoflavon özütünün, vazomotor semptomlar üzerinde olumlu etkilerinin olduğunu bildirmiştir (Nahas ve ark., 2007). Guo ve ark., (2019) soyanın VMS iyileştirmek için faydalı olduğunu bildirmişlerdir.

5. Kızıl/Kırmızı Yonca (Red clover) (*Trifolium Pratense*)

Kırmızı yonca (*Trifolium pratense*), izoflavon ve kumestan gruplarından fitoöstrojen içeren bir bitkidir (Moore ve ark., 2017). Bu bitkinin izoflavonlarını içeren takviyelerin ağızdan alınmasının, sıcak basmaların sıklığını ve şiddetini azaltmada etkili olduğu gösterilmiştir (Kargozar ve ark., 2017). Menopoz dönemindeki kadınlarda sıcak basması sıklığının azaltılmasında Trifolium pratense içeren takviyelerin kanıtlarını inceleyen bir metanalizde; plasebo grubuna kıyasla müdahale grubunda sıcak basması sıklığında bir düşüş olduğu bildirilmiştir (Coon ve ark., 2007). Kırmızı yonca son zamanlarda menopoz semptomlarının tedavisinde çok fazla ilgi görmüş, menopozal semptomları önemli ölçüde azalttığı saptanmıştır ancak sıcak basması ve diğer vazomotor semptomlar üzerinde olumlu bir etki oluşturmadığı belirtilmektedir. Klinik kanıtlar kırmızı yonca ekstrelerinin klimakterik dönemde vazomotor semptomların hafifletilmesinde etkinliğini desteklememektedir (Moore ve ark., 2017; Guo ve ark., 2019; Kilci ve Ertem, 2019).

6. Keten Tohumu (*Linum Usitatissimum*)

Amerika Ulusal Kanser Enstitüsü, kanser önleyici gıdalar arasına aldığı ve üzerinde çalışılmasını öngördüğü altı bitkisel materyalden birisi keten tohumudur. α-linolenik asit ve iyi kaliteli protein açısından zengin olan keten tohumu flavonoid, lignan ve fenolik asitler gibi fitokimyasalların da doğal kaynağıdır (İşleroğlu ve ark 2005). Genelde sıcak basması gibi vazomotor septomları azalttığı bildirilse de kanıtlar keten tohumunun menopozda semptom yönetiminde kullanımını desteklememektedir (Carpenter ve ark., 2015; Moore ve ark., 2017; Kilci ve Ertem, 2019). Keten tohumu ve sarı kantaronun menopoz dönemindeki kadınlarda sıcak basması, vajinal atrofi ve östrojene bağlı kanserler üzerindeki etkileri inceleyen bir meta-analizde sadece randomize kontrollü çalışmalar dahil edilmiş ve hem keten tohumu hem de sarı kantaronun vazomotor semptom üzerinde faydalı etki olduğunu bildirmiştir. Fakat östrojene bağımlı kanserlerlere etkisi ile ilgili keten tohumunu ele alan az sayıda çalışma nedeniyle sonuçlar sınırlıdır (Ghazanfarpour ve ark., 2016a).

7. Karayılan Otu (Black Cohosh) *(Cimicifuga spp.)*

Karayılan otu beyaz çiçekli uzun ömürlü bir bitkidir. Türkiye'de doğu bölgelerde yetişmektedir. (Kilci ve Ertem, 2019; Özcan ve Oskay, 2013). Karayılan otu, menopoz semptomları için en popüler bitkisel ilaçlardan biridir. İçeriğinin kadınlarda luteinize edici hormon (LH) salınımı üzerinde östrojenik etkiye sahip izoflavon içerdiği düşünülmektedir. LH' nin salınımı, sıcak basması oluşumuyla bağlantılı olduğundan sıcak basmasında olumlu etkisi olduğu belirtilmektedir (Kargozar ve ark., 2017; Moore ve ark., 2017; Guo ve ark., 2019). Guo ve ark. (2019) karayılan otunun VMS iyileştirmek için faydalı olduğunu bildirmişlerdir (Guo ve ark., 2019). Menopoz sonrası kadınlarda karayılan otu ve çuha çiçeği yağının menopozla ile ilişkili semptomlar üzerine etkisini değerlendirmek amacıyla, 80 kadını içeren ve karşılaştırmalı olarak gerçekleştirilen bir çalışmada; iki bitkinin de sıcak basması şiddetini azaltmada ve yaşam kalitesinin iyileştirilmesinde etkili olduğu, ancak karayılan otunun çuha çiçeği yağından daha etkili olduğu saptanmıştır (Mehrpooya ve ark., 2018). Karayılan otu kullanımını desteklemek için daha fazla çalışmaya ihtiyaç durulmaktadır (Carpenter ve ark., 2015; Moore ve ark., 2017; Kilci ve Ertem, 2019).

8. Sarı Kantaron (*Hypericum Perforatum L.*) (St. John's wort*)*

Eski yıllardan beri yara iyileştirici özelliği ile bilinen sarı kantoron, fenolik asitler (klorojenik asit), naphtodianthrones (hiperisin, pseudohypericin) ve phloroglucinols (hiperforin, adhyperforin) içermektedir (Kilci ve Ertem 2019).

Klinik çalışmalar, bitki özünün hafif veorta dereceli depresyon ile anksiyete tedavisinde etkisi yanı sıra menopozun neden olduğu libido kaybı, vajinal kuruluk, idrar yolu sorunları ve zihinsel komplikasyonlar üzerindeki etkisini göstermiştir (Kargozar ve ark., 2017). Sarı kantaronunsıcak basması, menopoz semptomları ve depresyon üzerindeki etkisini değelendirmek amacıyla gerçekleştirilen ve 80kadını içeren randomize kontrollü bir çalışmada müdahale grubuna, iki ay boyunca günde üç kez 270-330 µg sarı kantaron (n=40) diğer gruba da plasebo (n=40) tablet verilmiştir. Sarı kantaron grubunda sıcak basması şiddetinin ve depresyonun kontrol grubuna göre anlamlı olarak azaldığı bildirilmiştir (Eatemadnia ve ark., 2019). Menopozdaki kadınlar için sarı kantaron veya kombinasyonlarının etkinliğini ve yan etkilerini değerlendirmek için yapılan bir metaanalizde; sarı kantaron ekstrelerinin menopoz tedavisinde plasebodan daha etkili olduğu kanıtlanmıştır (Liu ve ark., 2014). Bu bitkinin semptomatik olan perimenopozal kadınlardayaşam kalitesini artırabileceği ancak bu sonuçların daha geniş klinik çalışmalar ile doğrulanması gerekmektedir (Kilci ve Ertem, 2019).

9. Ginseng *(Panax Ginseng)*

Ginseng uzak Doğu Asya ülkelerinde (Çin, Kore vb.) yabani olarak bulunmakla birlikte aynı zamanda yetiştiriciliği de yapılmaktadır. Ginseng Türkiye'de yetişmemektedir. Ginseng'in, fiziksel performansı arttıran, stres ve yaşlanmaya karşı

direnci sağlayan, dolayısıyla yaşam kalitesini yükselten adaptojen bir madde olduğu gösterilmiştir (Taşdemir ve Yaman, 2017). Bu bitki, anti-enflamatuar özelliğinin yanı sıra yorgunluk ve halsizliğin gidermek, konsantrasyonu artırmak için kullanılmaktadır. Bitkinin menopoz sonrası kadınlarda depresyon ve duygu-durum bozukluklarının tedavisinde de etkili olduğu gösterilmiştir (Kargozar ve ark., 2017). Menopozal semptom yönetiminde ginsengin etkisini değerlendirmek amacıyla randomize kontrollü çalışmalardan elde edilen kanıtları değerlendiren sistematik derlemede; menopoz dönemindeki kadınlarda cinsel işlev sorunları ve ateş basması gibi semptomların yönetiminde pozitif sonuçların olduğu belirtilmiştir (Lee ve ark., 2016). Ginseng'in postmenopozal kadınlarda menopoz semptomları ve kardiyovasküler risk faktörleri üzerindeki etkilerini değerlendirmek amacıyla gerçekleştirilen ve 72 kadını içeren randomize çift kör çalışmada; gruplar toplam 12 hafta değerlendirilmiş ve müdahale grubunda plasebo grubuna kıyasla önemli iyileşmeler gözlenmiştir. Kırmızı Ginseng'in postmenopozal kadınlarda kardiyovasküler hastalık belirteçleri üzerinde olumlu etkilerinin olduğu ve bitkisel diyet takviyesi olabileceği belirtilmiştir (Kim ve ark., 2012).

10. Mabet ağacı (*Ginkgo Biloba L.*) (Ginkgo)

Bu bitki, antienflamatuar ve antioksidan özelliklere sahiptir. Ülkemizde İzmir, Ankara, Trabzon'da yetişmektedir. Fitoöstrojen içerikli Ginkgo; güç ve enerji düzeyinde artışa yol açarak menopozda düşük östrojen seviyelerine katkıda bulunmaktadır (Kilci ve Ertem, 2019). Dikkat bozuklukları ile postmenopozal kadınlarda hafıza bozukluğunun tedavisinde kullanılmaktadır (Kargozar ve ark., 2017). Çift kör, plasebo kontrollü bir çalışmada, menopoz sonrası kadınlardan (53-65 yaş) müdahale grubundakilere (n=15) 120 mg/gün Ginkgo verilmiş, 7 günün sonunda, plasebo grubundakilere (n=16) göre müdahale grubundakilerin hafıza ve frontal lob işlevlerinde gelişme olduğu bildirilmiştir (Hartley ve ark., 2003). Bitkisel ve diyet takviyelerinin menopozda bilişsel sağlık üzerindeki etkinliğine ilişkin kanıtları değerlendirmek amacıyla 12 randomize kontrollü çalışmayı içeren sistematik derlemede; izoflavon, soya ve Gingko biloba desteğinin menopoz sonrası kadınlarda bilişsel sorunları iyileştirebileceği fakat bitkisel ve diyet takviyelerinin etkinliğine ilişkin kanıtların yetersiz olduğunu bildirmiştir (Clement ve ark., 2011).

11. Kediotu *(Valeriana officinalis)*

Kediotu, fitoöstrojenik bir bitki olup en yaygın kullanılan bitkisel takviyelerden biridir. Menopoz semptomlarının tedavisinde umut vaat eden bir bitki olduğu belirtilmektedir (Kargozar ve ark., 2017; Moore ve ark., 2017). Kediotunun sıcak basmaların şiddeti ve sıklığı üzerindeki etkisini belirlemek için yapılan randomize kontrollü çalışmada kediotu grubundaki sıcak basmasının şiddeti, müdahalenin başlamasından sonraki birinci ve ikinci ayda plasebo grubundakinden anlamlı derecede daha düşük olduğu saptanmıştır (Jenabi ve ark., 2018). Bitkisel tıbbın sıcak basmalarını hafifletmedeki etkinliğini değerlendirmek amacıyla yapılan bir sistematik derlemede; anason (pimpinella anisum), meyan kökü (glycyrrhizaglabra), soya, karayılan otu, kırmızı yonca, çuha çiçeği, keten tohumu, salvia officinalis, passiflora itex agnus castus, piascledine (avakado ve soya fasulyesi yağı), sarı kantaron ve kediotu gibi bitkilerin sıcak basmalarını hafifletebileceği bildirilmiştir (Ghazanfarpour ve ark., 2016b). Kedi otunun VMS'de yararlı olduğu fakat daha fazla kanıta ihtiyaç duyulduğu görülmektedir.

SONUÇ

Kadınların menopoz dönemini sağlıklı bir şekilde geçirmesi yaşam kaliteleri bağlamında önemlidir. Menopozda kadınların yaşam kalitesini olumsuz etkileyen semptomların yönetiminde HRT en sık kullanılan tıbbi tedavi şeklidir ancak östradiol kullanmak için isteksiz veya tedaviye ilişkin kaygıları olan kadınlar sıklıkla tamamlayıcı tedavi yöntemlerini tercih etmektedir. Tamamlayıcı ve bütünleşik tedavilerin toplumda birçok hastalıkta kullanılması ile tıp eğitim programlarına entegre edilmiş ve devlet hastanelerinde de uygulamaya başlanmıştır. Bu tedavilerin menopozdaki

kullanımına ikişkin kanıtlar sınırlı olmakla birlikte konu ile ilgili pek çok araştırma literatürdeki yerini almaya devam etmektedir. Sağlık çalışanlarının danışmanlık rolü gereği tamamlayıcı ve bütünleşik tıp uygulamalarının menopoz semptomları üzerine etkilerini bilmeleri ve kadınları olabilecek hatalı uygulamalara karşı bilgilendirmeleri oldukça değerlidir.

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