ARAŞTIRMA MAKALESİ / *RESEARCH ARTICLE*

The Evaluation of Migraine Frequency in Patients with Psoriasis

Psoriasisli Hastalarda Migren Sıklığının Değerlendirilmesi

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ABSTRACT

Aim: *Psoriasis, previously thought to be a disease restricted to the skin, is now considered systemic, accompanied by numerous comorbidities. Our study aimed to establish the migraine frequency in psoriasis patients and assess the relationship between the severity and duration of psoriasis and the frequency and severity of migraine.*

Material and Method: *This case-control study was performed in the dermatology outpatient clinic. A total of 80 people, including 40 patients over the age of 18 who applied to the outpatient clinic and were diagnosed with psoriasis, and 40 people with similar gender and age characteristics and other skin problems, were included in the control group.*

Results: *The frequency of migraine in psoriasis patients was 35.0% and 15.0% in the control group. In psoriasis patients, the median Psoriasis Area and Severity Index (PASI) score was 3.60 (1.20–13.20) in patients without migraine and 2.90 (1.20–12.00) in patients with migraine. Migraine frequency was 45.0% in patients suffering from the disease for more than eight years and 25.0% in patients suffering for eight years or less. The incidence of migraine was significantly higher in patients with psoriasis for more than eight years than in the control group.*

Conclusion: *Our study presented important outputs that the severity and duration of psoriasis disease might be related to migraine disease.*

Key words: *psoriasis; inflammation; vascular; migraine*

ÖZET

Amaç: *Deride sınırlı bir hastalık olduğu düşünülen psoriazis, günümüzde pek çok komorbiditenin eşlik ettiği sistemik bir hastalık olarak kabul edilmektedir. Çalışmamız psoriazis hastalarında migren sıklığını belirlemeyi ve psoriazis şiddeti ve süresi ile migrenin sıklığı ve şiddeti arasındaki ilişkiyi değerlendirmeyi amaçlamaktadır.*

Materyal ve Metot: *Bu kesitsel çalışmaya dermatoloji polikliniğine başvuran ve psoriasis tanısı alan 18 yaş üstü 40 hasta ile benzer cinsiyet ve yaş özelliklerine sahip 40 sağlıklı gönüllü olmak üzere toplam 80 kişi dahil edildi.*

Bulgular: *Psoriazis hastalarında ve kontrol grubunda migren sıklığı sırasıyla %35,0 ve %15,0 idi. Psoriazis hastalarında ortanca Psoriazis Alan ve Şiddet İndeksi (PASI) skoru migreni olmayan hastalarda 3,60 (1,20–13,20), migrenli hastalarda 2,90 (1,20–12,00) idi. Migren sıklığı sekiz yıldan uzun süredir hastalığı olan hastalarda %45,0, sekiz yıl ve daha az süredir devam eden hastalarda ise %25,0 idi. Sekiz yıldan uzun süredir psoriazisi olan hastalarda migren insidansı kontrol grubuna göre anlamlı olarak daha yüksekti.*

Sonuç: *Çalışmamız psoriazis hastalığının şiddeti ve süresinin migren hastalığı ile ilişkili olabileceğine dair önemli veriler sunmaktadır.*

Anahtar kelimeler: *psoriasis; inflamasyon; vasküler; migren*

Introduction

Psoriasis, previously thought to be a disease restricted to the skin, is now considered systemic, accompanied by changes caused by chronic inflammation and numerous comorbidities[1]. In particular, the risk of developing severe vascular incidents like cardiovascular and cerebrovascular diseases is high[2]. Most of the publications have focused on cardiovascular and metabolic diseases[3]. Comorbidities accompanying psoriasis include psoriatic arthritis (PsA), autoimmune diseases, sleep apnea, non-alcoholic steatohepatitis, and chronic obstructive pulmonary disease[1,4]. Besides, cardiovascular risk factors

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such as hypertension (HT), diabetes (DM), dyslipidemia, obesity, and metabolic syndrome are increasing[5].

Studies in recent years have shown that psoriasis is accompanied by neurological or psychiatric diseases such as multiple sclerosis, epilepsy, migraine, depression, anxiety, suicidal behavior, etc.[6].

The incidence of psoriasis in both genders is similar, and its incidence is around 2% worldwide[7].

In addition to the known comorbidities of psoriasis, migraine is morbidity whose etiology is not fully understood, and its relationship with psoriasis cannot be demonstrated. Migraine is a common neurological disease characterized by headaches, nausea, and vomiting, which occur due to excessive cortical stimulation and afferent trigeminovascular sensitization. It can last 4–72 hours, be moderate to severe in attacks, and increase with physical activity, light, and noise[8,9]. By an analysis from the Global Burden of Disease (2016) study, the global migraine frequency is approximately 14.4%, with 18.9% in females and 9.8% in males[10]. Some cytokines (such as nitric oxide, tumor necrosis factor-alpha, and adipokines (leptin and adiponectin)) that play an essential role in the etiopathogenesis of psoriasis may cause meningeal inflammation, vasospasm, and hypersensitivity in pain pathways in patients with migraine[11].

In a study conducted in Italy on the psoriatic population, it has been determined that the risk of migraine is increased in both gender groups, mostly in females[12]. In a study conducted with 163 psoriasis patients in Türkiye, 8.5% had a migraine[8].

Very few studies examine the relationship between psoriasis and migraine globally and in our country. Our study aimed to establish the migraine frequency in psoriasis patients and evaluate the relationship between the severity and duration of psoriasis disease and the frequency and severity of migraine disease.

Material and Methods

This case-control study was performed between January 2019 and March 2020. Forty people who were diagnosed with psoriasis, over the age of 18 and accepted to participate in the research, who applied to the dermatology outpatient clinic were included, and 40 people with similar gender and age characteristics but without a diagnosis of psoriasis and who applied to the dermatology outpatient clinic due to other skin problems, were included in the control group. It was evaluated whether the patients had a previous diagnosis of migraine in the electronic registry system according to ICD 10. After confirmation by asking those diagnosed in the system, they were included as cases of migraine.

The local ethics committee approved the study.

In the study, the sociodemographic features of the participants (age, gender, body mass index (BMI)) were determined. In assessing the severity of psoriasis, the "Psoriasis Area and Severity Index" (PASI), which evaluates the severity and prevalence of the disease together, was used. The maximum score of PASI is 72[13].

In addition, the duration of the disease, the presence of diabetes mellitus (DM), hypertension (HT), and migraine was questioned. According to the Migraine Disability Assessment Scale (MIDAS) scores for migraine disease; the patients were grouped as follows:

Group 1: Little or no disability (Loss for 0–5 days),

Group II: Mild disability (Loss for 6–10 days),

Group III: Moderate disability (Loss for 11–20 days)

Group IV (21+ days): Severe disability. This group could not be evaluated because no patient had a Grade IV disease[14].

SPSS 25 package program was used for statistical analysis. Descriptive statistical analyses were conducted to evaluate the data; the Kolmogorov-Smirnov test was used for normality tests, the Chi-square test when comparing the categorical data, and the Mann-Whitney U test when comparing age, BMI, and PASI scores of groups and the duration of the disease. In addition, a correlation test was used to determine the relationship between PASI score, duration of disease, and migraine severity. The statistical significance level was defined as $p<0.05$.

Results

Fifty percent (40) of the participants were females; the mean age was 43.98±15.60 years. Of the patients with psoriasis, 47.5% (19) were females, the mean disease duration was 11.15±9.09 (min-max: 1–31 years), and the mean PASI score was 5.31±4.10. Migraine was present in 25.0% (20) of all participants. The descriptive characteristics of the participants according to the presence of migraine in psoriasis and control groups are given in Table 1. The differences were not statistically significant when psoriasis patients and control groups were compared regarding age, gender, BMI, and the presence of chronic disease (DM, HT). When these variables were compared between the patients with and without a migraine in the psoriasis group, a statistically significant difference was found only in the BMI variable (Table 1). When the presence of DM and HT in the psoriasis patient group was compared, no statistically significant difference was found between the two diseases ($p=0.338$). The frequency of migraine in psoriasis patients was 35.0%, and it was 15.0% in the control group, which was not statistically significant ($p=0.069$).

A moderate positive correlation was found between PASI score and MIDAS in psoriasis patients (Table 2).

Table 1. *Descriptive characteristics of the participants according to the presence of migraine in psoriasis and control groups*

	Psoriasis patient group				Control group			
	With migraine (n=14)	Without migraine (n=26)	Total (n=40)	p[1]	With migraine (n=6)	Without migraine (n=34)	Total (n=40)	p[2]
Gender								
Female (n)	8	11	19	0.370[a]	5	16	21	0.823[a]
Male (n)	6	15	21		1	18	19	
Age (Mean, SD)	37.07 (12.11)	47.27 (17.69)	43.70 (16.55)	0.100[b]	47.17 (12.92)	43.74 (15.20)	44.25 (14.78)	0.851[b]
BMI (Mean, SD)	22.95 (3.11)	27.49 (4.91)	25.90 (4.85)	0.004[b]	26.99 (4.82)	27.27 (4.09)	27.23 (4.14)	0.142[b]
DM (n)	0	3	3	0.539[a]	1	2	3	1.000[a]
HT (n)	1	4	5	0.640[a]	0	6	6	1.000[a]
PASI (Mean, SD)	4.85 (4.11)	5.55 (4.15)	5.31 (4.10)	0.477[b]	-	-	-	-
Disease duration (years) (Mean, SD)	13.14 (8.55)	10.08 (9.35)	11.15 (9.09)	0.186[b]	-	-	-	-

1 Comparison of patients with and without a migraine in the patient group with psoriasis 2 Comparison of psoriasis patient and control group a Chi-square and Fisher tests b Mann-Whitney U test

Table 2. *Correlation of PASI score with age, BMI, disease duration, and MIDAS in patients with psoriasis*

	PASI-Age	PASI-BMI	PASI-Disease duration	PASI-MIDAS
r	0.225	-0.039	-0.102	0.525
p	0.163	0.812	0.529	0.022
N	40	40	40	14

When the presence of migraine in psoriasis patients and the PASI score were compared, the median PASI score was found to be 3.60 (1.20–13.20) in psoriasis patients without, while it was 2.90 (1.20–12.00) in psoriasis patients with migraine. However, this difference was not statistically significant (Fig. 1).

When the presence of migraine in psoriasis patients was evaluated according to the duration of the disease, migraine was observed in 45.0% of the patients suffering from the disease for more than eight years. In patients suffering from the disease for eight years or less, migraine frequency was 25.0%. Although the presence of migraine was higher in patients with longer disease duration, this difference was not statistically significant (χ^2=0.989, p=0.320). However, this difference was significant between the control group and those with psoriasis for more than eight years (χ^2=6.40, p=0.041).

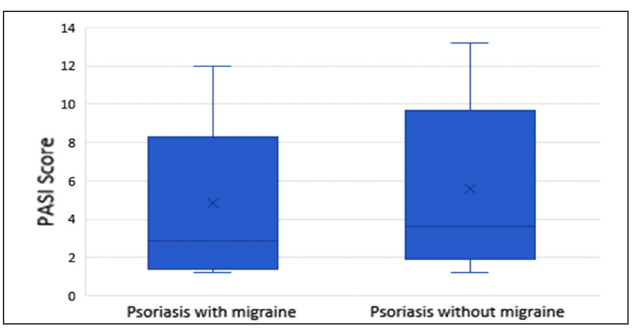

Figure 1. *PASI Score according to the presence of migraine in patients with psoriasis (Mann-Whitney U Test: Z=-0.711; p=0.477).*

Discussion

Although the prevalence of psoriasis varies according to different races and the region of residence, it is widespread worldwide[15]. It is seen less commonly in Asia than in western countries[16]. It is more common in northern countries than in tropical countries[17]. Norway, a northern country, is one of the countries where psoriasis is common globally at 4.8%[18].

Various studies show that the incidence of psoriasis in our country varies between 0.7 and 5.18%[19,20].

Many studies indicate that the incidence of psoriasis is equal in both genders[15,21]. In our study, psoriasis was found to be more common in males, albeit with a slight difference, compared to females. Consistent with our research, studies are reporting male predominance in psoriasis[8].

In a study conducted in Italy, the mean age of patients with migraine and psoriasis was higher than that of patients with only psoriasis[12]. In a study conducted in Türkiye, the mean age of patients with migraine was lower than that of patients without migraine. This difference was also found to be statistically significant[8]. In our study, the mean age of psoriasis patients without migraines, was lower, but it was not statistically significant.

Many comorbidities accompany psoriasis. In its etiopathogenesis, proinflammatory cytokines cause atherogenesis and peripheral insulin resistance[15]. Therefore, it poses a risk for DM and HT. DM and HT are more common in psoriasis patients[2]. In studies, DM and HT are seen frequently in psoriasis patients[3,15]. In our study, these diseases were found at a higher rate in psoriasis patients than in the control group, which was consistent with other studies, but the difference was insignificant.

A meta-analysis study, obesity was correlated to the frequency and severity of psoriasis. Looking at the relationship between psoriasis and obesity in this study, the estimated relative risk for obesity among patients with severe psoriasis was 2.23 (95% CI: 1.63–3.05), while it was 1.46 (95% CI: 1.17–1.82) in the mild type. In addition, this study shows that the prevalence of obesity increases by more than 50% in those with psoriasis compared to those without[22]. In our study, there was no significant difference between the psoriasis patient group and the control group regarding BMI, and there was no correlation between BMI and PASI. Following our study, no statistically significant relationship was found between PASI and BMI in a study conducted in Ankara[23].

Obesity also creates a risk for migraines. Although some studies have stated that BMI does not increase the frequency of migraines, it has been shown that BMI is related to the frequency and severity of migraine attacks[24]. In a study conducted in Italy, no difference was found in obesity in psoriasis patients with and without migraines[12]. In a study conducted in Diyarbakir, Türkiye, the obesity rate was 14.2% in patients with migraines and 19.4% in patients without[8]. In our study, the mean BMI was higher in patients with psoriasis without migraine than in patients with migraine, and this difference was significant.

In a study conducted in Korea, the rate of migraine (3.3%) was higher in psoriasis patients compared to the control group (2.9%) [25]. In our study, the frequency of migraine in psoriasis patients was 35.0% and 15% in the control group, although this difference was statistically insignificant (p=0.069).

Even though not statistically significant in our study, the PASI score was higher in psoriasis patients without migraine than in psoriasis patients with migraine. In another study, the mean PASI score was 11.52±7.6 in patients with migraine and 13.1±10.1 in the group without a migraine, concordance with our study[8].

In our study, when the correlation between PASI score and age, BMI, disease duration, and MIDAS in patients with psoriasis was examined, only a moderate positive correlation was found with MIDAS. The lack of studies investigating the relationship between PASI and MIDAS in the literature can be seen as a different aspect of our study.

Among the factors affecting the quality of life of psoriasis patients, the duration of the disease is as effective as its severity[26]. Our study showed a significant difference in migraine frequency between patients with disease duration longer than eight years and the control group. However, no correlation was found between disease duration and severity.

Limitations

One of the limitations of our study was that the participants of our study consisted only of patients who applied to the outpatient clinic, so it could not be generalized to the whole population. The fact that risk factors closely related to inflammatory conditions such as smoking, alcohol, and exercise have not been questioned is a limitation to revealing the incidence of migraine more clearly. Finally, since it was designed as an observational study, the inability to specify a precise causality is also a limitation.

Conclusion

Psoriasis is a disease that accompanies many diseases and is effective in forming many diseases. Migraine is one of these diseases. However, we found no difference in the frequency of migraine in psoriasis patients compared to the control group, the severity, and duration of the disease presented important outcomes indicating that it may be associated with migraine disease. More comprehensive studies, including lifestyle factors, will reveal the causality better in the future. In addition, more studies should be conducted on the relationship between psoriasis and migraine disease in our country.

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