



Clinical examination and demographic characteristics of 277 patients with psoriasis

Psoriasis tanılı 277 hastanın klinik ve demografik özelliklerinin incelenmesi

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Abstract

Background and Design: This study aimed to prospectively evaluate the clinical and demographic characteristics of patients with psoriasis.

Materials and Methods: This study included a total of 277 patients with psoriasis who applied to our clinic between December 2018 and February 2020. All patient parameters such as age, sex, height, weight, marital status, age at disease onset, triggering factors, joint and nail involvement, systemic disease history, alcohol and smoking history, family history, and topical and systemic treatments received were recorded prospectively. Statistical analysis was conducted using the SPSS version 24.

Results: The mean age of the 277 patients aged 8-81 years was 37.1±15.9 years. In this study, 125 (45.1%) patients were female and 152 (54.9%) were male, and 11.2% of the patients were <18 years old. Ten of the patients with pediatric psoriasis were male and 21 were female. The mean age at disease onset was 21.0±14.1 in female patients and 25.3±14.4 in male patients. The most common clinical type was plaque psoriasis. Family history was positive in 29.6% of the patients. Psoriatic arthritis occurred in 9% of the patients, and the most common type was an asymmetric oligoarticular type. Although the nail involvement rate was 44%, stress was the most common triggering factor for psoriasis. In addition, 17% of the patients had a comorbid disease. The most common comorbid disease was hypertension. The frequency of smoking was 45.8%, and the frequency of alcohol use was 4.7%. Of the patients, 17.3% received only topical therapy; 1.1%, phototherapy; 37.5%, conventional therapy; 42.2%, biological therapy; and 1.8%, conventional + biological therapy.

Conclusion: Our study data were similar to those of other studies examining the clinical and demographic characteristics of patients with psoriasis. We believe that conducting similar studies involving larger patient groups will contribute to disease diagnosis and treatment.

Keywords: Prospective, demographic, psoriasis

Öz

Amaç: Bu çalışmada amacımız psoriasis tanılı hastaların klinik ve demografik özelliklerinin prospektif olarak değerlendirilmesidir.

Gereç ve Yöntem: Çalışmaya Aralık 2018-Şubat 2020 tarihleri arasında kliniğimize başvuran 277 psoriasis tanılı hasta dahil edildi. Tüm hastaların yaş, cinsiyet, boy, kilo, medeni durum, hastalık başlangıç yaşı, tetikleyici faktörler, eklem ve tırnak tutulumu, sistemik hastalık öyküsü, alkol ve sigara öyküsü, aile öyküsü, alınan topikal ve sistemik tedaviler gibi parametreleri prospektif olarak kaydedildi. İstatistiksel analiz SPSS versiyon 24 programı ile yapıldı.

Bulgular: Yaşları 8 ile 81 arasında değişen 277 hastanın yaş ortalaması 37,1±15,9 idi. Hastaların 125'i (%45,1) kadın, 152'si (%54,9) erkekti. Hastaların %11,2'si 18 yaş altı idi. Pediyatrik psoriazisli hastaların 10'u erkek, 21'i kız idi. Ortalama hastalık başlangıç yaşı kadın cinsiyette 21,0±14,1, erkek cinsiyette 25,3±14,4 idi. En sık görülen klinik tip plak psoriazis idi. Hastaların %29,6'sında aile öyküsü pozitif idi. Psoriatik artrit oranı %9 idi ve en sık görülen tip asimetrik oligoartriküler tip idi. Tırnak tutulum oranı %44 iken psoriazisi en sık tetikleyen faktör strestir. Hastaların %17'sinde komorbid hastalık vardı. En sık eşlik eden hastalık hipertansiyondu. Sigara kullanım sıklığı %45,8, alkol kullanım sıklığı ise %4,7 idi. Hastaların %17,3'ü sadece topikal tedavi, %1,1'i fototerapi, %37,5'i konvansiyonel tedavi, %42,2'si biyolojik tedavi, %1,8'i konvansiyonel + biyolojik tedavi alıyordu.

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Sonuç: Çalışmamızdaki veriler psoriasisın klinik ve demografik özelliklerinin incelendiği literatürdeki diğer çalışmalarla benzerdi. Daha geniş hasta gruplarını içeren benzer çalışmaların yapılmasının hastalığın tanı ve tedavisine katkı sağlayacağı kanaatindeyiz.

Anahtar Kelimeler: Prospektif, demografik, psoriasis

Introduction

Psoriasis is a genetically based inflammatory dermatosis characterized by erythematous papules or plaques with sharp borders, covered with pearlescent-white squames, with periods of exacerbation and remission^{1,2}. Psoriasis can present with different morphologic appearances (plaque, guttate, pustular, and erythrodermic forms) and involve various body parts (scalp psoriasis, palmoplantar psoriasis, inverse psoriasis, nail psoriasis, etc.)³.

Psoriasis most commonly affects the nail, and more than half of patients with psoriasis have nail involvement. In general, cutaneous psoriasis is more severe in patients with nail involvement^{4,5}.

Psoriasis was previously thought to be a disease affecting only the skin and joints, but it is now understood to be an immune system-mediated chronic inflammatory disease with various comorbidities. Although psoriatic arthritis (PsA) is the most common comorbidity accompanying psoriasis, many comorbidities may accompany psoriasis^{6,8}.

In our country, not many studies have examined the clinical and demographic characteristics of psoriasis. Thus, this study prospectively analyzed the clinical and demographic characteristics of patients with psoriasis admitted to our clinic.

Materials and Methods

This study included 277 patients with psoriasis who applied to our clinic between December 2018 and February 2020. Detailed anamnesis was taken, and parameters such as age, sex, height, weight, occupation, marital status, place of residence, disease duration, age at disease onset, triggering factors, joint involvement, nail involvement, history of systemic disease, alcohol history, smoking history, family history, and topical and systemic treatments received were recorded.

Psoriasis area and severity index (PASI) and dermatology life quality index (DLQI) were used to assess disease severity. BSA was used instead of PASI in patients with pustular, erythrodermic, and palmoplantar psoriasis. DLQI was not used in patients aged <16 years. The rule of 10s was used to define the severity of psoriasis^{9,10}. Accordingly, severe psoriasis was defined as a PASI score of ≥ 10 and/or an affected BSA of $\geq 10\%$. Patients were asked to complete a 10-question DLQI questionnaire, and those who scored <10 were considered mildly affected, whereas those who scored ≥ 10 were considered moderately/severely affected.

The study was approved by the Dicle University Faculty of Medicine Non-Interventional Clinical Research Ethics Committee (approval number: 76, date: 22.11.2018). All patients participating in the study were informed in detail about the study, and informed consent was obtained, indicating that they agreed to participate in the study.

Statistical Analysis

Statistical analysis of this study was performed using the IBM SPSS Statistics version 24 (IBM Corp., Armonk, NY, USA). A P-value <0.05 was considered significant.

Result

Of the 277 patients aged 8-81 years, 125 (45.1%) were female and 152 (54.9%) were male. The male/female ratio was 1.21. The mean age at presentation was 37.1 ± 15.9 years. The distribution of patients according to age and sex is shown in Figure 1. In this study, 11.2% of the patients were under 18 years of age. Among our pediatric patients with psoriasis, 10 were boys and 21 were girls, and the female/male ratio was calculated as 2.1. The mean age was 13.19 ± 2.89 years.

Disease duration ranged from 2 months to 51 years. The mean age at disease onset was 21.0 ± 14.1 years for the female patients and 25.3 ± 14.4 years for male patients. Age at presentation and age at onset was earlier in female patients, and this difference was statistically significant (p-value <0.001 and 0.012, respectively). Moreover, the disease most frequently started in the second and third decades.

As regards the marital status of the patients, 182 were married, 89 were single, and 6 were widowed. According to occupational groups, 9.7% of the patients were unemployed, 26% were self-employed, 10.1% were civil servants, 15.5% were students, 32.1% were housewives, and 6.5% were retired. Moreover, 38.3% of the patients resided in rural areas and 61.7% in urban areas.

As regards educational status, 14.7% of the patients were illiterate, 9% were literate, 28.6% were primary school graduates, 15.5% were middle school graduates, 6.5% were high school graduates, and 25.7% were college graduates. The 32 patients who were continuing their education were not included in the evaluation. PASI was moderate-to-severe in 29% of the illiterates, 55% of primary school graduates, and 29.3% of college graduates.

The disease started before the age of 40 (type 1) in 236 (85.2%) patients and after the age of 40 (type 2) in 41 (14.8%) patients.

When the patients were compared according to body mass index (BMI), 7.2% were underweight, 38.6% were normal, 34.3% were

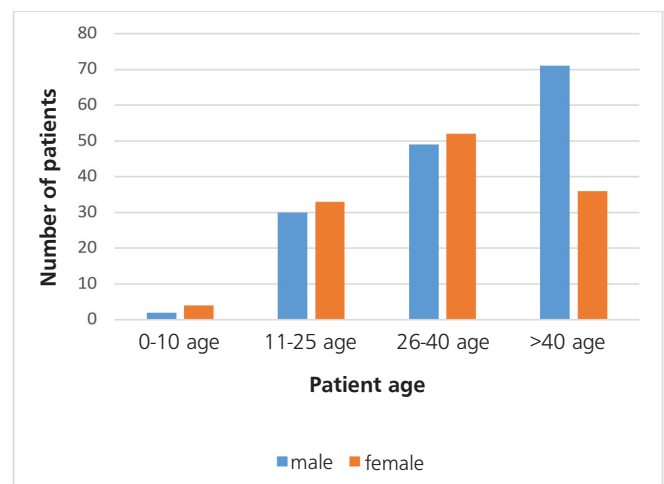


Figure 1. The distribution of patients according to age and sex

overweight, and 19.9% were obese. When the patients were divided into two groups as male and female, no statistically significant difference was found between both groups ($p=0.456$).

When compared in terms of obesity and disease severity, the disease was moderate-to-severe in 38% of patients in the obese group and moderate-to-severe in 28.3% of the patients in the non-obese group. However, no statistically significant difference was found between obesity and disease severity ($p=0.187$).

The distribution of clinical type in all patients was 82.3% plaque, 8.7% palmoplantar, 4.7% generalized pustular, 2.2% inverse, 1.1% guttate, 0.7% erythrodermic, and 0.4% localized pustular. The distribution of 31 pediatric patients with psoriasis according to clinical types was as follows: plaque, 58%; palmoplantar, 19.3%; generalized pustular, 9.7%; inverse, 6.4%; guttate, 3.2%; and erythrodermic, 3.2%. The distribution of patients according to the clinical subtype is shown in Table 1.

Of the 237 patients with PASI, 69.6% had mild PASI and 30.4% had moderate-to-severe PASI. Of the 251 patients who were subjected to DLQI, DLQI was mild in 57.8% and moderate-to-severe in 42.2%. In 14 patients with pustular psoriasis, two had erythrodermic psoriasis, 24 had palmoplantar psoriasis, PASI could not be calculated, and BSA was used instead. In 26 patients aged <16 years, DLQI was not used. Moreover, in 219 patients, both PASI and DLQI could be calculated together. In 44 (48.3%) of 91 patients with severe DLQI, PASI was calculated as mild. In the study, a positive correlation was found between PASI and DLQI ($p<0.001$).

A triggering factor was identified in 74% of the patients. The most frequently identified trigger was stress (65.8%), followed by food (14.1%), and the least frequently identified trigger was medication (0.7%). A triggering factor was present in 32.2% of our pediatric patients, and the most common trigger in this group was stress. Moreover, 17% of the patients had comorbidities. The most common comorbid disease was hypertension (31.9%), followed by diabetes mellitus [(DM); 21.3%] and asthma/chronic obstructive pulmonary disease [(COPD); 14.9%].

Nail involvement was observed in 122 (44%) patients. The most common nail change was pitting (75.9%), whereas the least common nail change was leukonychia (0.8%). In 31 pediatric patients with psoriasis, 16 (51.6%) had nail changes. Pitting was seen in 12, subungual hyperkeratosis in 1, paronychia in 1, and pitting + onycholysis in 2 patients.

PsA was detected in 9% of the patients. Of the patients with PsA, 68% were female and 32% were male. Female sex predominated in patients with PsA, and this difference was statistically significant ($p=0.016$). Arthropathy type was found in 64% of the asymmetric oligoarticular type, 28% had spondylitis involvement, and 8% had polyarticular type. Distal interphalangeal and mutilane types were not detected in the study. In a total of 25 patients with PsA, arthropathy appeared first, skin lesions in two patients, and skin lesions appeared first in 23 patients.

While nail changes were observed in 122 of the 277 patients, nail changes were observed in 10 of 25 patients with PsA. In this study, the nail involvement rate was not higher in patients with PsA ($p=0.669$).

A total of 29.6% of the patients had a family history of psoriasis, 16.2% in first-degree relatives, and 13.4% in second-degree relatives. While 32.2% of patients with type 1 psoriasis had a positive family history, 14.6% of patients with type 2 psoriasis had a positive family history. The rate of family history was higher in patients with type 1 psoriasis, and this difference was statistically significant ($p=0.023$). In addition, 22.6% of our patients aged <18 years had a positive family history.

While 45.8% of the patients were smokers, 4.7% were alcohol users. Psoriasis area severity index (PASI) was moderate-to-severe in 29.2% of smokers and moderate-to-severe in 31.4% of non-smokers.

Facial involvement was observed at presentation in 11.2% of the patients. The mean age at disease onset was earlier in patients with facial involvement. A positive family history was noted in 51.6% of patients with facial involvement and 26.8% without it. This difference was statistically significant ($p=0.004$) (Table 2).

Of the 25 patients with facial involvement for whom PASI could be calculated, 18 (72%) had moderate-to-severe PASI, whereas 25.4% of

Table 1. The distribution of patients according to the clinical subtype

	Number of patients under the age of 18	Number of patients over the age of 18	Total, (%)
Record	18	210	228 (82.3)
Guttate	1	2	3 (1.1)
Generalized pustular	3	10	13 (4.7)
Localized pustular	0	1	1 (0.4)
Inverse	2	4	6 (2.2)
Palmoplantar	6	18	24 (8.7)
Erythrodermic	1	1	2 (0.7)
Total	31	246	277 (100.0)

Table 2. Relationship between facial involvement, age of onset and family history

	Mean age of onset	Family history (yes)		Family history (no)		Total	p
		Number	Percentage, (%)	Number	Percentage, (%)		
There is facial involvement	13.12±9.16	16	5.8	15	5.4	31	0.004
No facial involvement	24.70±14.49	66	23.8	180	65	246	
Total	-	82	29.6	195	70.4	277	

those without facial involvement had moderate-to-severe PASI, and this difference was statistically significant ($p < 0.001$).

In this study, 49.1% of the patients reported being affected by seasonal change, and 48.5% described an increase in complaints in winter and 51.5% in summer.

Moreover, 17.3% of the patients received only topical treatment: 4.3% only used topical steroids and moisturizers and 13% used topical steroid and calcipotriol combined preparation and moisturizer. In addition, 1.1% of the patients were on phototherapy; 37.5%, conventional therapy (26.4% MTX, 9% acitretin, 1.1% cyclosporine, and 1.1% acitretin + cyclosporine); 42.2%, biological therapy (10.5% adalimumab, 7.9% infliximab, 6.5% etanercept, 10.5% ustekinumab, 6.1% secukinumab, 0.4% ixekizumab, and 0.4% certolizumab pegol); and 1.8%, conventional + biological treatment (0.7% etanercept + MTX, 0.4% golimumab + MTX, 0.4% adalimumab + acitretin, and 0.4% ustekinumab + cyclosporine + acitretin).

Of the 40 patients for whom PASI could not be calculated (patients with palmoplantar, pustular, and erythrodermic psoriasis), 5 were receiving topical, 20 conventional, 13 biological, and 2 biological + conventional treatment. Of the 44 patients with mild PASI but severe DLQI, 13 received only topical treatment, 1 received phototherapy, 17 received conventional treatment, and 13 received biological treatment. Of 31 the pediatric patients with psoriasis, 10 were receiving topical (8 used topical steroids and calcipotriol combined preparation and moisturizers, and 2 used topical steroids and moisturizers), 18 conventional treatment (10 MTX, 5 acitretin, and 3 acitretin + cyclosporine), 1 phototherapy, 2 biological treatment (1 adalimumab and 1 etanercept).

Discussion

Psoriasis is an inflammatory dermatosis characterized by erythematous papules or plaques with sharp borders, covered with pearly-white squames and characterized by periods of exacerbation and remission². Psoriasis is equally common in men and women, although some studies have found small deviations¹. In a study by Aykol et al.¹¹ on 640 patients with psoriasis, 51.1% were female, and no significant difference was found between the two sexes. In a study of 724 patients by Topal et al.¹² 52.2% were male. In a comprehensive study conducted in Taiwan, the male/female ratio was 1.6/1¹³. In Japan, where 11,631 registered patients were examined, psoriasis was twice as common in men than in women¹⁴. In our study, the number of male patients was higher, and the male/female ratio was 1.21.

Although psoriasis can be seen at any age, two peaks in the age at onset have been reported, i.e., one between 15 and 20 years and the other between 55 and 60 years^{15,16}. Aykol et al.¹¹ reported that the most common age of disease onset was in the third and second decades, and Turan et al.¹⁷ also reported the second (26.2%) and third (19.8%) decades. In our study, the disease most commonly started in the second (35%) and third (23.1%) decades, and the mean age at disease onset was 23.4 ± 14.4 years, similar to the literature data. The age at onset was 21.0 ± 14.1 years in female patients and 25.3 ± 14.4 years in male patients. The earlier disease onset in women was in accordance with general literature data.

The prevalence of psoriasis in childhood, which is also a common dermatosis among children, is unknown¹⁸. While female sex dominance

among children was reported in Danish and Middle Eastern studies, no sex difference was found in Indian and Australian studies¹⁹. In a study conducted in Australia on 1,262 pediatric patients with psoriasis aged between 1 month and 15 years, family history was found in 71% of the patients, and male/female sex incidences were reported comparable²⁰. In some studies conducted in our country, Özden et al.²¹ found a P/E ratio of 1.5/1, Seyhan et al.²² reported 1.7/1, and Bükülmez et al.²³ revealed 1.6/1. A family history of pediatric psoriasis was found in 15% of the patients by Karadağ et al.²⁴ and 23% by Seyhan et al.²². In the present study, female sex predominance (female/male ratio of 2.1/1) was found in pediatric psoriasis, and 22.6% of patients had a positive family history.

In an epidemiologic study conducted in Italy on psoriasis, 14.4% of the patients were primary school graduates, 31.4% were middle school graduates, 47.6% were high school graduates, and 6.6% were university graduates²⁵. In a study of 903 patients in which the relationship between socioeconomic status and psoriasis was examined, a low educational level was associated with the disease severity²⁶. A recent study by Bardazzi et al.²⁷ also confirmed the negative association between psoriasis severity and socioeconomic status. In the present study, PASI was calculated as moderate-to-severe in 29% of patients who were illiterate and 29.3% of patients with higher education, and no significant correlation was found between educational status and disease severity based on PASI.

Approximately 90% of patients with psoriasis have a stable but chronic form of psoriasis vulgaris^{28,29}. In a study by Wilson et al.³⁰ on 1,593 patients with psoriasis, psoriasis vulgaris was the most common type (79%), followed by guttate (8.2%). In studies conducted in our country, the most common type was the plaque type, followed by the guttate type^{11,31,32}. In a study of 298 patients by Aksoy and An³², psoriasis vulgaris was the most common type, whereas the erythrodermic type was the least common. In the present study, similar to the general literature data, the classical plaque type was the most common, and the palmoplantar type ranked second instead of the guttate type.

Similar to adults, plaque-type psoriasis is the most common in children. In a study conducted in China, plaque-type psoriasis was observed in 68.6%, guttate in 28.9%, erythrodermic in 1.4%, and pustular in 1.1% of 277 children³³. Karadağ et al.²⁴ reported the frequency of clinical types as plaque (68.8%), guttate (20.3%), palmoplantar (9.4%), and pustular (1.6%) types in a study of 64 patients. In the present study, similar to the literature, the plaque type was the most common, whereas the guttate type was the least common, contrary to the literature data.

Those with a positive family history have a higher risk of developing psoriasis. In an epidemiologic study conducted in Romania, 16.18% of first-degree relatives and 9.3% of second-degree relatives of patients had psoriasis³⁴. Bahçetepe et al.³⁵ reported 56%, Aykol et al.¹¹ reported 25.6%, and Kundakci et al.³⁶ reported 30% family history in Türkiye. In the present study, 29.6% of the patients had a family history of psoriasis.

Psoriasis starts at an earlier age in those with a family history. In the study by Na et al.³⁷, family history was higher in patients with psoriasis at the age < 30 years. Topal et al.¹² also found that the mean age at disease onset in patients with a family history was lower than that in patients without a family history. In the present study, 32.2% of the

patients with type 1 psoriasis had a positive family history, whereas 14.6% of patients with type 2 psoriasis had a positive family history. As in many studies, the rate of family history was higher in patients with early-onset psoriasis in the present study.

Many studies have shown that patients with psoriasis smoke more than the general population and that the disease is more severe in smokers with psoriasis^{28,38}. In a study conducted in Germany, 60.7% of male patients with psoriasis were smokers and 45.6% of female patients were smokers, with an average of 45.4%, and 21% of the controls were smokers³⁹. Aykol et al.¹¹ reported that the mean PASI value was higher in smokers than in non-smokers. In the present study, 29.2% of smokers and 31.4% of non-smokers had moderate-to-severe PASI. Contrary to the literature data, disease severity calculated by PASI was not higher in smokers in the present study because some patients concealed their smoking for the fear of being judged.

Alcohol consumption is one of the factors that negatively affect the course of psoriasis. In a study by Rifaioğlu and Özarmağan⁴⁰, alcohol consumption was reported in 19.2% of patients with psoriasis. In the present study, the rate of alcohol consumption was 4.7%. This low rate was attributed to patients hiding their alcohol consumption habits or to the fact that Southeastern Anatolia had the lowest alcohol consumption.

Arthropathy was observed in 5-7% of patients with psoriasis, reaching 40% in patients with severe skin lesions⁴¹. Gelfand et al.⁴² reported that the overall prevalence of PsA was 0.25%, and the prevalence in patients with psoriasis was 11% in a study of 27,220 individuals. In a Canadian study of 273,238 patients with psoriasis, PsA was found in 6.8%⁴³. Kalaycıyan and Tüzün⁴⁴ found psoriatic arthropathy in 23% of patients, Solak Tekin et al.³¹ in 4.1%, Turan et al.¹⁷ in 14.5%. In the present study, the PsA rate was 9%, similar to the literature data.

Usually, PsA occurs after the development of psoriasis. In a prospective study of 464 patients with psoriasis who were confirmed to be free of inflammatory arthritis at presentation to the clinic, 51 were found to develop PsA during 8 years of follow-up⁴⁵. In their study of 1000 patients with PsA, Gottlieb et al.⁴⁶ reported the development of cutaneous psoriasis for an average of 12 years before PsA development in 84% of patients. Of the 25 patients with PsA in the present study, 23 (92%) had psoriatic skin lesions before the onset of arthritis.

PsA usually affects men and women between the age of 40 and 50 years with equal frequency⁴⁷. In a study conducted in India involving 40 patients with PsA, PsA was more common in men (85%), and the asymmetric oligoarticular type was the most common, as in many studies⁴⁸. In a study conducted in Japan involving 1,282 patients with PsA, male predominance was reported (65.1%); however, the symmetric polyarticular type was the most common (36%), followed by the distal interphalangeal type (26%)⁴⁹. In the present study, PsA was more common in women (68%), and the asymmetric oligoarticular type was the most common.

In psoriasis, various nail changes can be seen because of the involvement of the matrix, nail bed, and periungual tissue. In various studies conducted in European countries, the nail involvement rate ranged from 40.9% to 78.3%^{50,51}. Tham et al.⁵² found nail changes in 78% of 410 patients with psoriasis; in the same study, pitting was the most common change (67.5%). In the study by Zargari et al.⁵³, nail involvement was present in 69.5% of patients (137 of 197), and the

most common nail abnormality was onycholysis, followed by pitting and oil drop (68.4%, 34.7%, and 30.5%, respectively). In the present study, nail changes were found in 44% of the patients. The most common nail change was pitting (75.9%), whereas the least common nail change was leukonychia (0.8%).

Nail involvement can be seen in 7-40% of children with psoriasis aged <18 years^{20,54}. In a study of 117 pediatric patients with psoriasis, nail involvement was found in 25 of the patients and pitting was reported to be the most common (80%)²³. In another study, nail involvement was reported in 14% of the pediatric patients²⁴. In the present study, 16 of 31 pediatric patients (51.6%) had nail changes. Similar to adults, pitting was the most common nail change in this group.

In arthropathic psoriasis, the nail involvement rate was >80%⁵¹. In a study conducted by Zargari et al.⁵³ on 197 patients with psoriasis, nail changes were more common in patients with PsA than in those without PsA (82.1% vs. 57.8%). In a psoriasis study conducted in Sweden, no statistical difference was found between nail involvement and joint involvement⁵⁵. Similarly, in the study conducted by Topal et al.¹², no statistically significant difference was observed in joint involvement between patients with and without nail coveralls. In the present study, the frequency of nail involvement was 44% in all patients, whereas nail involvement was found in 40% of patients with PsA. In the present study, no statistical difference was found between joint and nail involvements. A possible reason was that all of our patients with PsA were receiving systemic treatment (15 biologic, 3 biologic + conventional, and 7 conventional treatments), and their nail lesions regressed.

Systemic and environmental factors affect the onset and course of psoriasis²⁸. Numerous studies have emphasized the role of one or more stressful events before disease onset and exacerbation⁵⁶. In a case-control study, Manolache et al.⁵⁷ showed that stressful events before a flare were significantly more frequent in patients with psoriasis (54.4% vs. 19.5%). In the present study, stress was the most common triggering factor.

In general, childhood psoriasis is more precipitated by infection and physical and psychological trauma than adult psoriasis^{58,59}. Karadağ et al.²⁴ reported upper respiratory tract infection was a triggering factor in 21.9% and stress in 9.4% of patients with pediatric psoriasis. In our study, emotional stress was noted in 19.3% and infection in 6.4% of our pediatric patients.

Psoriasis was previously thought to be a disease affecting only the skin and joints, but it is now recognized as an immune system-mediated inflammatory disease with various comorbidities^{6,7}. Sommer et al.³⁹ compared data from 581 patients with plaque psoriasis with 1,044 patients with melanoma and found that DM was 2.48 times more common, hypertension 3.27 times more common, coronary heart disease 1.95 times more common, and hyperlipidemia 2.09 times more common in patients with psoriasis. In a study of 114,512 patients with psoriasis in the United States, 51% of the patients had one or more comorbidities, and hyperlipidemia (27%) and hypertension (25%) were the most common⁶⁰. Kacalak-Rzepka et al.⁶¹ reported hypertension (42.7%), ischemic heart disease (17%), and type 2 DM (14.6%) as comorbidities in a study of 82 patients aged 17-81 years. Comorbidities were present in 17% of our patients, and comorbid systemic diseases were hypertension (31.9%), DM (21.3%), and asthma/COPD (14.9%), respectively.

Epidemiologic studies provide strong evidence that obesity predisposes

patients to psoriasis and increases psoriatic inflammation⁶². In a study involving 78,626 women (892 of whom had psoriasis), adiposity and weight gain were shown to be risk factors for psoriasis, and patients with a BMI of ≥ 35 had a 2.69-fold increased risk of developing psoriasis compared with leaner patients⁶³. In a review of nine studies with a total of 134,823 patients with psoriasis, a statistically significant association was found between psoriasis severity and high BMI in 7 of 9 studies⁶⁴. In the present study, 38% of the patients who were obese had moderate-to-severe disease compared to 28.3% of patients who were not obese. However, no significant association was found between obesity and disease severity.

A positive family history is more common in patients with facial involvement, and the disease starts at an earlier age and is more resistant to treatment^{65,66}. In a comprehensive study of 6,181 patients with psoriasis, facial involvement was found in 48% of the patients, and the disease started at an earlier age and was more severe in patients with facial involvement⁶⁷. In the present study, facial involvement was noted in 11.2% of the patients. A positive family history was found in 51.6% of patients with facial involvement and 26.8% in those without. In the present study, a significant association was found between facial involvement and age at onset, family history, and disease severity. Systemic treatment should be initiated early without delay, anticipating that patients with facial involvement will have more severe disease.

The positive correlation between PASI, which is widely used in treatment selection and clinical follow-up, and DLQI has been reported in many studies⁶⁸. In the present study, a positive correlation was found between PASI and DLQI.

Many patients with psoriasis experience exacerbation in winter and improvement in summer²⁹. However, some lesions are exacerbated by sunlight (photosensitive psoriasis)⁶⁹. In a study, the prevalence of vitamin D deficiency was higher in winter months, and the seasonal variation in disease severity in psoriasis may be also due to concurrent seasonal changes in vitamin D levels⁷⁰. Of the 277 patients with psoriasis in the present study, 136 (49.1%) stated that they were affected by seasonal changes, and 48.5% of these patients described an increase in their complaints in winter and 51.5% in summer.

Moreover, 70%-80% of patients with psoriasis have limited/localized disease and are managed with topical treatment only. Systemic therapies are considered not only in patients with high clinical severity indicators such as PASI and BSA but also in patients in whom the quality of life is negatively affected. In the treatment recommendations in our country, a severe effect on the patient's quality of life (DLQI >10) is considered an indication for systemic treatment regardless of the clinical disease severity^{9,71,72}. The finding that 30 of the 44 patients with mild PASI but severe DLQI in our study received systemic (17 conventional and 13 biological) treatment and one received phototherapy showed that we also evaluated the psychosocial status and quality of life of the patient in our treatment selection. In addition, of 40 total patients with 24 palmoplantar, 14 pustular and 2 erythrodermic psoriasis, 5 were receiving topical, 20 conventional, 13 biologic, and 2 biologic + conventional treatment.

Topal et al.¹² reported that 3.9% of the patients received topical treatment and 67.1% received systemic treatment (18% acitretin, 15.7% MTX, 13.5% phototherapy, 5.5% adalimumab, and 5.2% cyclosporine) in a study of 724 patients, and the high rates of systemic

treatment were attributed to the fact that most of the patients had severe psoriasis (PASI was severe in 55.5% of the patients). In the present study, 17.3% of the patients were receiving only topical treatment and 82.6% were receiving systemic treatment (37.5% conventional, 42.2% biological, 1.8% conventional + biological, and 1.1% phototherapy). Of the 237 patients for whom PASI could be calculated, 69.6% had mild PASI and 30.4% had severe PASI. The PASI values in the study were the values during enrollment and not the PASI values at the beginning of treatment. More patients had a PASI <10, but systemic treatment rates were high, because treatment success was considered. In addition, the finding that 35 of 40 patients with incalculable PASI and 30 of 44 patients with mild PASI but severe DLQI were receiving systemic treatment increased our rate of systemic treatment. In addition, the high biological treatment rates in our study were attributed to the widespread use of biological agents with the discovery of the importance of tumor necrosis factor-alpha and interleukins in disease pathogenesis, and the low number of patients receiving phototherapy was attributed to the low number of patients with guttate psoriasis.

Literature data on therapeutic approaches in pediatric psoriasis cases are scarcer than in adults, and safety data are often for short-term use. In a study of 64 patients, Karadağ et al.²⁴ reported that 11 patients received phototherapy and 14 patients received systemic treatments. Of the 31 pediatric patients with psoriasis in the present study, 10 received only topical treatment, one received phototherapy, and 20 received systemic treatment (18 conventional and 2 biological) treatment.

Study Limitations

This study was limited by the small number of patients.

Conclusion

The results of this study were similar to those of other studies that have analyzed the clinical and demographic characteristics of patients with psoriasis. A detailed description of the treatments received by adult and pediatric patients with psoriasis in our region will be useful. Thus, similar studies involving larger patient groups will contribute to disease diagnosis and treatment.

Ethics

Ethics Committee Approval: The study was approved by the Dicle University Faculty of Medicine Non-Interventional Clinical Research Ethics Committee (approval number: 76, date: 22.11.2018).

Informed Consent: All patients participating in the study were informed in detail about the study, and informed consent was obtained, indicating that they agreed to participate in the study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: N.E., M.E., D.U., Design: N.E., M.E., D.U., Data Collection or Processing: N.E., M.E., Analysis or Interpretation: N.E., M.E., D.U., Literature Search: N.E., M.E., D.U., Writing: N.E.

Conflict of Interest: The authors declare that they have no conflict of interest.

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