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Original Article

Epidemiology and clinical presentation of psoriasis in southeast Iran

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Abstract

Background Psoriasis is a common chronic inflammatory disease that causes disability and reduces the patient's quality of life. It is a public health challenge because of its serious comorbidities and debilitating component.

Methods A retrospective study was done in 2020 at Azfalipour Hospital, Kerman, Iran. All patients hospitalized at this referral hospital from 2015 to 2020 were studied in terms of their demographic data (age, gender, educational status), past medical history, family history, drug history, age at the onset of disease, first presentation of disease, type of psoriasis, body mass index, season of hospitalization, and duration of disease.

Results This study examined the 100 patients with psoriasis, with a mean age of 43.67±17.59 years. Nearly two-thirds of the patients were over 25 years old, with the largest age group being patients aged over 55. The longest duration of psoriasis involvement was <10 years. The most common type of lesion in psoriasis patients was the plaque type, followed by the pustular type. The mean age of onset was 35.39±18.32 years, and the most common comorbidity was hypertension.

Conclusion The most common type of psoriasis lesions was the plaque type, with a high prevalence in the upper extremities. Nail involvement was seen in half of the patients, while the incidence of oral mucosal involvement was lower than expected. We found normal BMI, viral markers, and lipid profiles in most patients.

Key words
Psoriasis; Clinical features; Southeast Iran.

Introduction

Psoriasis is a lifelong inflammatory disease that can reduce the patient's quality of life. It is a common disease affecting 2–3% of the world's population, varying among different nations, with a higher prevalence in Western Europe (1.07 to 3.46%), central Europe (0.62 to 5.32%), and North America (1.50, 0.63 to 3.60%). This unequal distribution across the world may result from the older population in high-prevalence areas or genetic and environmental differences.[1,2] Although both genders equally suffer from psoriasis, males seem to experience more severe types. Moreover, the paternal transmission of psoriasis proportion is significantly more than its maternal

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transmission.[3,4] It is supposed that genetic susceptibility and the immune system (mostly TN F-α, IL-23, IL-17, and T-helpers) play a vital role in the etiology of psoriasis.[5-8]

Psoriasis onset has two peaks, the first at 30–39 and the second at 60–69s, beginning slightly earlier in women.[9] It commonly presents on the extensors as erythematous plaques with silver scales, though other presentations include scalp, inverse, guttate, pustular, and erythrodermic psoriasis.[10] This disease is associated with multiple comorbidities. As it is a systemic inflammatory disease, it can cause inflammation of vessels, augmenting the risk of cardiovascular disease, stroke, and type 2 diabetes. It is also associated with a high risk of anxiety, depression and suicidal ideas.[11-16] Topical therapies are used for mild types of disease in the management of psoriasis. To treat moderate to severe types, new biologics drugs (TNF-α, IL-12/23, or IL-17 inhibitors) are often used.[17]

In 2016, the World Health Organization announced psoriasis as a public health challenge because of its serious comorbidities, debilitating components, and socioeconomic burden. Thus they emphasized the necessity of being aware of its global epidemiology to provide an appropriate setting to diminish the relevant side effects.[18] Herein, we study psoriasis's epidemiology and clinical presentation in southeast Iran.

Methods

A retrospective study was done in 2020 at Azfalipour Hospital, Kerman, Iran. All patients hospitalized at this referral hospital from 2015 to 2020 with psoriasis who had complete medical records were included via availability sampling. The patient was excluded if their records did not include the required data. The medical records of eligible patients were reviewed, and data were recorded in a spreadsheet. The extracted information included demographic data (age, gender, education status), past medical history, family history, drug history, age at the onset of disease, first presentation of disease, type of psoriasis, BMI, season of hospitalization, and duration of disease. All required data were entered into SPSS 26 (IBM SPSS Statistics for Windows, USA) to calculate the prevalence of related clinical parameters.

Results

A total of 100 patients met the eligibility criteria. The mean age of patients was 43.67±17.59 years **(Figure 1)**. Nearly two-thirds were over 25 years, with the largest age group being those aged over 55 (27%). 58% of patients were men, and 42% were women. The mean age of disease onset was 35.39±18.32 years. Our results on the patient's educational status showed that 27% had a diploma, 47% had undergraduate education, 20% had a master's degree, and 1% had a

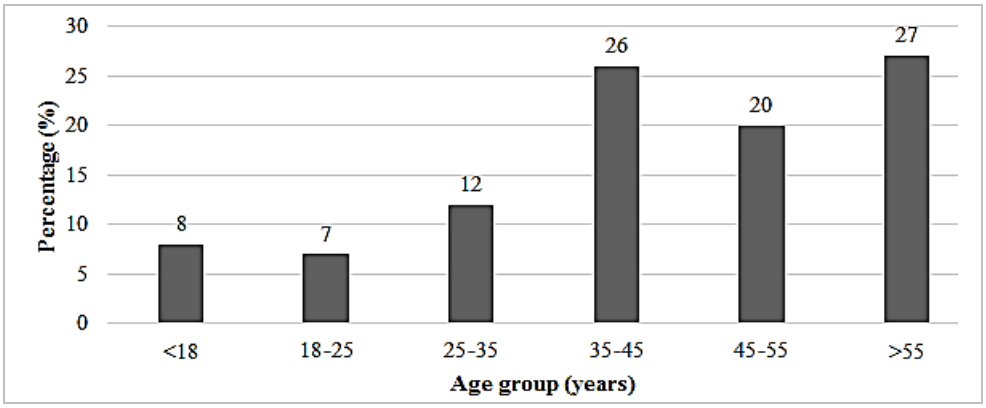

Figure 1 Age distribution of psoriasis patients at Afzalipour Hospital, 2015–2020.

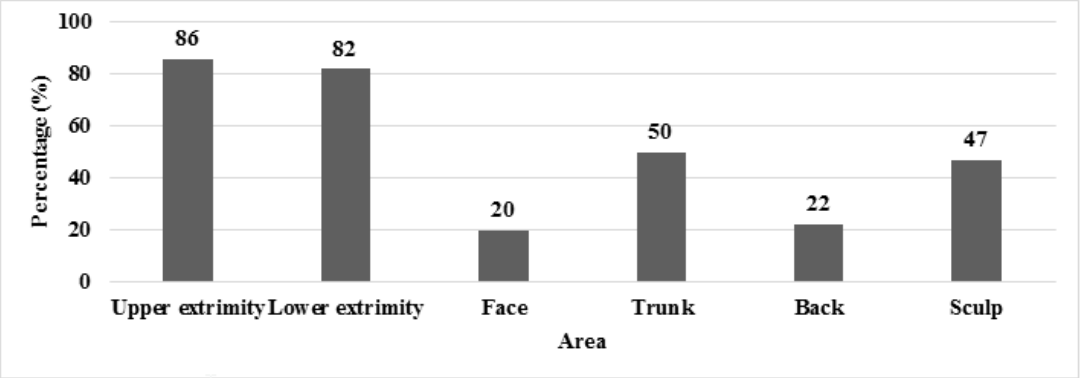

Figure 2 The distribution of the involved areas in psoriasis patients at Afzalipour Hospital, 2015-2022.

doctorate degree. The educational status of 5 patients was unknown. The maximum duration of psoriasis involvement was less than 10 years (68 patients, 68%), followed by 10-20 years in 22% of patients and 20-30 years in 7% of patients. The mean duration of hospitalization was 5.29±2.99 days. Only 5% of patients had a family history of psoriasis. Although only 6% of patients had oral mucosal involvement, nail involvement was seen in more than half of the patients (54 patients, 54%). The most common type of lesions was plaque psoriasis (in 60 patients, 60%), followed by pustular psoriasis in 19% of patients, guttate psoriasis in 7%, and erythrodermic psoriasis in 5% of patients.

In terms of frequency of early manifestations of psoriasis, the most common primary manifestation was plaque-type lesions (64%), followed by pustular lesions (17%) and palmoplantar pustular lesions (10%). Erythroderma was observed in 2 patients (2%). The most common involved area was the upper extremity (86%), while the lowest level of involvement was in the face (20%) **(Figure 2)**.

Each patient's average number of hospitalizations was 1.60 (range 1–7). In fact, 66% of patients were hospitalized only once. The most common comorbidity was hypertension (17%), followed by hyperlipidemia (11%), diabetes mellitus (10%), cardiovascular diseases (7%), neurologic disorders (4%), thyroid disorders (2%) and Sjogren's syndrome (1%). Only 4 patients had a positive purified protein derivative (PPD) skin test, while the PPD test of the rest of them was negative. In terms of HIV Ab, 3 patients were positive (3%), 84 were negative (84%), and the data of 13 patients were unknown. In terms of HCV Ab, only one person was positive. None of the patients were positive for HBS Ag.

Research indicated that among all patients, 36% were smokers or substance users. Most of our patients had a normal BMI (40%), while 20% had a BMI higher than normal, 19% lower than normal, and 21% were unknown. The most common season of hospitalization was spring in 32% of patients, followed by summer in 24%; autumn and winter had equal frequency (22 people, 22%).

Lipid profile evaluation indicated that the total cholesterol level in the majority of patients was normal (92%), and only two patients had high total cholesterol (above 240 mg/dL). Similarly, a normal level of triglycerides was seen in most of the patients (85%). Regarding low-density lipoprotein (LDL) cholesterol, 63% had LDL below 100 mg/dL, 30% had 100-129 mg/dL, and the rest were >129 mg/dL. Only one patient had LDL >160 mg/dL. Nearly half of the patients had a normal range of high-density lipoprotein (HDL) cholesterol (45 people, 45%), and the rest had HDL below the normal level.

The mean level of ESR in patients was 23.69±20.62 (range 1-104 mm/hr). Forty-nine patients (49%) had a higher ESR level than normal. The average CRP level was 18.69±35.18 (range 0.1-311) mg/dL. The CRP level of 69% of patients (69 people) was higher than normal.

Determining the frequency of the used drugs revealed that all patients had used topical agents (100%), more than half used antihistamines (59%), 48% used methotrexate, 20% acitretin, 5% adalimumab, 4% infliximab, and 4% cyclosporine.

Discussion

Psoriasis is a lifelong systemic inflammatory disease that can affect the patient's quality of life. Different studies have reported the average age at the onset of the disease between the ages of 30 and 39 years, as mentioned by Iskandar IY *et al*.[9] In line with the literature, we found a mean age at disease onset of roughly 35 years. Our findings on the prevalence of the disease in the different genders were almost the same as other studies, representing a slight male predominance.[3,4,9] The similarity of the demographic results of the present study to previous ones indicates that the characteristics of this disease are the same in different societies.

In the present study, we recorded a considerably lower pattern of familial involvement than in other studies; only 5% of patients reported a positive family history, while this number has been reported much more elsewhere. For instance, in the study of Dilek Solmaz *et al*., 31% of patients had a positive family history. A family history of psoriasis apparently impairs the quality of life in patients with moderate to severe psoriasis but it hardly affects the prevalence of associated diseases.[19,20] Given the contradictory findings on the role of family history, we recommend further studies in this geographical area to assess whether the role of genetics varies by region.

The results of the current study showed that the longest duration of psoriasis was less than 10 years. In a study by Alexander Egeberg *et al*. in 2017, they indicated that the duration of psoriasis and major adverse cardiac events are significantly related; this suggests that the cumulative duration of exposure to low-grade chronic inflammation may accelerate the development of vascular disease and major adverse cardiac events. Accordingly, it is suggested that physicians consider a prolonged disease duration as an alarm sign to conduct the necessary workups to prevent such complications.[21]

Psoriasis is a multisystemic disease that is associated with several comorbidities. It is believed that 73% of psoriasis patients have at least one comorbidity. The most common comorbidity among our patients was hypertension, followed by hyperlipidemia, diabetes mellitus, cardiovascular diseases, neurologic disorders, thyroid disorders, and Sjogren's syndrome, aligning well with other reports.[22,23]

The present study showed that 49% of patients had higher than normal ESR. Also, 69% of patients had abnormal CRP levels. The study conducted by Dae Suk Kim and colleagues concluded that patients with psoriatic arthritis had higher levels of ESR, CRP, neutrophil-to-lymphocyte ratio (NLR), and platelet-to-lymphocyte ratio (PLR) than patients with psoriasis without arthritis. This shows that ESR and CRP can be used to predict the occurrence of arthritis in patients with psoriasis.[24] In a review by Ma C *et al*. in 2013, a significant relationship was seen between psoriasis and dyslipidemia; the strength of this relationship

increased with the severity of psoriasis. However, in the present study, no significant relationship was found between psoriasis and dyslipidemia.[25]

A review by K.N. Kanada *et al*. with a sample size of 6532, showed that psoriasis was not associated with positive serology for HBV, HCV, or HIV. They concluded that psoriasis is not related to an increased risk of hepatitis B, hepatitis C, or HIV infection.[26] Similarly in this study, no significant relationship was seen between mentioned viral markers and psoriasis.

The findings of the current study showed that, on average, each patient was admitted to the hospital 1.6 times (range 1 to 7 times), with an average duration of hospitalization of 5.29 days. While other studies showed the average length of hospitalization for patients with psoriasis was 10 to 14 days.[27] This difference in the values of the recent studies with the current study can be due to the difference in the sample size. In research by Siew Eng Choon and colleagues in 2014, they concluded that patients with psoriasis had been hospitalized once per patient (range 1 to 20) on average, aligning well with our findings.[28]

Nail abnormality was seen in almost half of our patients, while 85% of patients had nail involvement in the study of Jee Woong Choi. All documents confirm that most patients with psoriasis develop nail involvement. The difference in the values of the above study with the current study can be due to the difference in the sample size or environmental issues.[29] In terms of oral mucosal involvement, studies indicate that oral lesions can be seen in 46% of cases, with a high prevalence of fissured tongue and geographic tongue. In the current study such involvement was seen only in 6% of the patients, which is inconsistent with previous findings and might be because of the small sample size or geographic area.[30,31] Plaque-type lesions are the most common lesions in psoriasis, with the highest involvement in the extremities and scalp.[17,32] Most lesions in this study were also plaque-type, but the important point is the high prevalence of the disease in the upper limb, which has the most daily activity and is subjected to external trauma more than other parts of the body. Since psoriasis is considered a Koebner-positive disease, it is reasonable to expect the upper limbs to be affected more than the lower limbs.

The strengths of this study included its fairly large sample size and long study period. However, the key limitation was the retrospective, cross-sectional design, which makes calculating incidence rates impossible and means that some data was missing. Furthermore, only hospitalized patients were studied, so caution must be taken in generalizing the findings. Considering the increasing prevalence of psoriasis disease along with its serious comorbidities and multi-organ involvement, updated diagnostic and treatment guidelines are suggested to help dermatologists and other health service providers diagnose and manage this condition appropriately, thereby averting serious complications.

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