Dermatology Practical & Conceptual

Geriatric Psoriasis: Evaluation of Clinical Features, Disease Course, and Treatment Modalities of Patients from a Tertiary Care Hospital

Elif Çalışkan[1], Yusuf Can Edek[1], Nuray Keskin[2], Petek Üstün[1], Esra Adışen[1]

1 Department of Dermatology, Gazi University Faculty of Medicine, Ankara, Turkey
2 Department of Dermatology, Yenimahalle Training and Research Hospital, Ankara, Turkey

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Corresponding Author: Yusuf Can Edek, Gazi Universitesi Tip Fakultesi Hastanesi, Emniyet Mahallesi, Mevlana Bulvari, No:29, 06560 Ankara/ Turkey. E-mail: yusuf-can-35@hotmail.com

ABSTRACT

Introduction: Psoriasis is an inflammatory skin disease characterized by erythematous, scaly, pruritic plaques on the extensor areas of the extremities. It is one of the most common dermatological diseases in the geriatric population.

Objective: The aim of this investigation was to evaluate the demographic data, clinical characteristics, and treatment responses of the geriatric population (≥65 years) with psoriasis at our hospital.

Methods: In this study, we examined 160 geriatric patients diagnosed with psoriasis. We evaluated patients in two groups: early onset (EaO) (<60 years) and elderly onset (EO) (≥60 years).

Results: In our study, 53.8% of the patients were male, the average age was 68.7 years, and 65% of the patients were considered EaO. Knee and elbow lesions were detected more frequently at the beginning and during the disease in the EaO group; 44.4% of patients had nail psoriasis, while 20.6% had psoriatic arthritis. Nail involvement (P = 0.17) and the presence of psoriatic arthritis (P = 0.035) were more common in the EaO group. Erythrodermic psoriasis was more common in the EaO group, but it was not statistically significant (P = 0.097). It was observed that the disease course of psoriasis was slower in the EaO group compared to the EO group (P = 0.001). Systemic treatment was predominantly initiated as the first treatment agent in the EO group (P = 0.006). Patients in the EaO group received more cyclosporine treatment than the others (P = 0.004).

Conclusions: The geriatric population is associated with multiple comorbidities and polypharmacy, highlighting the importance of evaluating patients' medications and comorbidities when selecting a treatment agent for psoriasis.

Introduction

Psoriasis is an immune-mediated inflammatory skin disease that can manifest in various clinical forms. The development of the disease involves multiple factors, including genetic factors, epigenetic changes, the immune system, microbiota, and environmental factors. The most common presentation of psoriasis is psoriasis vulgaris, which is characterized by erythematous, scaly, and well-demarcated pruritic plaques on the extensor areas of the extremities. However, there are other subtypes, such as guttate psoriasis, generalized pustular psoriasis, palmoplantar pustular psoriasis, palmoplantar psoriasis, erythrodermic psoriasis, and inverse psoriasis. Diagnosing psoriasis relies on clinical examination and histopathological features [1,2]. Although psoriasis can develop at any age, studies have shown that disease onset has a bimodal distribution in the 4th and the 7th decades. In the literature, the disease is classified as early-elderly onset (EaO-EO), and there may be differences between these groups in terms of clinical features, disease severity, presence of psoriatic arthritis, and treatment response [3]. Psoriasis is a significant and common dermatological disease in the geriatric population. With its increasing prevalence, dermatologists need to carefully examine and manage it. An epidemiological study found that psoriasis ranked sixth among the most common dermatological problems in the geriatric population [4-6].

Another important aspect in psoriasis patients is the presence of comorbidities, such as psoriatic arthritis, cardiovascular diseases, hepatobiliary diseases, inflammatory bowel diseases, and metabolic syndrome. Evaluating and questioning patients about these comorbidities is essential to managing psoriasis. The association of psoriasis with these comorbidities makes it a significant cause of mortality and morbidity, especially in geriatric cases. Additionally, the presence of comorbidities plays a crucial role in determining the appropriate treatment for psoriasis patients [7-9].

The treatment of psoriasis depends on the severity of the disease, the patient's comorbidities, and the presence of psoriatic arthritis. Dermatologists may prescribe topical agents, phototherapy, conventional agents (such as methotrexate, acitretin, and cyclosporine), and biologic agents, including tumor necrosis factor-α (TNF-α) inhibitors, IL-12/IL-23 inhibitors, IL-17 inhibitors, and IL-23 inhibitors, based on these factors.[10] Managing the disease and selecting the best treatment for older individuals with psoriasis can be challenging due to systemic comorbidities, polypharmacy, drug interactions, adverse drug reactions, and an increased risk of hepatotoxicity [4,5,11-13].

Objective

The aim of this investigation was to evaluate the demographic data, clinical characteristics, and treatment responses of the geriatric population (age ≥65) with psoriasis at our hospital, is a tertiary care center.

Methods

Study Design

This study was planned as a single-center retrospective observational cross-sectional study. Between 2016 and 2022, we evaluated geriatric cases over 65 years of age with a psoriasis diagnosis at Gazi University Faculty of Medicine, Department of Dermatology, Ankara, Turkey. The psoriasis diagnosis was based on clinical examination and histopathological findings. The study was approved by the Gazi University Faculty of Medicine Local Ethics Committee. We followed the Helsinki Declaration and Guidelines for Good Clinical Practice in its most recent revisions. We obtained fully informed consent from the patients.

We retrospectively reviewed the patients' demographic features (age, sex, height, weight, body mass index, family history), clinical characteristics (age at diagnosis, duration of disease, psoriasis type, accompanying symptoms, distribution of skin lesions, disease severity, nail involvement, psoriatic arthritis, triggering factors, systemic comorbidities), and treatment modalities (treatment agents used, first treatment given, duration of treatment, response, side effects observed during treatment, reason for discontinuation). We obtained the patients' data from our hospital's electronic database. The patients were analyzed in four groups based on the course of their disease: mild initial severity (Psoriasis Area Severity Index (PASI) ≤10), moderate-severe initial severity (PASI >10), slow disease course (<10% change in Body Surface Area (BSA) from baseline in the first year), and rapid disease course (erythroderma).

We evaluated the patients in two groups based on the age of disease onset: early (< 60 years) and elderly (≥ 60 years). We examined whether there were differences between these two groups in terms of clinical features, disease severity, and treatment modalities.

Statistical Analysis

The research data were analyzed using the SPSS 22.0 Statistics package program. Descriptive statistics are presented as mean (± standard deviation), median (min, max), frequency distribution, and percentage. For categorical variables, we compared the frequency differences between groups using the Pearson's chi-squared test. The statistical significance value for this study was accepted as $P \leq 0.05$.

Results

A total of 160 geriatric patients with a diagnosis of psoriasis were included in the study, of whom 53.8% of the

patients were male, and 46.3% were female. The average age at the time of enrollment was 68.7 years (ranging from 65 to 83 years). The average age at onset of psoriasis was 50.6 years, with a median disease duration of 17.8 years (ranging from 6 months to 53 years). Based on the age of disease onset 65% of the patients accepted it as EaO. The mean body mass index (BMI) level of the patients was 28.3 (17.8–48.3). Furthermore, 30 % of the patient cohort had a positive family history of psoriasis, 70.6% of patients had a smoking history, and 11.7% had a history of alcohol consumption. The most common subjective symptom reported by patients was itching, with 77.5% experiencing pruritus.

Psoriasis vulgaris was the most common type of psoriasis, accounting for 65% of cases. The second most common type was palmoplantar psoriasis, which constituted 15% of the cases. Other observed psoriasis subtypes in our patient cohort included palmoplantar pustular psoriasis (5.6%), guttate psoriasis (5.6%), generalized pustular psoriasis (5%), and erythrodermic psoriasis (3.8%). Plaque psoriasis was the most common type in both the EaO and EO groups. Erythrodermic psoriasis was more common in the EaO group, but it was not statistically significant (P = 0.097). There was no difference in the frequency of other types of psoriasis between the two groups.

In 60% of the patients, the disease began in a mild form, while in 40% of the patients, it began in a moderate-severe form. Mild onset severity was higher in the EaO group (P = 0.46); 83.1% of our patient cohort had a slow disease course. It was observed that the disease course of psoriasis was slower in the EaO group compared to the EO group (P = 0.001).

When evaluating the initial body area of psoriasis, it was found that 33.1% of the patients had knee-elbow lesions, 22.7% had palmoplantar lesions, 17.5% had lower extremity lesions, 13.6% had scalp lesions, 11.7% had trunk lesions, 9.7% had upper extremity lesions, 2.6% had intertriginous lesions, and 1.9% had face lesions. While lesions located at the knee and elbow were observed more frequently in the EaO group, no statistical difference was found between the initial areas in other anatomical regions (P = 0.032). Throughout the course of the disease, knee-elbow involvement occurred in 71.9% of the cases. Lower extremity involvement was present in 64.4% of the patients, while scalp, trunk, upper extremity, palmoplantar, intertriginous, and facial involvement was observed in 57.5%, 56.3%, 56.3%, 33.1%, 33.1%, and 21.3% of the patients, respectively (Figure 1). The EaO group had a higher frequency of knee and elbow involvement, which was statistically significant (P = 0.026). There was no relationship between involvement of other regions and age at disease onset. Forty-four point four percent of patients had nail psoriasis, while 20.6% had psoriatic arthritis (Figure 2). Nail involvement (P = 0.17) and the presence of psoriatic arthritis (P = 0.035) were more common in the EaO group.

When patients were questioned about triggering factors, 75.6% of the patients reported having a triggering factor. Stress (68.1%) was one of the most frequently reported triggering factors at the onset of the disease. Patients also reported physical factors (6.3%), infection (5.6%), UV exposure (5.6%), surgery (1.3%), and radiotherapy (1.3%) as triggering factors for disease activation during the course of psoriasis. There was no statistically significant difference in terms of triggering factors between the EaO-EO groups.

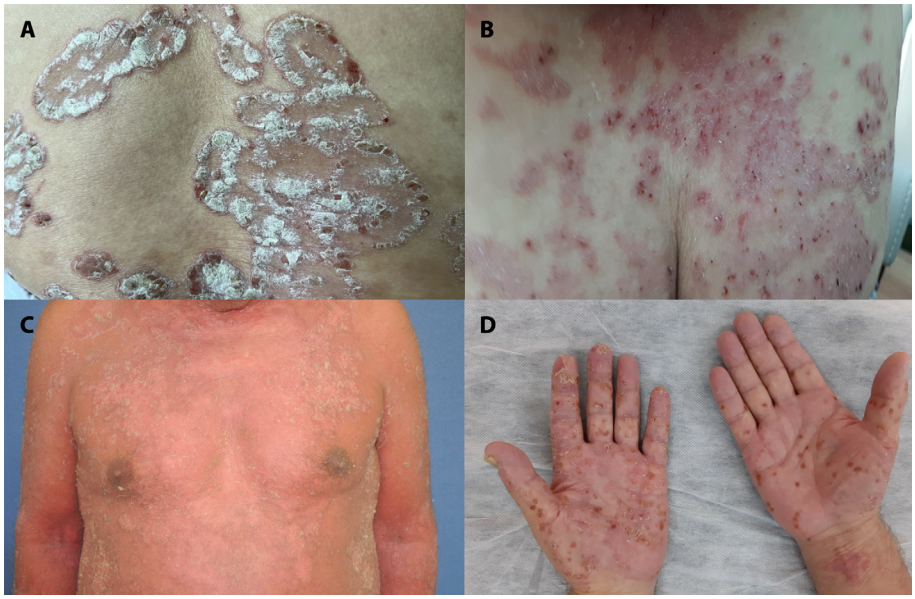

Figure 1. Clinical images from our geriatric patient cohort; (A), (B) psoriasis vulgaris, (C) generalized pustular psoriasis, (D) palmoplantar pustular psoriasis.

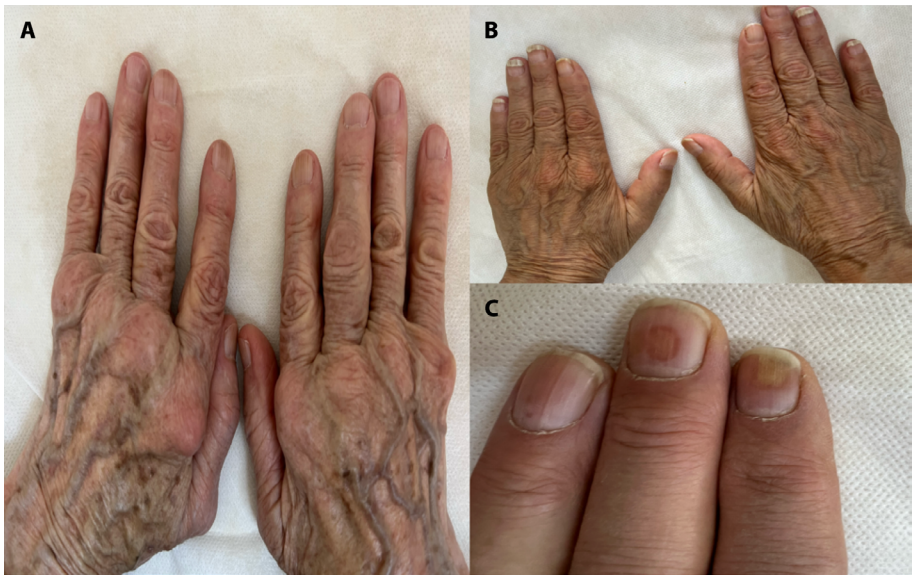

Figure 2. Clinical images of psoriatic arthritis (A), nail psoriasis (B), (C) from our patient cohort.

Of our patients, 84.3% had concomitant systemic comorbidities, and 76.2% were taking at least 1 drug. Hypertension was the most common comorbidity (51.2%), followed by hyperlipidemia (45%), cardiovascular diseases (33.1%), type 2 diabetes mellitus (27.5%), depression (26.3%), malignancies (11.9%), autoimmune diseases (8.1%), and uveitis (1.3%).

The majority of patients (86.9%) initially received topical treatment, while 5.6%, 2.5%, 1.3%, 1.3%, and 1.3% of patients were treated with methotrexate, acitretin, cyclosporine, phototherapy (narrow band UVB), and biologic agents, respectively. Systemic treatment was predominantly initiated as the first treatment agent in the EO group ($P = 0.006$). Throughout the course of the disease, 93.8% of patients received topical treatment. Methotrexate was used in 57.5% of cases, acitretin in 35.6%, phototherapy (narrow band UVB) in 33.1%, cyclosporine in 26.3%, and biologic agents in 23.8%. Among the biologic agents, adalimumab (8.1%) and infliximab (5.6%) were the most commonly prescribed agents. Additionally, ustekinumab (3.8%), secukinumab (2.5%), ixekizumab (2.5%), and etanercept (1.3%) were utilized in the treatment. Patients in the EaO group received more cyclosporine treatment than did the others ($P = 0.004$). Tables 1 and 2 present the treatment modalities of the patients.

Table 1. Evaluation of First Treatment Agents of Patients.

First Treatment Agent	All Patients (%)	Early-Onset Group (%)	Elderly-Onset Group (%)
Topical	86.9	96.1	80.7
Methotrexate	5.6	4.8	7
Acitretin	2.5	1.9	3.5
Cyclosporine	1.3	0	3.5
Phototherapy	1.3	0.9	1.7
Biological treatments	1.3	0	3,5

Table 2. Comparison of Treatment Modalities of Early-Onset and Elderly-Onset Groups.

Drugs Used During the Disease	All Patients (%)	Early-Onset Group (%)	Elderly-Onset Group (%)
Topical	93.8	96.1	92.9
Methotrexate	57.5	62.1	50.8
Acitretin	35.6	37.8	26.3
Cyclosporine	26.3	34.3	13
Phototherapy	33.1	40.7	19.2
Biological Treatments	23.8	30	11.3

Discussion

Psoriasis is a chronic inflammatory skin disease that affects 125 million people worldwide. The most common form of the disease is psoriasis vulgaris, which accounts for approximately 80% of psoriasis cases. There are also other subtypes of psoriasis, such as palmoplantar psoriasis, guttate psoriasis, generalized pustular psoriasis, erythrodermic psoriasis, palmoplantar pustular psoriasis, and inverse psoriasis [1,2]. In this study, the most frequently observed subtype was psoriasis vulgaris. Our patient cohort also exhibited other subtypes of psoriasis. EO patients tend to have a higher

frequency of erythrodermic psoriasis, as reported in previous studies [11,14]

In this study, in addition to the knees and elbows, which are the classical involvement areas of psoriasis, lesions were also detected in the face, palmoplantar region and intertriginous region. Knee and elbow lesions were detected more frequently at the beginning and during the disease in the EaO group. Nail involvement and psoriatic arthritis are important factors in determining the choice of treatment for psoriasis patients. In this study, the EaO group had a higher frequency of nail involvement and psoriatic arthritis. Psoriatic arthritis typically develops approximately 7–8 years after the onset of psoriasis, and the longer duration of the disease in the EaO group may explain the higher frequency of observed psoriatic arthritis and nail involvement [1,2,4]

Psoriasis is characterized by various factors such as increased keratinocyte proliferation, abnormal keratinocyte differentiation, changes in dermal vascularity, increased cellular antioxidant activity, and the presence of certain cells in the dermal/epidermal layers. Stimulated dendritic cells release IL-6, which plays a role in inflammation through immune responses. Cytokines released by Th-1 and Th-17 cells, including TNF-α, IL-12, IL-17, IL-22, and IL-23, also contribute to the development of psoriasis. IL-22 activates STAT-3, which causes the epidermal growth seen in psoriatic lesions [15,16]. In addition to intrinsic factors, extrinsic risk factors such as emotional stress, infections, physical factors, vaccines, radiotherapy, smoking, and alcohol can also contribute to psoriasis. These risk factors may be associated with psoriasis-related systemic comorbidities such as metabolic syndrome, cardiovascular diseases, and cerebrovascular events [17-22]. The increase in these comorbidities in the geriatric population reveals the need to prioritize and manage not only the disease but also its comorbidities in the management of psoriasis [4-6,11,14]. We detected emotional stress (68.1%) as one of the most frequently detected triggering factors at the onset and in the course of the disease. Infections and physical factors were also among the other detected triggering factors. Also, 70.6% of patients had a smoking history, and 11.9% of the patients had an alcohol consumption history.

Psoriasis can start at any age, but it has been found to have a bimodal distribution, with the first peak occurring in the 4th and the 7th decades [1-3]. Psoriasis is one of the most common dermatological diseases in the geriatric population. Although the exact prevalence of psoriasis in the geriatric population is unknown, studies have reported rates ranging from 1% to 19% [11]. Researchers typically categorize psoriasis as EaO (onset before the age of 40 years) and late-onset (onset at or after the age of 40 years) [23]. However, there is an overlap in the clinical features of these two groups. Recent studies have focused on the EO group, which has a cutoff age of 60 years. These studies have observed that EO psoriasis has a milder disease course compared to early-onset psoriasis. Our study categorized patients into EaO (<60 years) and EO (≥60 years) groups, and we found similar results regarding the milder disease course in the EO group. Kwon et al. analyzed 4049 psoriasis patients, categorizing patients as EaO psoriasis (onset age before 30 years), middle-onset psoriasis (onset age between 30 and 60 years), or EO psoriasis (onset age over 60 years), compared the clinical features of these groups, and observed that the EO psoriasis group has a milder disease course [24]. Tseng et al. evaluated geriatric psoriasis cases and analyzed patients according to the age at disease onset as EaO (aged <60 years) or EO (aged ≥60 years), similar to our study. Tseng et al. observed milder disease onset, less nail involvement, and arthritis in the EO group, emphasizing that EO psoriasis exhibits distinct features from EaO psoriasis, thus warranting evaluation as a specific subtype [4] Similar to the literature, mild disease onset severity and slow disease course in our study were found more frequently in the EaO group.

Psoriasis is considered a systemic inflammatory disease and is associated with various comorbidities such as hypertension, metabolic syndrome, type-2 diabetes mellitus, hyperlipidemia, cardiovascular diseases, cerebrovascular events, malignancies, and autoimmune diseases. The exact mechanism behind the development of comorbid diseases in psoriasis is not fully understood, but common inflammatory pathways, cellular mediators, and genetic predisposition are believed to play a role. The fact that systemic comorbidities benefit from conventional and biologic treatments supports the idea of common inflammatory pathways [7-9]. In our study, hypertension, hyperlipidemia, and type-2 diabetes mellitus were the most frequently detected comorbidities, consistent with other geriatric psoriasis studies.

Topical treatments are usually the first-line therapy for psoriasis management, especially in geriatric patients. These treatments are preferred due to the challenges associated with systemic and biologic treatments. However, these challenges often result in inadequate treatment and cause physical and psychological suffering for psoriasis patients [1,2,4,5,11-14]. In our study, topical treatment agents were the preferred first treatment option, followed by conventional and biologic agents. Throughout the disease, topical treatment, methotrexate, and acitretin were the most commonly used treatment agents. This was similar to other studies in the literature. Also, 23.8% of our patient cohort had biologic agent treatment. EO cases may require systemic treatment as the primary approach, unlike EaO cases, due to the faster progression of the disease and the presence of moderate-severe psoriasis. The faster course of the disease in EO cases and the presence of moderate-severe psoriasis may explain this. The EaO group received less cyclosporine

treatment compared to the EO group, which may be due to the higher incidence of comorbidities such as hypertension in the EO group. There were no statistically significant differences between the two groups in other treatments. Van Winden et al. emphasized that treatment selection in geriatric psoriasis patients should not consider the patient's age alone as a limiting factor but instead should apply personalized treatment by evaluating the patient's comorbidities and medications used [11].

Limitations

The retrospective study design and being a single-center study are among the limitations of this study.

Conclusion

This study examined the demographics, clinical characteristics, treatment features, and treatment responses of geriatric psoriasis cases. Understanding the clinical characteristics and treatment options for geriatric psoriasis patients is crucial due to the increasing incidence of the disease in this population. In this study, we evaluated patients in two groups: EO (<60 years) and EaO (≥60 years). The characteristics of EO psoriasis differ from those of EaO psoriasis, and it may represent a specific subtype that requires more investigation. The geriatric population is associated with multiple comorbidities and polypharmacy, highlighting the importance of evaluating patients' medications and comorbidities when selecting a treatment agent for psoriasis. Further studies are needed to explore the clinical characteristics of geriatric psoriasis and to compare the differences between EaO and EO groups.

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