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Comorbidities of geriatric psoriasis: A cross-sectional study with 75 patients

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Abstract

Objective: Our aim in this study was to determine comorbid diseases in the elderly with psoriasis.

Methods: This cross-sectional study was conducted on 75 psoriasis patients, aged 65-85 years, and 75 control patients without psoriasis. Psoriasis clinical features and comorbidities were recorded during the physical examination and taking anamnesis. Comorbidities were also searched from the hospital registration system. Comorbidities were compared between the groups.

Results: It was determined that metabolic syndrome-associated diseases and other diseases which were chronic bronchitis, pneumonia, hypothyroidism, and depression were statistically increased from the control group ($p<0.05$). Obesity was found to be high in both groups but was not statistically different between the groups ($p>0.05$).

Conclusion: Our findings show that metabolic syndrome-associated diseases were all increased and should be investigated in geriatric psoriasis patients. Larger sample size studies would better delineate the other comorbidities. Systemic therapy should be carefully evaluated because of systemic involvement in psoriasis and also side effects on major organ systems.

Keywords: Comorbidity; Geriatrics; Metabolic syndrome; Psoriasis

1. Introduction

Psoriasis is a common inflammatory skin disease, affecting about %3 of the adult population, characterized mostly by erythematous plaques with silvery-white scales[1]. In recent studies, it is accepted that psoriasis is a systemic inflammatory disease that affects the joints, vessels, and other organs besides the skin[2]. Comorbid diseases' pathogenesis has not been fully explained; but, common inflammatory routes and cellular mediators are thought to be involved[1]. Patients with moderate to severe psoriasis are usually treated with immunosuppressive drugs. Immunosuppressive drugs have multisystemic effects and because of the immunosenescence and comorbidities in the elderly, the use of immunosuppressive drugs is problematic[3]. Information on the comorbidities in geriatric psoriasis patients is limited and our aim in this study is to contribute to geriatric psoriasis.

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2. Material and methods

2.1. Study population

This cross-sectional study was conducted on 75 psoriasis patients, 32 female and 43 male, aged 65-87 years, who came to Izmir Atatürk Research and Training Hospital outpatient dermatology clinic between July 2020 and July 2021. Age and a sex-matched control group of 75 people with localized skin diseases (6 seborrheic keratosis, 7 actinic keratosis, 5 tinea pedis, 6 tinea unguium, 6 localized pruritus, 8 contact dermatitis, 4 acne rosacea, 6 solar lentigo,4 basal cell carcinoma, 5 melanocytic nevi, 4 alopecia, 4 verruca vulgaris, 4 seborrheic dermatitis, 6 xerosis cutis) constituted the control group. Patients younger than 65 years of age, with generalized pustular psoriasis or localized palmoplantar psoriasis, were not included in the study. The diagnosis of psoriasis was made based on clinical findings of the patients with prominent psoriasis lesions in typical locations.

2.2. Evaluation of the study population

The age and sex of the patients, onset time and duration of the disease, comorbidities, drugs use for psoriasis, smoking, and alcohol were recorded during face-to-face interviews with the doctor. Psoriasis area severity index (PASI) was recorded[4]. All the records of the hospital departments that had been visited by the patients were searched from the hospital patient registration automation system.

Anthropometric measurements including height and weight, and BMI (body mass index) were calculated as weight/height^2, and obesity was accepted as BMI>25[5]. Comorbidities were compared between the psoriasis group and the control group. This study was conducted under the Helsinki criteria after approval by the Izmir Katip Çelebi University Ethics Committee (approval number: 865, date 23.07. 2020). Written informed consent was obtained from all participants.

2.3. Statistical analysis

Statistical data analysis was evaluated in the IBM SPSS Statistics 25.0 (IBM Corp., Armonk, New York, USA). Descriptive statistics were presented as frequency (*n*), percent (*%*), mean ± standard deviation, minimum (*min*), maximum (*max*) or *Median*, 25th percentile (Q_1), and 75th percentile (Q_3) values. The normality of the distribution of numerical variables was evaluated with the Shapiro-Wilk test of normality and *Q-Q* graphs. Two-group comparisons were made with the Mann-Whitney *U* test. The relationships between categorical variables were analyzed with Chi-Square Test. A value of $p<0.05$ was considered statistically significant.

3. Results

General characteristics of psoriasis patients and parameters of clinical features were shown in Table 1.

Of the 75 patients, the median age was 71, and the median onset time of psoriasis was 120 months. Family history was found in 22.7%, and smoking was found to be higher in male psoriasis patients than in female patients (37.2% vs 3.1%). Psoriasis clinical types that were detected from most to least were classic plaque, seborrheic, palmoplantar, and flexural psoriasis. BMI mean score was 28.5. PASI was higher in men than in women (6.5 vs 3.6), and the median PASI of the total patients was 4.6. Topical therapy was used in most patients (89.3%), followed by methotrexate (24%), phototherapy (14.6%), acitretin (10.6%), and biologics (8%) and ciclosporin (8%).

Comorbid diseases that were statistically different between geriatric psoriasis and control groups were given in Table 2. It was determined that diabetes mellitus (p=0.016), hypertension (p=0.002), hyperlipidemia (p=0.007), coronary heart disease (p=0.010), peripheral arterial disease (p=0.029), cerebrovascular disease (p=0.002), myocardial infarction (p=0.028), chronic bronchitis (p=0.028), pneumonia (p=0.028), hypothyroidism (p=0.003), and depression (p=0.001) were increased statistically significant (p<0.05) (Table 2).

Table 1 General characteristics of psoriasis patients and parameters of clinical features

Variables	**Female (*n*=32)**	**Male (*n*=43)**	**Total (*n*=75)**	***p*-values**
Age *Median* (Q_1- Q_3)	71 (68.25-74)	72 (68-76)	71 (68-74)	0.285[+]
Age (>65) (*n*, *%*)	27 (84.4)	39 (90,7)	66 (88.0)	0.484[++]
Onset time (*month*) *Median* (Q_1- Q_3)	108 (24-228)	132 (48-300)	120 (36-240)	0.205[+]
Last one year	4 (12.5 %)	1 (2.3 %)	5 (6.7 %)	0.157[++]
Family history (*n*, *%*)	7 (21.9 %)	10 (23.3 %)	17 (22.7%)	1.000[++]
Smoking (*n*, *%*)	1 (3.1 %)	16 (37.2 %)	17 (22.7 %)	**<0.001**[+++]
Alcohol use (*n*, *%*)	1 (3.1 %)	4 (9.3 %)	5 (6.7 %)	0.386[++]
Psoriasis clinical types (*n*, *%*)				0.478[+++]
Classic	25 (78.1 %)	36 (83.7 %)	61 (81.3 %)	
Seborrheic	4 (12.5 %)	1 (2.3 %)	5 (6.7 %)	
Palmoplantar	1 (3.1 %)	4 (9.3 %)	5 (6.7 %)	
Flexural	2 (6.2 %)	2 (4.6 %)	4 (5.4 %)	
BMI	29.8±3.6	27.4±4.3	28.5±4.2	**0.014**[*]
Mean ± *SD* (*Min-Max*)	(23.6-38.2)	(19-39.8)	(19-39.8)	
PASI *Median* (Q_1- Q_3)	3.6 (1.87-6.55)	6.5 (3.2-14,8)	4.6 (2.6-9.3)	**0.003**[+]
Treatment (*n*, *%*)[1]				
Topical drug	29 (90.6 %)	38 (88.3 %)	67 (89.3 %)	
Phototherapy	3 (9.3 %)	8 (18.6 %)	11 (14.6 %)	
Methotrexate	6 (18.7 %)	12 (27.9 %)	18 (24 %)	
Ciclosporin	2 (6.2 %)	4 (9.3 %)	6 (8 %)	
Acitretin	2 (9.3 %)	5 (11.6 %)	8 (10.6 %)	
Biologics	2 (6.2 %)	4 (9.3 %)	6 (8 %)	

BMI was presented as *Mean* ± *SD* (*Min-Max*); Age, Onset time, and PASI were presented as *Median* (Q_1- Q_3); *n*: number of patients; [+] Mann Whitney *U* test; [*] Independent Sample *t*-test; [++] Fisher's Exact Test; [+++] Pearson Chi-Square Test; [1] Some patients received more than one therapy

Table 2 Comorbid diseases that were statistically different between geriatric psoriasis and control groups

Comorbid diseases	**Patients (n=75)**	**Controls (n=75)**	**p-values**
Chronic bronchitis (n, %)	6 (8 %)	0 (0 %)	0.028+
Pneumonia (n, %)	6 (8 %)	0 (0 %)	0.028+
Diabetes mellitus (n, %)	33 (44 %)	19 (25.3%)	0.016++
Obesity[1](BMI 25>) (n, %)	21 (28 %)	28 (37.3%)	0.296*
Hypertension (n, %)	50 (66.7 %)	31 (41.3 %)	0.002++
Hyperlipidemia (n, %)	25 (33.3 %)	10 (13.3 %)	0.007*
Coronary heart disease (n, %)	23 (30.7 %)	9 (12 %)	0.010*

Peripheral arterial disease (n, %)	12 (16 %)	3 (4 %)	0.029*
Cerebrovascular disease (n, %)	11 (14.7 %)	0 (0 %)	0,002*
Myocardial infarction (n, %)	6 (8 %)	0 (0 %)	0.028+
Hypothyroidism (n, %)	20 (26.7 %)	6 (8 %)	0.005*
Depression (n, %)	21 (28 %)	5 (6.7 %)	0.001*

+Fisher's Exact Test; *Continuity Correction Test; ++ Pearson Chi-Square Test; n: number of patients or control group members; Obesity[1]: Although statistically not different, represented in the table because of the high prevalence

Obesity was found to be increased in both psoriasis and control groups (28% and 37.3%, respectively), and no statistically significant difference was found. In hospital records, arthritis or arthralgia was detected in 35% of the psoriasis group and 24% of the control group; however, the two groups were not compared statistically, as most registries did not specify a distinction such as psoriatic arthritis or osteoarthritis.

4. Discussion

In patients with moderate to severe psoriasis when systemic drugs are required, comorbidities should be considered because of the systemic side effects of the drugs. In geriatric psoriasis patients, systemic immunosuppressant treatments were reported to be problematic because of comorbidities and already immune deterioration in the elderly[3]. In our patient group, the PASI score median was 4.6, and topical therapy was mostly used.

In our study, we compared the comorbid diseases in elderly patients with psoriasis to the patients without psoriasis. Inflammatory cytokines are involved in the occurrence of psoriasis and a PET-CT study[2] exhibited that patients with moderate to severe psoriasis were shown to have inflammation in the liver, joints, and tendons as well as whole arterial involvement explaining the systemic inflammatory nature of the disease. Genetic and environmental factors trigger the secretion of inflammatory cytokines in psoriasis[1]. Our study showed the association of diseases especially related to metabolic syndrome[6] and some other diseases and conditions with psoriasis. It was recommended to check body mass index, fasting plasma glucose, lipid profile, and blood pressure for patients with psoriasis, and because of the increased risk of cardiovascular morbidity with severe psoriasis, lifestyle changes such as stopping smoking, alcohol, and weight loss should be explained to the patients[7]. Recently, hyperinsulinemia was proposed to be the cause of insulin resistance because cells were stated to keep themselves of high intracellular glucose by restriction glucose uptake otherwise that would lead to inflammation in the cell; high-calorie intake was advised to be reduced to prevent hyperinsulinemia[8]. We think that not high-calorie feeding should be considered for the therapy and prevention of psoriasis and its metabolic syndrome-associated comorbidities.

For the respiratory diseases that we evaluated, we found an association with chronic bronchitis and pneumonia which were also found in other studies and metanalysis revealed that COPD was more related to severe psoriasis[9]. Psoriasis patients were stated to be more prone to get the infectious disease as pneumonia than those without psoriasis and that tendency was thought to be because of high levels of cytokines, immunosuppressive drug use, and other comorbidities[10]. In the literature, interstitial lung disease was found to be associated with severe psoriasis and thought to be caused by inflammatory mediators circulating through the lung[11]. For the gastrointestinal system diseases, we did not find an association with psoriasis; in the literature, inflammatory bowel diseases and celiac disease were found to be associated with psoriasis, and a gluten-free diet in celiac patients was reported to improve psoriasis[12]. Also, irritable bowel disease, gastroesophageal reflux, and peptic ulcer were found to be seen more in psoriasis[13]. In our study, we did not find an association between psoriasis with renal disease; in the literature, chronic kidney disease was found to be higher and so renal function evaluation and avoidance of nephrotoxic drugs were recommended in psoriasis[14]. In the literature, Alzheimer's disease and Parkinson's disease were found associated with particularly severe psoriasis[15], [16], in our study we did not find an association, probably because of our patients' low psoriasis severity. Among the connective tissue diseases, systemic lupus erythematosus (SLE) was stated as more relevant with psoriasis, and the prevalence of SLE was found to be %0.69 in patients with psoriasis[17], we did not find an association. Hepatobiliary diseases such as nonalcoholic fatty liver disease (NAFLD), drug-induced hepatitis, alcoholic hepatitis, and neutrophilic cholangitis were reported to be seen higher in psoriasis patients, and evaluation of hepatic function was recommended for systemic therapy and follow-up[18], and we did not find an association. Among thyroid diseases, anti-thyroid peroxidase antibodies were found to be associated with both psoriatic arthritis and psoriasis[19], and psoriatic arthritis was stated to be associated with subclinical hypothyroidism[19] as we found hypothyroidism high in our patients. In a meta-analysis consisting of more than 2 million patients with psoriasis, keratinocyte cancer, and lymphoma incidences were found to be a small amount elevated[20], we did not find an association. Both depression and anxiety were found to be associated with psoriasis in the literature[21], in our study

we found anxiety was not associated with geriatric psoriasis and that could be due to developing better coping skills leading to a decrease in anxiety levels with time. Menopause is associated with low estrogen levels and a flare-up of psoriasis was stated in postmenopausal patients[22], our late-onset patients with psoriasis could be related. In a meta-analysis, erectile dysfunction was found elevated in psoriasis and that was attributed to cardiovascular disease[23], in our study we did not find an association.

Study Limitations

First, we did not have a large sample size, so we could not identify infrequent associations in our study. Second, as an observational study, we did not check blood values of glucose and lipids, and measurements of arterial hypertension which are components of metabolic syndrome. We could not classify patients with psoriatic arthritis or osteoarthritis, as most of them were not differentiated in hospital records. Finally, although anamnesis of comorbid diseases and conditions were recorded during face-to-face interviews, details might not be remembered and we obtained data retrospectively from the hospital registration system.

5. Conclusion

In conclusion, metabolic syndrome-associated disorders were found to be higher in geriatric psoriasis patients and precautions should be taken against high-calorie intake and obesity. In addition, major systemic involvements such as hepatic, renal, and respiratory involvements, which were stated to be elevated in the literature, were required to be paid attention to before starting and during systemic therapy in elderly patients with psoriasis.

Compliance with ethical standards

Disclosure of conflict of interest

The authors Alper Alyanak, Kıymet Handan Kelekci, Nurhan Döner Aktaş, Işıl Ezgi Urgancı Tatlı, and Büşra Emir declare that they have no conflict of interest.

Statement of ethical approval

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the ethics committee of the Izmir Katip Çelebi University Ethics Committee (approval number: 865, date 23.07. 2020).

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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