

Prevalence of Geriatric Dermatoses Among Elderly Patients Treated at the Dermatology Outpatient Clinic in Eskisehir, Turkey

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ABSTRACT

Objective: The aim of this study is to determine the prevalence of skin diseases among geriatric patients in Eskisehir, Turkey.

Methods: This is a retrospective, cross-sectional study. The medical records from the outpatient clinics of dermatology were retrospectively assessed. Patients who were over 65 years old and attended the dermatology outpatient's clinic between January 2017 and December 2017 were included in the study.

Results: A total of 7,722 patients were included in the study: 3,666 (47.5%) patients were male, and 4,056 (52.5%) patients were female. The ten most frequent diagnoses and their prevalence were the following: contact dermatitis (15.2%), xerosis (13.8%), pruritus (11.2%), seborrheic keratosis (5.8%), onychomycosis (5.3%), seborrheic dermatitis (5.2%), tinea pedis (5.2%), corn and callus (4.6%), urticaria (4.0%), actinic keratosis (3.0%), and pyoderma (3.0%).

Conclusion: Most of these geriatric skin diseases are preventable or treatable. Raising the general level of awareness is important about these common geriatric dermatoses. Further epidemiological studies are needed to reveal the prevalence of geriatric skin diseases.

INTRODUCTION

The size and the ratio of the elderly population have been increasing in Turkey just like in other developed and developing countries. It is not surprising that the aging rate of the population will steadily increase in the near future.^[1-3] It has been estimated that the geriatric population will reach 10.2% in Turkey in 2020.^[2] Elderly patients over 65 years of age are an important part of dermatology outpatient clinics. However, there are limited studies on the prevalence and the age and gender distribution of skin diseases in the elderly population.

During aging, functional and structural changes in the skin are observed. Due to these changes, skin disorders are more commonly seen in the elderly population. Moreover, the prevalence of skin diseases in the elderly is different than the prevalence in children and adult populations depending on these factors.^[2,3] The prevalence of skin diseases in geriatric patients is very important in planning preventive and therapeutic health care services. Information on the prevalence of skin disorders in geriatric patients is limited. This research article is, to the best of our knowledge, the first prevalence study in the geriatric patients in Eskisehir, Turkey. Thus, we aimed to clarify the prevalence of skin disorders among geriatric patients in Eskisehir, Turkey.

MATERIAL AND METHODS

This is a cross-sectional retrospective study. The medical records from the outpatient clinics of dermatology were retrospectively assessed. Elderly patients who attended the dermatology outpatient clinics between January 2017 and December 2017 were included in the study.

This was a retrospective study. Therefore, no ethics committee approval was required. Written informed consent could not be obtained from the patients due to a retrospective design of the study.

The exclusion criteria were age <65 years, patients with inadequate data, or patients without a definite diagnosis. To find an accurate prevalence, only patients attending the clinic for the first time were included in the study, and repeat referrals were excluded from the study as previous studies.^[1,3-6] Patient 65 years old and older were included into study.

A total of 30,001 applications were recorded at the dermatology outpatient clinic. Of the 30,001 patients, 7,722 (25.7%) were new geriatric patients who were 65 years old and older.

The patients were divided into three groups according to age as follows: the 65–74 age group (Group I), the 75–84

age group (Group II), and the over-85 age group (Group III).

The patients were diagnosed based on clinical features and an anamnesis, and the diagnosis was confirmed by a skin biopsy or laboratory tests (e.g., fungal direct examination) when indicated. The International Classification of Diseases (ICD-10) was used to classify the diagnoses.

Statistical analyses were carried out using the Statistical Package for the Social Sciences (SPSS 15.0 Statistical software, SPSS Inc., Chicago, IL, USA). Data were presented as percentages. The calculated values are given as the mean values \pm standard deviation (SD). The chi-square test was used to compare the inter-group differences and correlations. A *p*-value <0.05 was considered to be statistically significant.

RESULTS

Of 7,722 patients, 3,666 (47.5%) were male, and 4,056 (52.5%) were female. The mean age of the patients was 72.82 ± 6.22 years (age range, 65–101 years). The mean age of the female patients was 73.15 ± 6.45 years (age range, 65–95 years). In the male patients, it was 72.53 ± 6.01 years (age range, 65–101 years). The male-to-female ratio was 0.90. There was statistically no significant difference between gender and age (*p*=0.896).

Of 7,722 patients, 5,094 (65.9%) were in Group I, 2,262 (29.9%) were in Group II, and 366 (4.7%) were in Group III.

Of 7,722 patients, 1,536 (19.9%) patients were diagnosed with more than one skin disease. A total of 113 skin diseases were recorded.

The ten most frequent diagnoses in the elderly patients and their prevalence were contact dermatitis (*n*=1380, 15.2%); xerosis (*n*=1254, 13.8%); pruritus (*n*=1014, 11.2%); seborrheic keratosis (*n*=522, 5.8%); onychomycosis (*n*=480, 5.3%); seborrheic dermatitis (*n*=468, 5.2%); tinea pedis (*n*=468, 5.2%); corn and callus (*n*=420, 4.6%); urticaria (*n*=360, 4.0%); actinic keratosis (*n*=276, 3.0%); and pyoderma (*n*=270, 3.0%). The age distribution of the most common 20 skin diseases according to gender is presented in Table I.

The most frequent types of eczematous dermatitis (*n*=2049, 26.5%) were contact dermatitis (*n*=1380, 15.2%); seborrheic dermatitis (*n*=468, 5.8%); nummular dermatitis (*n*=78, 1.0%); lichen simplex chronicus (*n*=120, 1.3%); and atopic dermatitis (*n*=3, 0.03%).

The commonly seen fungal infections (*n*=1184, 15.3%) were onychomycosis (*n*=480, 5.3%); tinea pedis (*n*=68, 5.2%); intertrigo (*n*=162, 2.1%); tinea cruris (*n*=25, 0.3%); pityriasis versicolor (*n*=24, 0.3%); tinea corporis (*n*=13, 0.2%); and candidiasis (*n*=12, 0.2%).

The most frequent viral infections (*n*=468, 6.0%) were herpes zoster (*n*=252, 2.8%); warts (*n*=180, 2.0%); and herpes simplex virus infection (*n*=36, 0.5%).

Table I. The distribution of the most common 20 diseases according to gender

No	Disease	Gender					
		Male		Female		Total	
		n	%	n	%	n	%
1	Contact dermatitis	783	8.6	587	6.5	1380	15.2
2	Xerosis	211	2.3	1043	11.5	1254	13.8
3	Pruritus	456	5.0	558	6.2	1014	11.2
4	Seborrheic keratosis	217	2.4	305	3.4	522	5.8
5	Onychomycosis	247	2.7	233	2.6	480	5.3
6	Seborrheic dermatitis	265	2.9	203	2.2	468	5.2
7	Tinea pedis	247	2.7	221	2.4	468	5.2
8	Corn and callus	197	2.2	223	2.5	420	4.6
9	Urticaria	169	1.9	191	2.1	360	4.0
10	Actinic keratosis	123	1.4	153	1.7	276	3.0
11	Pyoderma	131	1.4	139	1.5	270	3.0
12	Herpes zoster	78	0.9	114	1.3	252	2.8
13	Psoriasis vulgaris	67	0.7	143	1.6	210	2.3
14	Rosacea	48	0.5	96	1.1	192	2.1
15	Viral warts	103	1.1	77	0.9	180	2.0
16	Intertrigo	78	0.9	84	0.9	162	1.8
17	Lichen simplex chronicus	54	0.6	66	0.7	120	1.3
18	Melanocytic naevi	24	0.3	90	1.0	114	1.3
19	Impetigo	36	0.4	66	0.7	102	1.1
20	Nummular eczema	54	0.6	24	0.3	78	0.9

The frequently seen bacterial infections (*n*=461, 5.9%) were pyoderma (*n*=270, 3.0%); impetigo (*n*=102, 1.3%); cellulitis (*n*=72, 0.9%); and erythrasma (*n*=17, 0.2%).

There were statistically significant differences between females and males for rosacea and urticaria (*p* <0.05 for all). Males showed a greater susceptibility to xerosis and rosacea. There was no statistically significant difference for other skin diseases (*p* >0.05 for all).

The distribution (%) of skin diseases was similar in the three groups, except for a higher percentage of contact dermatitis, callus, and seborrheic dermatitis in Group I (18.5%, 6.6%, and 6.2%, respectively) than in Group II (2.4%, 0.6%, and 0.8%, respectively), and Group III (14.8%, 3.6%, and 4.9%, respectively). The proportion of actinic keratosis was higher in Group III (4.9%) than in Group I and Group II (3.2% and 0.8%, respectively). The percentage of pruritus was 11.6% in Group I, 3.2% in Group II, and 19.7% in Group III.

There were some differences in the prevalence of the commonly encountered skin diseases among the age groups.

1) Among 5,094 cases, in Group I, the top 10 skin disorders were, in the descending order of prevalence, contact dermatitis (*n*=941, 12.2%); xerosis (*n*=827, 10.7%); pruritus

Table 2. Age distribution of the most common 10 skin diseases

No	Disease	Age groups						Total
		Group I (65–74 year) n=5.094		Group II (75–84 year) n=2.262		Group III (>85 year) n=366		
		n	%	n	%	n	%	
1	Contact dermatitis	941	10.4	385	4.3	54	0.6	1380
2	Xerosis	827	9.1	374	4.1	53	0.6	1254
3	Pruritus	589	6.5	353	3.9	72	0.8	1014
4	Seborrheic keratosis	336	3.7	119	1.3	31	0.3	522
5	Onychomycosis	323	3.6	144	1.6	13	0.1	480
6	Seborrheic dermatitis	317	3.5	123	1.4	18	0.2	468
7	Tinea pedis	275	3.0	174	1.9	19	0.2	468
8	Corn and callus	336	3.7	71	0.8	13	0.1	420
9	Urticaria	241	2.7	83	0.9	36	0.4	360
10	Actinic keratosis	163	1.8	95	1.0	18	0.2	276

(n=589, 7.6%); corn and callus (n=336, 4.4%); seborrheic keratosis (n=336, 4.4%); onychomycosis (n=323, 4.2%); seborrheic dermatitis (n=317, 4.1%); tinea pedis (n=275, 3.6%); urticaria (n=241, 3.1%); and psoriasis (n=179, 2.3%).

II) In Group II (n=2,262, 29.3%), contact dermatitis (n=385, 4.9%) was the most prevalent dermatosis, followed by xerosis (n=374, 4.8%); pruritus (n=353, 4.5%); pyoderma (n=270, 3.5%); tinea pedis (n=174, 2.3%); onychomycosis (n=144, 1.9%); seborrheic dermatitis (n=123, 1.6%); seborrheic keratosis (n=119, 1.5%); actinic keratosis (n=95, 1.2%); and urticaria (n=83, 1.1%).

III) In Group III (n=366), the most frequent diagnoses were pruritus (n=72, 0.9%); contact dermatitis (n=54, 0.7%); xerosis (n=53, 0.7%); urticaria (n=36, 0.5%); seborrheic keratosis (n=31, 0.4%); tinea pedis (n=19, 0.2%); actinic keratosis (n=18, 0.2%); seborrheic dermatitis (n=18, 0.2%); corn and callus (n=13, 0.2%); and herpes zoster (n=12, 0.2%).

The rate and frequencies of the geriatric dermatoses in Group I, Group II, and Group III are represented in Table 2.

DISCUSSION

The size and the ratio of the elderly population have been increasing in Turkey just like in other developed and developing countries.^[2,5] In Turkey, according to the State Institution of Statistics, the population is getting older, with a growing percentage of population in the over-65 age group. It has been estimated that the geriatric population will reach 10.2% in Turkey in 2020 and 20.8% in 2050, in Turkey.^[1]

This will result in more elderly patients attending dermatology clinics.^[5] The rapid demographic shift has created challenges for the health care system. Elderly patients over 65 years of age are an important part of dermatology outpatient clinics. It is important for health care providers to be aware of the pattern of skin disorders in the elderly.^[5]

Among elderly, the commonly seen dermatoses and their prevalence are contact dermatitis, xerosis, pruritus, seborrheic keratosis, onychomycosis, seborrheic dermatitis, tinea pedis, corn and callus, urticaria, actinic keratosis, and pyoderma.

Due to the epidermal barrier dysfunction, the elderly population has elevated sensitivity to the allergens and irritants. Thus, contact dermatitis is an important problem in elderly.^[3] In our study, the most commonly seen diseases group was eczematous dermatitis (26.5%), and moreover, the most frequent type of eczematous dermatitis was contact dermatitis (15.2%). In previous studies, the frequency of dermatitis was 16.3%–58.7%.^[2,3,5–8] The percentage of dermatitis was 16.3% in Adam's study,^[8] 32.7% in Bilgili's study,^[3] 30.1% in Polat's study,^[5] and 58.7% in Liao's study.^[7] This result corresponds to findings of some similar previous studies in the elderly population.

In our study, contact dermatitis was more common in Group I than Group II and Group III. Contact dermatitis was relatively low in Group II and Group III. It can be explained by a decreased ability to mount a delayed-type hypersensitivity reaction due to an abnormal immune response in the form of reduced Langerhans' cells.^[9]

In the elderly patients, prurigo can be caused by a variety of dermatological and systemic conditions, but the most frequent cause is xerosis.^[10] Dry skin is a common skin problem in the elderly population. It may lead to asteototic eczema, prurigo, and secondary infections. In our study, xerosis (13.8%) and prurigo (11.2%) were very common. In previous studies, the prevalence of prurigo was found at a rate of 19.6% by Polat et al.,^[6] 21.2% in another study by Polat et al.,^[5] 8.8% by Bilgili et al. in Turkey,^[3] 49.6% by Durai et al. in India,^[11] 22% by Darjani et al. in Iran,^[10] and also Liao et al. 14.2% in Taiwan.^[7] Xerosis was also found at 58.3% in Taiwan,^[7] 11.6% in Iran,^[10] 18.3% in Hong Kong,^[12] 29.5% in Australia,^[13] and 5.4%^[3] and 38.8%^[5] in

Turkey. The frequency of prurigo and xerosis in our study were compatible with these findings.

Fungal and bacterial infections are common in elderly patients. Several factors such as decreased blood flow, impaired immune function, thinning of skin and dryness, associated systemic diseases, epidermal damage to secondary to itching, and decreased personal care, lead to a delay in the healing process.^[3,6,9] In our study, the frequency of dermatophytosis and bacterial infections were 15.3% and 5.9%, respectively.

In previous studies, the prevalence of fungal infection was found at a rate of 5.6% by Mponda et al. in Tanzania,^[14] 8.2% by Darjani et al. in Iran,^[10] 10.4% by Bilgili et al. in Turkey,^[3] 11.9% in the study by Polat et al. in Turkey,^[5] 16.4% by Chan in Hong Kong,^[12] 16.7% by Polat et al. in Turkey,^[6] 16.9% by Souissi et al. in Tunisia,^[15] and 38% by Liao et al. in Taiwan.^[7] Fungal infections constituted the most commonly observed infectious skin diseases, similar to our study.

Bacterial infection was also shown as 3.5% by Mponda et al. in Tanzania,^[14] 5.6% by Polat et al. in Turkey,^[5] 7% by Bilgili et al. in Turkey,^[3] 7.1% by Polat et al. in Turkey,^[6] and 8.7% by Souissi et al. in Tunisia.^[15] Our result was not different from these results.

Viral infections, especially herpes zoster, appear commonly in the elderly patients, secondary to an impaired immune function. Not surprisingly, the most frequent viral infection (6.0%) was herpes zoster (2.8%) in our study. Varicella zoster virus becomes latent in the dorsal root ganglion after recovery from chicken pox at a young age. After decline in immunity, varicella zoster virus is reactivated.^[9] In the previous studies, the prevalence of viral infection was found at a rate of 1.5% by Chan in Hong Kong,^[12] 2.1% by Mponda et al. in Tanzania,^[14] 2.8% by Bilgili et al. in Turkey,^[3] 4.6% by Polat et al. in Turkey,^[6] and 6.8% by Souissi et al. in Tunisia.^[15]

Dominant among malignant and premalignant dermatoses was actinic keratosis with a prevalence of 3.0% in our study. In the previous studies, actinic keratosis had a high prevalence in most studies, ranging from 1.9% to 25%. The prevalence of actinic keratosis was found with a rate of 1.9% in the study by Polat et al. in Turkey,^[5] with a rate of 7.5% in the study by Polat et al. in Turkey,^[6] with a rate of 22.4% in the study by Liao et al. in Taiwan,^[7] with a rate of 24.3% in the study by Darjani et al. in Iran,^[10] with a rate of 22.3% in the study by Cvitanović et al. in Croatia,^[16] and with a rate of 25% in the study by Smith et al. in Australia.^[13] There were 11 patients with basal cell carcinoma, three patients with squamous cell carcinoma, and one patient with melanoma. Actinic keratosis is a precursor lesion to squamous cell carcinoma, and lifetime sun exposure is an important risk factor.^[10] Management of the condition requires the avoidance of sunlight and use of sunscreens.^[9]

There are some limitations to our study. We analyzed an electronic database of a secondary referral medical center, and not the general population. Another limitation to

our study is the reliance on clinical records and not direct diagnosis.

In conclusion, most of these geriatric skin diseases are preventable or treatable. Raising the general level of awareness is important about these common geriatric dermatoses. Further epidemiological studies are needed to reveal the prevalence of geriatric skin diseases.

Ethics Committee Approval

This was a retrospective study; therefore, no ethics committee approval was required.

Informed Consent

Retrospective study.

Peer-review

Internally peer-reviewed.

Authorship Contributions

Concept: H.Y.; Design: H.Y.; Data collection &/or processing: H.Y.; Analysis and/or interpretation: H.Y.; Literature search: H.Y.; Writing: H.Y.; Critical review: H.Y.

Conflict of Interest

None declared.

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Eskişehir'deki (Türkiye) Dermatoloji Polikliniğine Başvuran Yaşlı Hastaların Geriatrik Deri Hastalıklarının Prevalansı

Amaç: Bu çalışmanın amacı Eskişehir'deki geriatrik hastaların deri hastalıkları prevalansını ortaya koymaktır.

Gereç ve Yöntem: Bu araştırma geriye dönük ve kesitsel çalışmadır. Dermatoloji polikliniğine başvuran hastaların kayıtları otomasyon dosya sisteminden geriye dönük olarak analiz edildi. Ocak 2017 ile Aralık 2017 tarihleri arasında dermatoloji polikliniğine başvuran 65 ve üzeri yaşta geriatrik hastalar çalışmaya dâhil edildi.

Bulgular: Çalışmamıza 3.666'sı (%47.5) erkek, 4.056'sı (%52.5) kadın olmak üzere toplam 7.722 hasta alındı. En sık rastlanan on hastalık ve prevalansı sırasıyla şu şekildedir: Kontakt dermatit (%15.2), kserosis (%13.8), prurigo (%11.2), seboreik keratosis (%5.8), onikomikoz (%5.3), seboreik dermatit (%5.2), tinea pedis (%5.2), nasır (%4.6), ürtiker (%4.0), aktinik keratoz (%3.0) ve piyoderma (%3.0).

Sonuç: Yaşlılarda saptanan bu hastalıklar sıklıkla tedavi edilebilir ve önlenabilir hastalıklardır. Bu hastalıklara karşı genel farkındalık düzeyinin artırılması önemlidir. Deri hastalıkları prevalansını ortaya koymak için daha fazla epidemiyolojik çalışmalara ihtiyaç vardır.

Anahtar Sözcükler: Deri hastalıkları; epidemiyoloji; geriatrik dermatoloji; yaşlı.