Turk J Dermatol 2019;13:8-12
DOI: 10.4274/tdd.galenos.2018.3689

Original Investigation / *Özgün Araştırma*

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Prevalence of Dermatological Diseases in Nursing Home Residents and Their Correlation with Gender and Comorbid Diseases

Huzur Evi Sakinlerinde Görülen Dermatolojik Hastalıkların Prevalansı, Cinsiyet ve Diğer Hastalıkları ile İlişkisi

Abstract

Objective: This study aims to investigate the effects of gender and comorbidity on the prevalence of dermatological diseases among nursing home residents.

Methods: In the current study, we performed dermatological examination on 187 nursing home residents and collected data pertaining to comorbid systemic diseases. Dermatological findings were classified according to gender and comorbid systemic diseases.

Results: The most common dermatological finding was xerosis (91.4%), followed by lentigo (80.2%), seborrheic keratosis (72.2%), tinea pedis (53.5%), and senile angioma (40.1%). Xerosis (p=0.016) and intertrigo (p=0.004) were more common in women, whereas senile angioma (p=0.024) was more common in men. In terms of comorbidity, rosacea was more common in patients with diabetes (p=0.023).

Conclusion: Knowing the prevalence of dermatological diseases among nursing home residents and recognition of the effect of sex, age, and comorbid diseases on dermatological diseases may help establish appropriate preventive measures.

Keywords: Skin, nursing home, gender, systemic disease, xerosis

Öz

Amaç: Bu çalışmada, huzur evi sakinlerinde cinsiyet ve komorbiditenin dermatolojik hastalıkların prevalansı üzerindeki etkilerinin araştırılması amaçlamaktadır.

Yöntemler: Çalışmada 187 yaşlı bakım evi sakinlerinin dermatolojik muayeneleri ek sistemik hastalıkları ile birlikte kayıt edilmiştir. Dermatolojik muayene bulguları cinsiyet ve eşlik eden sistemik hastalıklara göre sınıflandırılmıştır.

Bulgular: Gönüllülerin yapılan dermatolojik muayenelerinde en fazla izlenen dermatolojik bulgu kserozisti (%91,4). Bunu sırasıyla; lentigo (%80,2), seboreik keratoz (%72,2), tinea pedis (%53,5) ve senil anjiyom (%40,1) takip etmekteydi. Cinsiyete göre hastalıkların dağılımları incelendiğinde kserozis (p=0,016) ve intertrigo (p=0,004) kadınlarda daha fazla, senil anjiyom (p=0,024) erkeklerde daha fazla izlendi. Dermatolojik hastalıklar ile ek sistemik hastalık varlığı ilişkisi incelendiğinde diyabetli hastalarda rozase daha fazla izlendi (p=0,023).

Sonuç: Huzur evi sakinlerinde dermatolojik hastalıkların sıklığının bilinmesi ve cinsiyet, yaş ile eşlik eden hastalıkların dermatolojik hastalıklara etkisinin tanınması uygun önleyici tedbirlerin oluşturulmasına yardımcı olabilir.

Anahtar kelimeler: Deri, huzur evi, cinsiyet, sistemik hastalık, kserozis

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Submitted/Geliş Tarihi: 09.05.2018
Accepted/Kabul Tarihi: 06.08.2018

Introduction

Progressive population aging due to improved health services throughout the world has contributed to a steady increase in the proportion of elderly people in the population. Health problems of the elderly have both economic and sociological effects (1). With ruralto-urban migration increasing and a growing trend of nuclear families, there is a steady rise in the number of elderly people who reside in nursing homes. Understanding the dermatological diseases that are common in this population may have positive effects in both social and economic terms (2). Aging is associated with several changes in the regulation of skin structure and function because of impaired thermoregulation, sebum production, cellular repair, barrier function, and wound healing. In addition, comorbid diseases and drugs may further predispose the elderly to dermatological problems (3). A better understanding of dermatological conditions in various regions may facilitate the development of more effective health policies. The current study aimed to investigate the effects of gender and comorbidity on the prevalence of dermatological diseases among nursing home residents.

Methods

After obtaining approval from the Necmettin Erbakan University Meram Faculty of Medicine Local Ethics Committee (approval no: 2016/688), nursing home residents in state-sponsored nursing homes in Konya were examined. Demographic data and information on comorbid conditions were recorded from their medical history records, and skin examinations were performed.

Statistical Analysis

Statistical analysis was conducted using the SPSS 20 (IBM, Armonk-NY) statistical program. The distribution of variables was tested using a One-Sample Kolmogorov-Smirnov test. For statistical analysis, chi-squared and independent t-tests (to assess the difference between disease distribution according to sex), One-Way variance analysis (to assess disease distribution disaggregated by three age groups: <75, 75-85, and >85 years) were used. A p-value of <0.05 was considered statistically significant.

Results

A total of 187 nursing home residents were investigated [106 (56.7%) women and 81 (43.3%) men]. The mean age of women was 78±8.51 years and that of men was 80±8.65 years. There was no significant difference in age distribution between the two genders.

The most common comorbid conditions were hypertension (53 patients, 28.3%), dementia (43, 23%), diabetes (28, 15%) and chronic pulmonary disease (8, 4.3%). The most common dermatological finding was xerosis (171, 91.4%), followed by senile lentigo (150, 80.2%), seborrheic keratosis (135, 72.2%) and fungal infections (109, 58.3%). Soft tissue infection was diagnosed in 15 patients, of whom 14 patients were taking antibiotics. One patient was newly diagnosed with cellulitis (Table 1). Prevalence of actinic keratosis with lentigo increased with age when the study population was disaggregated into 3 age groups (<75: early age; 75-85: old age; >85 years: very old age) (Table 2).

Xerosis (p=0.016) and intertrigo (p=0.004) were significantly more common in women in comparison with those in men, whereas senile angioma (p=0.024) was significantly more common in men. In terms of comorbid diseases, rosacea was significantly more common in patients with diabetes (p=0.023). No statistically significant correlation was found between other comorbid conditions and dermatological disorders.

Discussion

In the current age of globalization, large intergenerational families are giving way to smaller nuclear families. Consequently, many elderly people who need special care live in nursing homes. Therefore, there is a growing need to address the health problems of nursing home residents (2). Aging is associated with structural and functional impairment of a number of body systems, including the skin (4); the incidence of dermatological disorders increases with age as well. The issue is compounded by the presence of comorbid conditions and use of medications that may affect the skin (5). Although most of these dermatological conditions are not life-threatening, these may negatively affect the quality of life.

The most common dermatological finding in the current study was xerosis, which is largely attributable to the effect of environmental factors such as dry conditions. Aging may contribute to xerosis because of a decrease in the amount of water and sebum produced in the skin, along with structural and functional disturbances in the stratum corneum (6). Xerosis may also be associated with end-stage renal disease, deficiency of zinc and essential amino acids, thyroid disease and drug use (7). A previous study found that psychotropic medications may contribute to the development of xerosis, a condition more frequently observed in patients with psychiatric diseases (8). In previous studies, the reported prevalence of xerosis among nursing home residents has varied widely (1.5%-78.1%) (8-13); this is likely attributable to differences with respect to geography or the prevalence of comorbid conditions (10). In the current study, no correlation was found between xerosis and any comorbid condition, including those that require the use of psychotropic drugs. We believe that the higher rate of xerosis found in the current study (91.4%) may be linked to the dry climate of the Central Anatolian region where this study was conducted. Even the incidence of benign skin lesions increases with age, the most common being senile angioma, senile lentigo, seborrheic keratosis, actinic keratosis, and keratoacanthoma. The most common malignant lesions are basal cell carcinoma, squamous cell carcinoma and melanoma (5). In the current

study, solar lentigo was the second most common lesion, followed by seborrheic keratosis. In previous studies, the prevalence of solar lentigo was found to range from 0.8% to 90.5% (3,9,14). In a study of Muğla nursing home residents by Kara Polat et al. (9), the most common dermatological finding was senile lentigo, which is likely linked to the residents' light skin and a high frequency of outdoor activities such as fishing, farming and swimming. Senile lentigo was the second most common lesion in the current study; this is consistent with the high level of cumulative sun exposure in this population due to age related.

In the current study, the incidence of fungal infection was 58.3%; earlier studies in various parts of the world, including Turkey have reported corresponding rates ranging from 4.4% to 72.3% (8-13,15,16). Different climates may account for the wide variability as fungal infections are more frequently seen in moist climate (16). Patients with diabetes have immune deficiency and impaired barrier function that predisposes them to dermal fungal infections (17). However, in a study by Smith et al. (11) of 360 nursing home residents, no correlation was reported between diabetes and fungal infection (10), and we did not find any such association in the present study.

Variable rates of dermatitis have been reported in previous studies; in some studies, disaggregated data by type of dermatitis have not been reported (3,8,11). In the current study, the incidence of seborrheic dermatitis and stasis dermatitis was 9.1% and 12.3%, respectively. Xerosis has been shown to increase the risk of dermatitis (6). Previously reported rates of contact dermatitis in geriatric individuals have been in the range of 2.7-3.8% (9,14). In our study, contact dermatitis was not observed even though a high rate of xerosis was observed. In studies that separately defined dermatitis, the reported rates of stasis dermatitis ranged from 2.7-31.5% (9,14,16) and those of seborrheic dermatitis ranged from 2.3-40% (9,14).

Rates of soft tissue infections in the literature range from 2.9-9.8% (14,16). In our study, soft tissue infections were observed in 8% of the study population. Most of the patients were taking antibiotics, while cellulitis was diagnosed incidentally in one patient.

Interestingly, xerosis and intertrigo were more commonly seen in women, while senile angioma was more common in men. The higher incidence of xerosis in women could be linked to decreased levels of androgenic steroids after menopause,

Table 1. Dermatological findings observed in elderly nursing home residents

		Female	Male	
	n (%)	n (%)	n (%)	p value
Xerosis	171 (91.4)	102 (96.2)	69 (85.1)	**0.016***
Senile lentigo	150 (80.2)	82 (77.3)	68 (83.9)	0.265
Seborrheic keratosis	135 (72.2)	73 (68.8)	62 (76.5)	0.243
Fungal infection Tinea pedis Tinea unguium	109 (58.3) 100 (53.5) 60 (32.1)	59 (55.6) 56 (52.8) 31 (29.2)	50 (61.7) 44 (54.3) 29 (35.8)	0.510 - -
Actinic keratosis	63 (33.7)	32 (30.1)	31 (38.2)	0.249
Intertrigo	10 (5.3)	10 (9.4)	-	**0.004***
Soft tissue infection Cellulitis Erysipelas External otitis Diabetic foot Decubitus Folliculitis Paronychia	15 (8.0) 3 (1.6) 1 (0.5) 1 (0.5) 5 (2.6) 3 (1.6) 1 (0.5) 1 (0.5)	8 (7.5) 3 (2.8) 1 (0.9) - 1 (0.9) 3 (2.8) - -	7 (86.4) - - 1 (1) 4 (4.9) - 1 (1.2) 1 (1.2)	0.789 - - - - - - -
Verruca	3 (1.6)	3 (2.8)	-	0.128
Skin tag	54 (28.9)	33 (31.1)	21 (25.9)	0.439
Stasis dermatitis	23 (12.3)	12 (11.3)	11 (13.5)	0.647
Seborrheic dermatitis	17 (9.1)	12 (11.3)	5 (6.1)	0.211
Rosacea	10 (5.3)	7 (6.6)	3 (3.7)	0.385
Vitiligo	3 (1.6)	1 (0.9)	2 (2.4)	0.413
Senile angioma	75 (40.1)	35 (33)	40 (49.4)	**0.024***
Basal cell carcinoma	10 (5.3)	4 (37.7)	6 (7.4)	0.29
Squamous cell carcinoma	1 (0.5)	1 (0.9)	-	0.079

*p<0.05

Table 2. Dermatological findings in elderly nursing home residents disaggregated by age

	<75 years n (%)	75-85 years n (%)	>85 years n (%)	Total	p value
Xerosis	51 (91)	74 (90.2)	46 (93.8)	171	0.770
Senile lentigo	37 (66)	71 (86.5)	42 (85.7)	150	**0.006***
Seborrheic keratosis	34 (60.7)	62 (75.6)	39 (79.5)	135	0.065
Fungal infection	32 (57.1)	43 (52.4)	34 (69.3)	109	0.151
Actinic keratosis	7 (12.5)	34 (41.4)	22 (44.8)	63	**<0.005***
Intertrigo	2 (3.5)	3 (3.6)	5 (10.2)	10	0.215
Soft tissue infection	3 (5.3)	6 (7.3)	6 (12.2)	15	0.415
Verruca	1 (1.7)	1 (1.2)	1 (2)	3	0.930
Skin tag	17 (30.3)	30 (36.5)	7 (14.2)	54	0.23
Stasis dermatitis	7 (12.5)	9 (10.9)	7 (14.2)	23	0.857
Seborrheic dermatitis	5 (8.9)	8 (9.7)	4 (8.1)	17	0.954
Rosacea	5 (8.9)	3 (3.6)	2 (4)	10	0.365
Vitiligo	-	2 (2.4)	1 (2)	3	0.518
Senile angioma	21 (37.5)	33 (40.2)	21 (42.8)	75	0.857
Basal cell carcinoma	1 (1.7)	5 (6)	4 (8.1)	10	0.326
Squamous cell carcinoma	-	1 (1.2)	-	1	0.530

*p<0.05

which normally promote sebum production (18). The higher incidence of intertrigo has been linked to the presence of more skin folds in women as compared to that in men (19). The incidence of senile angioma increases with age and may also be related to climate, exposure to chemical substances and diabetes (20-22). In earlier a study, It was found that fungal infections were observed more frequently in males than females (8). However, in some previous studies, there was no difference found that dermatological diseases in relation to gender (11,14). In the present study, senile angioma showed no correlation with diabetes but was more commonly found in men than in women. This might be because of greater exposure of men to chemicals because men more often work outside the home. We observed higher rates of rosacea in diabetic patients, which is consistent with previous studies that have demonstrated a significant correlation between insulin resistance, cardiovascular disease and rosacea (23).

The reported rates of xerosis and fungal infection among geriatric patients who were referred to dermatology clinics ranged between 7.6 and 14.5%, and between 14.8 and 30.5%, respectively (1,4,24). In our study population, rates of xerosis and fungal infection were 91.4% and 58.3%, respectively. Our findings are similar to those reported from previous studies conducted at nursing homes in our country (xerosis: 45.3-78.1% and fungal infections: 68.5-72.3%) (8,9). Prevalence of xerosis and fungal infections tends to be higher among residents in nursing homes. This may be due to a higher risk of these diseases among nursing home residents.

Conclusion

In conclusion, understanding the link of certain dermatological conditions with gender and comorbidity may assist nursing home staff in caring for elderly patients who are at risk of dermatological disorders, with a view to improve their quality of life. In the present cross-sectional study, certain dermatological diseases showed a correlation with gender, and rosacea occurred more commonly in association with diabetes. Knowing the prevalence of dermatological diseases among nursing home residents and awareness of the effect of sex, age, and comorbid conditions on dermatological diseases may help institute appropriate preventive measures. Multicentre studies may be needed to shed more light on these conditions.

Ethics

Ethics Committee Approval: The study were approved by the Necmettin Erbakan University Meram Faculty of Medicine Local Ethics Committee (approvel number: 2016/688).

Informed Consent: Consent form was filled out by all participants.

Peer-review: Internally peer-reviewed.

Authorship Contributions

Concept: İ.Ö., A.A., Design: İ.Ö., A.A., Data Collection or Processing: İ.Ö., S.A.T., A.A., Analysis or Interpretation: İ.Ö., Literature Search: İ.Ö., Writing: İ.Ö.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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