

A Study of Dermatological Diseases in a Geriatric Patients

Najat Omer Ali Alramaity¹, Nadia Abdalhafid Elsherif^{2,*}, Azza El Saddiek Hussein Greiw³

¹Dermatology Department, El-Jumhuria Hospital, Benghazi, Libya

²Dermatology Department, Faculty of Medicine, Benghazi University, Benghazi, Libya

³Department of Family and Community Medicine, Benghazi University, Benghazi, Libya

Email address:

elsherifnadia@yahoo.com (N. O. A. Elsherif)

*Corresponding author

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Abstract: Background: The dermatological problems in the elderly is very common, and can often add to the psychological stress in the geriatric population. Aim of the study: To determine the frequency and the patterns of skin diseases in the elderly patients. Patients and methods: A cross-sectional study was done in 100 elderly patients who attended the dermatology outpatients department in Benghazi city, from April 2018 to December 2018, females aged 50 years and above and males aged 60 years and above were evaluated for dermatological diseases. Results: Hundred elderly patients were enrolled in the study 68% were females and 32% were males. The inflammatory dermatoses were the commonest findings seen in 60% of patients, cutaneous infections seen in 36% of patients and cutaneous vascular disorders seen in 4% of patients. Eczema was the commonest inflammatory dermatosis seen in 22% of patients, pruritus was seen in 20% of patients. Seborrheic dermatitis was the commonest type of eczema seen in 9% of patients. The various types of cutaneous infections, fungal infections were seen in 15% of patients, bacterial infections seen in 14% of patients and viral infections seen in 7% of patients. Tinea pedis was the commonest seen in 10% of patients. Fungal infections were more common in female patients. Conclusions: Structural and physiological changes in aged skin can produce marked susceptibility to dermatological disorders. The inflammatory dermatosis was the most prevalent skin diseases in the elderly patients, and eczema were the predominant inflammatory dermatosis.

Keywords: Elderly, Dermatitis, Cutaneous Infections

1. Introduction

Aging is one of the most complex biological processes of growing older and resulting in reduced functional ability of the organism [1]. The immune system is an essential component of the defence mechanism aimed at combating pathogenic stress [2]. With growing age, our immune systems decline functionally and this immune senescence manifests as increased susceptibility to infections, increased onset and progression of autoimmune disease, and the onset of neoplasia [3]. However, many dermatosis observed more commonly in the elderly reflects the higher prevalence of systemic diseases, such as diabetes, vascular disorders, and various neurological syndromes [4].

2. Aim of the Study

To determine the prevalence and patterns of skin diseases

in elderly patients.

3. Patients and Methods

3.1. Patients

A cross-sectional study was done in 100 consenting elderly patients who attended the dermatology outpatients department in Benghazi city, from April 2018 to December 2018, females aged 50 years and above and males aged 60 years and above were included in the study. All patients were living with their families. Detailed history to presenting illness, personal history, presence of medical, surgical and congenital diseases were elicited. All patients were subjected to a thorough dermatological examination; including skin, hair, nails, palms, soles and mucous membranes. Appropriate tests such as wood's lamp examination, KOH examination of skin scrapings, hairs or nails, were done whenever indicated.

The diagnosis of cutaneous lesions was based on its clinical features, and also on the histological examination of skin biopsy when the simple morphological observation was not enough to accomplish the diagnosis. Signed consent was obtained from all patients after explaining the nature of the study to them and the manuscript is according to the declaration of Helsinki.

3.2. Statistical Analysis

Data were analyzed using statistical package for social science (SPSS) version 22.0. Results are presented as mean±standard deviations for continuous variables and as a number (%) for categorical variables. Cross-tabulation tables were used between two variables and inferential statistics were applied (chi-square test χ^2). Differences were considered as statistically significant with P values ≤ 0.05

4. Results

A total of 100 elderly patients were enrolled in the study with a female to male ratio of 2.1:1. The demographic data of the patients are presented in Table 1. The associated medical diseases among patients under study including; diabetes mellitus which was the most common disease seen in 30% of patients, hypertension seen in 13% of patients, while both diabetes and hypertension are seen in 19% of patients. Inflammatory dermatosis were the commonest findings seen in 60% of the patients, cutaneous infections are seen in 36% of patients and cutaneous vascular disorders seen in 4% of patients (Figure 1). Eczema was the commonest inflammatory dermatosis seen in 22% of patients, pruritus was the second most complaint seen in 20% of patients, psoriasis is seen in 7% of patients, vitiligo seen in 3% of patients (Table 2).

Among the various types of eczema; seborrheic dermatitis was seen in 9% of patients, 8.8% of patients had housewife eczema all are females, 4% of patients had contact dermatitis (Table 3).

Types of cutaneous infections among patients under study shown in Table 4. Tinea pedis was the commonest seen in 10% of patients and onychomycosis was seen in 3% of patients all of them were females. Different types of bacterial skin infections were seen in patients under study, furunculosis were seen in 9% of the patients and cellulitis seen in 2% of the patients. Viral infections are seen in 7% of patients including herpes zoster in 3% of patients. Cutaneous small-vessel vasculitis was seen in 2% of the patients.

Hair examination revealed diffuse thinning of hair which was more frequent among females and seen in 60.1% compared to 12.5% of male patients. Androgenetic alopecia was observed in 65.6% of male patients and in 11.8% of female patients.

The commonest nail finding was the loss of luster which observed in 88% of the patients, seen in 85.3% of the female patients and 93.8% of the male patients. Thickening of the nail plate and longitudinal ridging both seen more in male patients as compared to female patients and this difference was statistically significant ($P=0.018$, $P=0.04$ respectively). While the loss of cuticle was seen more in female patients compared to male patients and this difference was statistically significant ($P=0.00$). Other nail findings occurred in both sexes without statistically significant difference (Figure 2).

Loss of teeth was the most frequent findings observed in 82% of patients followed by dental caries in 58% of patients. Staining of teeth seen in 13% of patients, it was seen in 25% of males compared to 7.4% of females with statistically significant difference ($P=0.02$).

The cutaneous changes in palms and soles in patients under study shown in Table 5, sole fissuring was observed in 71% of patients, it was more frequent in females, but this difference was statistically insignificant. Toe webs intertrigo was seen in 50% of patients of which 55.9% were females and 37.5% were males and this difference was statistically significant ($P=0.04$).

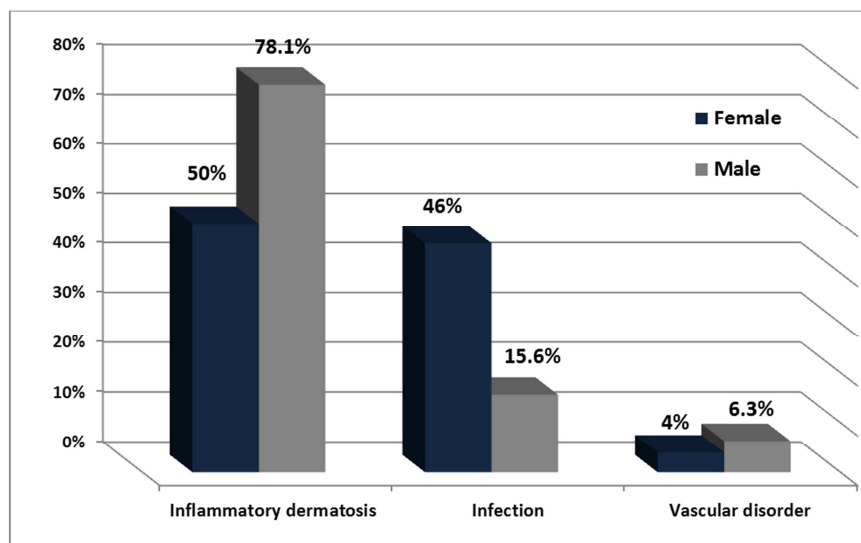


Figure 1. Distribution of patients with skin diseases according to their gender.

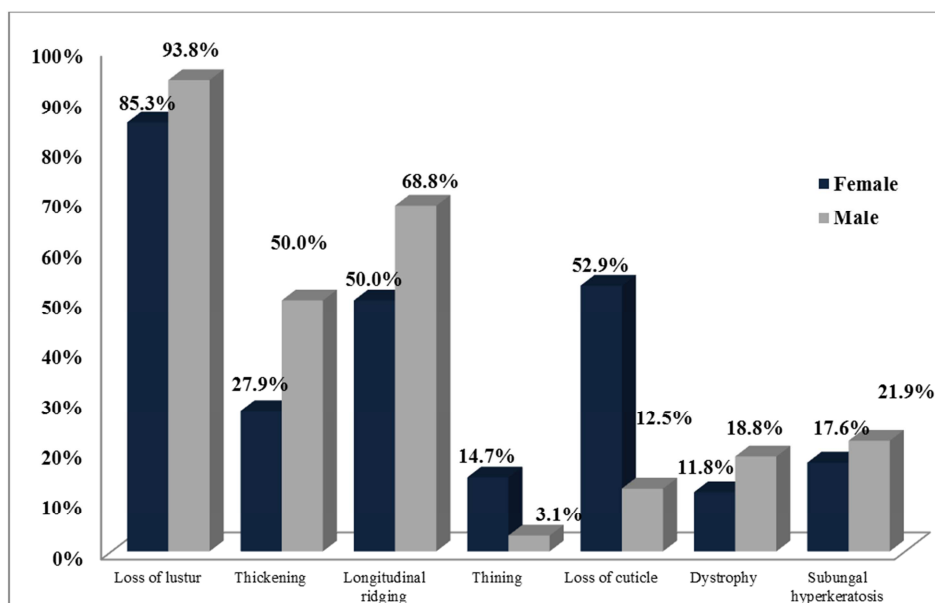


Figure 2. Nail changes of the patients under study.

Table 1. Demographic data of the patients under study.

Criterion		Female 68 (68%)	Male 32 (32%)	Total 100 (100%)
Age in years Mean±SD*		65.04±9.17	69.03±6.98	
Ethnic group	Caucasian	64 (94.1%)	31 (96.9%)	95 (95%)
	Negroid	4 (5.9%)	1 (3.1%)	5 (5%)
	Retired	7 (10.3%)	22 (68.75%)	29 (29%)
Occupation	housewife	59 (86.8%)	NA	59 (59%)
	Officer	0	7 (21.9%)	7 (7%)
	Teacher	1 (1.4%)	0	1 (1%)
	Driver	0	2 (6.25%)	2 (2%)
	Farmer	1 (1.4%)	1 (3.1%)	2 (2%)
	Non-smoker	61 (89.7%)	10 (31.2%)	71 (71%)
Smoking	Passive smoker	7 (10.3%)	0	7 (7%)
	Ex-smoker	0	15 (46.9%)	15 (15%)
	Smoker	0	7 (21.9%)	7 (7%)

*SD: Standard deviation, NA: None applicable.

Table 2. Distribution of patients with different cutaneous dermatosis according to their gender.

Diagnosis	Female n (%)	Male n (%)	Total n (%)
Eczema	13 (19.1%)	9 (28.1%)	22 (22%)
Pruritus	12 (17.6%)	8 (25%)	20 (20%)
Psoriasis	3 (4.4%)	4 (12.5%)	7 (7%)
Rosacea	1 (1.5%)	0	1 (1%)
Photo dermatitis	1 (1.5%)	1 (3.1%)	2 (2%)
Vitiligo	1 (1.5%)	2 (6.3%)	3 (3%)
Lichen planus	1 (1.5%)	0	1 (1%)
Pyoderma gangrenosum	1 (1.5%)	0	1 (1%)
Urticaria	1 (1.5%)	1 (3.1%)	2 (2%)
Insect bite	1 (1.5%)	0	1 (1%)
Total	35 (51.5%)	25 (78.1%)	60 (60%)

Table 3. Distribution of patients with different types of eczema.

Diagnosis	Female n (%)	Male n (%)	Total n (%)
Seborrheic dermatitis	4 (5.9%)	5 (15.6%)	9 (9%)
Housewife eczema	6 (8.8%)	0	6 (6%)
Contact dermatitis	3 (4.4%)	1 (3.1%)	4 (4%)
Neurodermatitis	0	1 (3.1%)	1 (1%)
Stasis dermatitis	0	2 (6.3%)	2 (2%)
Total	13 (19.1%)	9 (28.1%)	22 (22%)

Table 4. Distribution of patients with different skin infection.

Diagnosis	Female n (%)*	Male n (%)	Total n (%)
Fungal 15 (15%)			
Onychomycosis	3 (4.4%)	0	3 (3%)
Tinea pedis	9 (13.2%)	1 (3.1%)	10 (10%)
Tinea corporis	1 (1.5%)	0	1 (1%)
Candidiasis	1 (1.5%)	0	1 (1%)
Viral 7 (7%)			
Wart	4 (5.9%)	0	4 (4%)
Herpes zoster	2 (2.9%)	1 (3.1%)	3 (3%)
Bacterial 14 (14%)			
Furunculosis	7 (10.3%)	2 (6.3%)	9 (9%)
Folliculitis	0	1 (3.1%)	1 (1%)
Ecthyma	2 (2.9%)	0	2 (2%)
Cellulitis	2 (2.9%)	0	2 (2%)
Total	31 (45.6%)	5 (15.6%)	36 (36%)

*Number.

Table 5. Distribution of patients according to palm and sole changes.

Criterion	Female n (%)	Male n (%)	Total n (%)	P value
No changes	41 (60.3%)	20 (62.5%)	61 (61%)	
Scaling of palms	18 (26.5%)	5 (15.6%)	23 (23%)	P=0.07
Scaling of soles	8 (11.8%)	3 (9.4%)	11 (11%)	
Scaling of palms and soles	1 (1.5%)	3 (9.4%)	4 (4%)	
Sole Fissuring	51 (75%)	20 (62.5%)	71 (71%)	P=0.08
Callosity	7 (10.3%)	7 (21.9%)	14 (14%)	P=0.07
Intertrigo	38 (55.9%)	12 (37.5%)	50 (50%)	P=0.04*
Acrokeratoelastidosis	1 (1.5%)	2 (6.3%)	3 (3%)	P=0.21

P value ≤ 0.05 significant*.

5. Discussion

Aging skin undergoes progressive degenerative structural and physiological changes that occur as a natural consequence of intrinsic aging, combined with the effects of a lifetime of ongoing cumulative extrinsic damage and environmental insult. However, overexposure to solar radiation can also produce a marked susceptibility to dermatological disorders in the elderly [5]. Inflammatory dermatosis is relatively frequently reported in elderly, although they are not fatal diseases they carry high morbidity and significantly decrease the quality of life of the elderly [6].

Eczema was the commonest inflammatory dermatoses found among elderly patients under study, comparable findings were observed in the study from northern east India by Kashetrimayum et al, and study from Turkey by Yalcin et al [7, 8]. However, a lower incidence of eczema (11.9%) was reported in a study from Tunisia [9], while a higher incidence was reported in a study from Taiwan (58.7%) [10]. Among the different types of eczema, seborrheic dermatitis was the major type in the present study and it constitutes 9%, in agreement with a previous study [11]. However, a lower prevalence of 5% was reported in Ravendra study [12]. Age-related epidermal barrier dysfunction and associated xerosis are responsible for the higher frequency of eczema in this age group. The difference in the prevalence and pattern of eczema in different regions can be due to the genetic predisposition and environmental allergens in the locality [7].

Pruritus was the second most common inflammatory

dermatosis seen in patients under study, and constituted 20% of them, in agreement with the previous study by Rubegni et al [13]. In a study by Durai et al generalized pruritus was reported in 49.6% of their patients, of whom 29.8% of them had pruritus associated with xerosis and in the rest 19.8% it was associated with other cutaneous disorders [14]. However, a lower incidence of 6.4% was reported in Tunisian study [9]. Pruritus is a common dermatological problem of elderly, it can be induced by xerosis of skin, however, in the absence of skin lesions, underlying systemic illnesses, medications, nutritional status, occult malignancy and psychological factors should be evaluated [7].

Psoriasis observed in 7% of patients under study, which was comparable to that reported by Elfatory [15], Kashetrimayum et al [7] and Cvitanovic et al [16] studies. The incidence of lichen planus was 2% which is similar to findings reported by Elfatory and close to that reported by Kashetrimayum et al [15, 7]. Vitiligo was present in 3% of the patient under study, a comparable finding of 4.2% was reported in Tunisian study [9].

Infections in the elderly are commonly more than in younger individuals (17), and the reasons for increased susceptibility to infections include epidemiological elements, diminished immunity, and malnutrition, as well as the age-associated physiological alterations [16]. In the present study the cutaneous infections presented in 36% of patients, and the most frequent type was the fungal infections 15%, in agreement with previous studies [17, 9]; however, a higher prevalence of fungal infections was reported Liao et al [10] and Durai et al [13].

Fungal infections were mainly represented by tinea pedis in 10% and onychomycosis in 3% of patients under study, which were in concordance with the findings reported by Elfatory study and Liao *et al.*, study [15, 10]. However, in Durai *et al.* study the onychomycosis was the main fungal infections among their patients [14]. The high prevalence of fungal infection is probably due to humid climate of our city, and the frequent washing without drying of feet for praying predispose to tinea pedis which often serves as a primary source of infection that can spread to the nails [15]. Furthermore, mechanical trauma of tight shoes, improper of skincare, orthopedic comorbidity, decrease of the immune system and very common complications of diabetes in elderly all can explain the higher incidence of fungal infections in elderly [16].

The prevalence of bacterial infections in the present study were 14% of patients, while the reported prevalence of bacterial infections was lower in other previous studies with the following rates respectively (10.2%, 9%, 8.7%, 2.1%) [18, 15, 9, 17].

The finding of the high prevalence of bacterial infection in the present study could be due to the pain caused by the disease and interference with daily activity makes the patient seek medical advice. Factors like poor hygiene, neglect, underlying diseases like diabetes mellitus, bedridden status may also contribute to skin infections [18]. Furunculosis was the most common bacterial infection in the patients under study, in contrast with the study done by Elfatory, which found that cellulitis was the most common bacterial infections [15].

Viral infections seen in 7% of elderly patients included in the study, and this was in agreement with previous studies [17, 8]. Viral infections include warts seen in 4% and herpes zoster seen in 3% of patients under study, which was comparable to study by Vargese *et al.* [19] and Cvitanovic *et al.* [16], however, a higher prevalence was reported by Elfatory study [15]. The incidence of herpes zoster is high in elderly individuals, the predisposing factors, most likely are the age-related decrease in cell-mediated immunity [20].

Diffuse thinning of hair was seen in 60.1% of female elderly patients under study, while androgenetic alopecia was seen in 65.6% of male elderly patients and these findings were comparable to the study by Durai *et al.*, who reported the diffuse thinning of hair in 67.3% of the females and androgenetic alopecia in 55.3% of the male patients [14].

The commonest nail findings in elderly in the present study was the loss of luster seen in 88% of them, which was higher than that reported by previous studies [14, 21]. Trauma, infections, concurrent dermatological or systemic diseases and their treatment may be contributory factors for nail changes in elderly patients.

In the present study, plantar fissuring observed in 71% of elderly patients which was higher than that reported by Agarwal *et al.* [22]. The high rate of sole fissuring may be due to severe dryness of skin and lack of use of emollients.

6. Conclusions

Structural and physiological changes in aged skin can produce marked susceptibility to dermatological disorders. The inflammatory dermatosis is the most prevalent skin diseases in the elderly, and eczema is the predominant dermatosis. Moreover, fungal infections are a common problem seen in the elderly. This study has some limitations; the small size and number of patients included, also the data collected from the outpatient department with no facility for proper investigation. More epidemiologic studies regarding the dermatological diseases in the elderly population are needed.

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