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Cutaneous diseases among elderly patients attending dermatological outpatient clinic in AL-sader medical city in AL-Najaf city; Cross section study

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Abstract
Background: The elderly population is composed of persons over 65 years of age. There are limited studies in geriatric dermatology especially in our country.
Aim of study: To evaluate frequency and clinical distribution of dermatological diseases among elderly patients attending outpatient clinic in AL-Sader medical city/AL-Najaf city.
Methods: This is a one-year duration cross sectional study that has been conducted for all elderly patients from both sexes with dermatological complaint attending outpatient clinic in AL-Sader hospital in AL- Najaf city. Full medical history was taken and complete general and dermatological examinations were done. Further investigations and biopsies where performed when needed.
Results: This study included 500 elderly patients with mean age of 68.5 +/- 5.7 years. Regarding gender, the male: female ratio was 1:1.06. Of 500 elderly patients, 125(25%) had infectious skin diseases, 86(17.2%) had dermatitis and eczema, 59 (11.8%) had pruritus, 56 (11.2%) had premalignant and cancerous skin condition, 48 (9.6%) had papulosquamous diseases, 26 (5.2%) had benign neoplastic and cyst, 22 (4.4%)had nail and appendageal skin diseases, 14 (2.8%) had urticarial and adverse cutaneous skin reaction, 12 (2.4%)had vesiculobullous diseases, 12 (2.4%) had pigmentary diseases, 6 (1.2%) had dermal connective tissue disease, 4 (0.8%) had metabolic, genetic, and systemic diseases, 3 (0.6%) had psychological skin diseases, 3 (0.6%) vasculitis, and 24 (4.8%) others.
Conclusion: From the findings of the present study, the following can be concluded:
1. The most frequent skin diseases were viral and fungal infections
2. Herpes Zoster is the most common viral infection.
3. High rate of fungal infection as related to high rate in general populations.
4. Low rate of bacterial infection reflect good quality of life.
5. Scabies is the most frequent skin infestation.

Keywords: Cutaneous diseases, Elderly patients, Dermatology outpatient clinic, AL-Sader Medical City, Infectious skin diseases, Dermatitis and eczema, Pruritus, Premalignant and cancerous lesions, Papulosquamous disorders, Nail and appendageal diseases

Introduction

The world's population is aging at an exponential rate. According to the United Nations' World Population Aging Report, by 2050, elderly persons (those 60 and more) will exceed young people for the first time in history. Because of this shift in population dynamics, the medical industry must modify its education and competence to meet the requirements of this aging population. More than half of the older adult population lives in the community and represents the greatest percentage of outpatient clinic visits to both general practitioners and specialists, including dermatologists [1].

The elderly population is typically defined as persons over the age of 65, and this age group is steadily increasing [2].

Population ranging from 65 to 74 years of age is referred to as “early elderly”. Those older than 75 years are referred to as “late elderly”. However, the evidence on which this evidence is based is unknown [3]. Geriatrics is a medical speciality that focuses on the unique health demands of elderly people [4].

According to the United Nations, between 8% and 10% of the population is over the age of 65. In countries that are considered to have a moderate population aging over 10% of the population is over the age of 65 [5].

According to the United Nations Development Programme, the proportion of this age group is expected to climb to 16% by 2050, implying that one in every six persons will be 65 or older [5].

Skin changes like coarsening, wrinkling, and slackness are common among the elderly. This is due to the fact that in elderly population, cellular regeneration capacity, barrier functions, sensory perception, mechanical protection, wound healing, immunological response, thermoregulation, sweat production, sebum production, vitamin D synthesis, and DNA repair ability all deteriorate with age [6].

Elderly people are susceptible to a wide range of dermatological disorders as a result of degenerative and metabolic changes occurring across the skin layers during the aging process. In the older population, neurological and/or systemic disorders, health and hygiene, socioeconomic position, climate, skin color, gender, nutrition, culture, and personal habits, such as smoking or drinking, may all have a part in the development of these cutaneous conditions [7].

Intrinsic and extrinsic aging processes affect the skin, each with its own clinical and histological characteristics. Intrinsic (chronological) skin aging is caused by physiological metabolic changes and is unavoidable in all people. It is characterized by thinning of the upper cutaneous layers, a decrease in lipid content, decreased blood flow, and collagen fragmentation. Dry, pale skin with fine creases results as a result of these metabolic changes. Because it is primarily induced by UV light, extrinsic skin aging is also known as photo-aging. It causes the aberrant elastin to build up and the collagen fibrils to disintegrate [2]

Senile dermatoses are a challenging and complicated problem. Many dermatological disorders can have a significant impact on senescent patients' quality of life [8].

Surprisingly, only a few studies have previously addressed the issue of geriatric dermatoses, indicating that this area merits further research in order to better meet the demands of this age group [4].

Aim of study

To determine the frequency and distribution of skin diseases among elderly attending outpatient clinic in AL-Sader medical city in AL-Najaf.

2. Methodology

The study has been conducted in Al-Sadr Medical City/ Najaf City. The data was collected from the 1st of August 2021 to the 30th of July 2022.A descriptive cross sectional design has been chosen for this study. The population involved were elderly patients (>65 years) who presented to the dermatology clinic. Convenient sampling has been obtained for this. A total number of 500 patients were selected in the study. Verbal consent has been obtained from all participants before data collection.

2.1 Approval and official permis

An official letter of approval has been obtained from the scientific committee of the scientific council of Dermatology - Iraqi Board for Health Specializations.

2.2 Data collection

A total of 500 patients were reviewed. Patients sociodemographic characteristics were recorded (age, gender, residence, educational level). Moreover, patients history (past medical, surgical, drug, and smoking history) were also recorded. Nail changes and physiological skin changes were recorded. Patients were asked regarding their activities: whether indoor or outdoor (spending more than 4 hours outside). According to age, patients were divided into the following 2 age groups: 65-75 years (young old), and >75 years (middle and elderly olds).[11] As for skin diseases, the were categorized into the following groups (according to the WHO ICD-11 classification,[12] Dermatology textbook by Bolognia, fourth edition[10] and Fitzpatrick's Dermatology textbook, ninth edition[9]): infections (Viral infections, bacterial infections, fungal infection) and infestations, pruritis, papulosquamous diseases, vesiculobullous diseases, precancerous and malignant skin conditions, benign neoplasia and cysts, connective tissue diseases, dermatitis and eczema, nail and appendageal diseases, pigmentary diseases, psychological skin diseases, vasculitis, urticaria and adverse cutaneous skin reactions.

2.3 General investigations

The following investigations were done depending on clinical presentation:

1. Woodlight was used in pigmentary skin disorders, such as vitiligo and pityriasis versicolor.
2. Dermoscopy was used in most cutaneous skin lesions.
3. KOH mount was used in suspected fungal infection cases.
4. Scrabing with mineral oil and microscopic examination was used for suspected scabies.
5. Skin biopsy was done in cases without clear diagnosis or to confirm diagnosis in some skin lesions like skin tumors.

2.4 Data entry and Analysis

Data entry was done using Microsoft Excel 2019. Data was recorded into different quantitative and qualitative variables for the purpose of analysis.

Analysis was done using statistical package for social sciences (SPSS version 26).

Data was summarized using measures of frequency (mean), dispersion (standard deviation), tables and graphs. In addition, a p-value of <0.05 was considered statistically significant.

3. Result

A total number of 500 patients were included in the studied sample. The age of the studied sample ranged from (65-110 years) with a mean of 68.5 years ± 5.7 SD, the majority (96.8%) were 65-80 years.

Regarding gender, the male: female ratio was 1: 1.06. Most of the studied sample were of low educational level (illiterate or primary school) (79.2%) and of urban residence (72.0%). More than half (54.8%) worked in indoor occupations. Concerning skin type, around half of the studied sample (48.0%) were of type III skin type.

Most of the sample had dry skin (79.4%). The majority were non-smokers (48.4%), had positive past medical history (68.8%), negative past surgical history (68.8%), and positive drug history (71.6%).

Regarding medical history of the studied sample, hypertension was present in 236 (47/2%) patients, DM in 201 (40.2%) patients, cardiovascular diseases in 51 (10.2%) patients, asthma in 10 (2.0%) patients, CKD in 4 (0.8%) patients, and other comorbidities in 9 (1.8%) patients.

Regarding senile skin physiological changes, telangiectasia was present in (57.0%), senile freckles in (82.2%), senile purpura in (8.8%), xerosis in (79.4%), and wrinkles in all the patients (100.0%).

Concerning presenting skin diseases in the studied sample, skin infections and infestations were the most common (25.0%), followed by dermatitis and eczema (17.2%), pruritis in (11.8%), premalignant and cancerous skin conditions in (11.2%), and papulosquamous diseases (9.6%); as illustrated in table (3.1).

Table (3.4): Distribution of skin diseases in elderly patients

Skin disease	Frequency	Percentage
Infection and infestation	125	25.0
Dermatitis and eczema	86	17.2
Pruritis	59	11.8
Premalignant and cancerous skin condition	56	11.2
Papulosquamous disease	48	9.6
Benign neoplasia and cyst	26	5.2
Nail & appendageal skin disease	22	4.4
Urticaria and adverse cutaneous skin reaction	14	2.8
Vesiculobullous disease	12	2.4
Pigmentary diseases	12	2.4
Dermal connective tissue disease	6	1.2
Metabolic, genetic, and systemic diseases	4	.8
Psychological skin diseases	3	.6
Vasculitis	3	.6
Others	24	4.8
Total	500	100.0

Infections and infestations of the studied sample are illustrated in table (3.2). Viral and fungal infections were the most common.

Table (3.2): Distribution of skin diseases in elderly patients

Diagnosis	No. of patients	Percentage
Fungal infection		
Tinea pedies	13	31.7
Tinea corporis	8	19.5
Tinea cruris	8	19.5
Tinea faciei	3	7.3
Pitryasis versicolor	5	12.2
Onychomycosis	2	4.9
candidiasis	1	2.4
Total	40	100.0
Infestation		
scabies	25	78.1
Cutaneous leishmaniasis	5	15.6
Paederus dermatitis	1	3.1
Pediculosis	1	3.1
Total	32	100.0
Viral infection		
Herpes Zoster	21	51.2
Warts	10	24.4
Molluscum	6	14.6
Herpes simplex	3	7.3
ORF infection	1	0.6
Total	41	100.0
Bacterial infection		
Boils	3	24.9
Infected wound	2	16.6
Pitted keratolysis	2	16.6
Paronychia	1	8.3
Cellulitis	1	8.3
Impetigo	1	8.3
Infected burn	1	8.3
Superficial thrombophlebitis	1	8.3
Total	12	100.0

Among 86 cases of dermatitis and eczema, asteatotic eczema was the most common (26.7%), followed by contact dermatitis (24.4%), and seborrheic dermatitis (23.2%); as illustrated in figure (3.1).

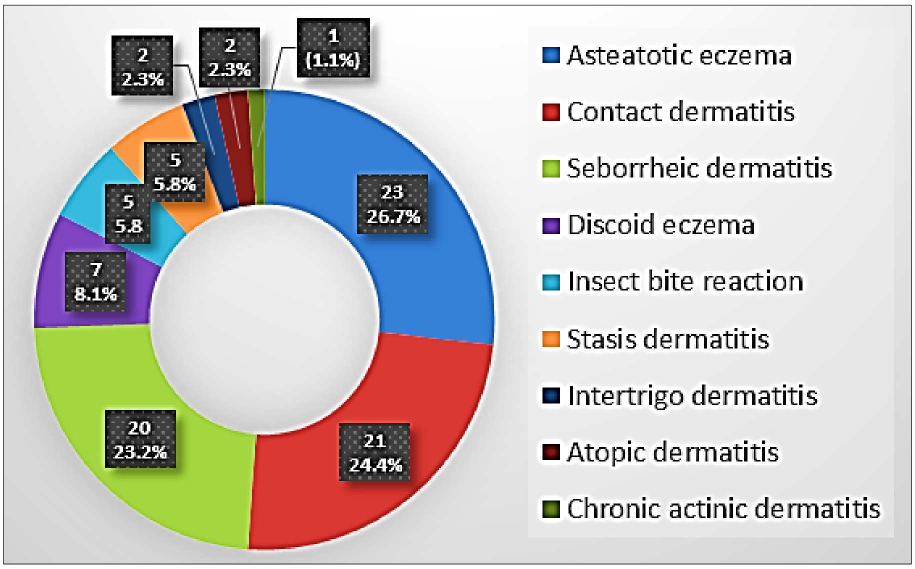

Fig (3.1): Dermatitis and eczematous diseases

Regarding 56 cases of premalignant and cancerous skin conditions, basal cell carcinoma was the most common as it was diagnosed in 25 (44.6%) cases, followed by actinic keratosis in 12 (21.4%) cases, and mycosis fungoid in 7 (12.5%) cases; as illustrated in figure (3.2).

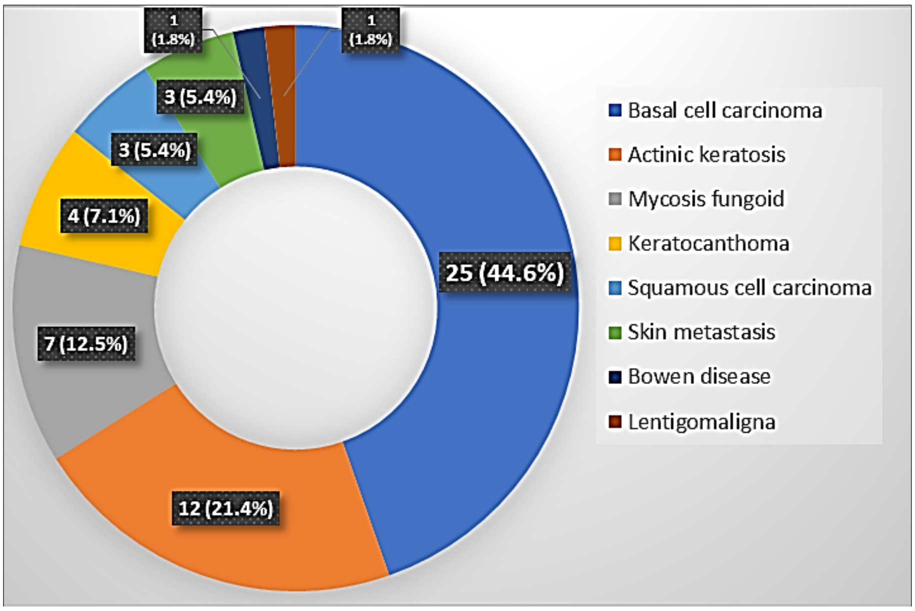

Fig (3.2): Distribution of premalignant and cancerous skin conditions.

Concerning 48 cases of papulosquamous diseases, 37 (77.0%) cases had psoriasis, while 11 (23%) had lichen planus.

Regarding 26 cases of benign neoplasia or cysts, Seborrheic keratosis and skin tags were the most common as they were diagnosed 6 (23.1%) cases in each one, followed by dermal nevus, epidermal cyst, pilar cyst each in 3 (11.5%) cases.

As for 12 cases with vesiculobullous diseases, 7 (63.3%) had pemphigus vulgaris, followed by bullous pemphigoid in 3 (27.3%) cases and bullae due to other causes in 2 (18.1%) cases.

4. Discussion

The present study is an epidemiological study to determine the distribution and frequency of dermatologic diseases in 500 geriatric patients attending dermatology outpatient clinic in AL-Sader medical Site AL-NJAF city.

Among 500 patients, xerosis (79.4%) was one of most common physiological changes after wrinkles (100%) and senile freckles (82%). While in the study by (Abdul Qader *et al*.), xerosis presented in 90%. This difference may be due to difference in climate between al-Najaf and Erbil city [13].

Skin infections and infestations were the most common presenting diseases, comprising 25% of presentations, which is in concordance with the study by (Abu El-Hamd *et al*.) in Egypt [14]. The study by (Akhtar *et al*.) found that Age, polypharmacy, and presence of other co-morbidities are the most important factors that affected the treatment outcomes of skin infections among elderly population [15].

Scabies is prevalent infestation in the current study as they comprised 25 cases (5% of total), even higher than herpes zoster prevalence. It is worth mentioning that clinical presentation of scabies in elderly residents of care homes differs from classic descriptions familiar to clinicians. This difference probably contributes to delayed recognition and suboptimal management in this vulnerable group [16].

Fungal infections were also a prevalent infection in the current study as they comprised 40 (8.0%) cases which is in concordance with the studies by (Yaldiz *et al.*) and (Yalcin *et al.*) [17, 6]. The high incidence of fungal infections among the elderly is not surprising, given the impaired host defenses and the favorable environment at specific anatomic sites [18].

Viral infections were the most common skin infection with a total of 41 (8.2%) cases. Among viral infections, herpes zoster was the most prevalent of viral infections as it was diagnosed in 21 (4.2%). This finding indicates a significant burden of varicella zoster on the elderly population of Iraq and is in agreement with the study by (Uprety *et al.*) in Nepal, whose study reported the prevalence of HZ to be around 3.9% and recommended the introduction the varicella vaccine for the elderly population [19]

It is noteworthy to mention that immunization against zoster can reduce incidence of HZ by 51.3% and incidence of post herpetic neuralgia by 66.4%, [21] and that cost - effectiveness studies have shown that vaccination against zoster is a cost-effective measure [22]

After infectious diseases, dermatitis and eczema were the second most prevalent skin disorder in the current study as they were diagnosed in 86 (17.2%) cases. Dermatitis and eczema were the most common skin manifestation in the studies by (Yaldiz *et al.*), (Yalcin *et al.*), and (Bilgili *et al.*); with frequencies of (24.5%), (20.4%), and (32.7%) respectively [17, 6, 23] Asteatotic eczema was taking the lead (26.7), this could be explained by high percentage of xerosis between geriatric group, might be due to decrease sebum secretion in the aged skin, in addition to frequent hot bathing without subsequent emollient used particularly in winter. Contact dermatitis is second most common after asteatotic eczema where it is first one in (Yaldiz *et al.*), (Yalcin *et al.*), and (Bilgili *et al.*) [17, 6, 23] It is an important medical problem in elderly patients who have increased sensitivity to the irritants and allergens due to epidermal barrier dysfunction [24]. Besides, the eczematous lesions are medically resistant in such patients [25]. The reason eczematous dermatitis appears frequently in geriatric patients could be the increase in surface area of corneocytes with aging, delayed elimination of chemical substances, deterioration of the skin barrier function, the epidermal conversion rate with age or the decreased tissue proliferation, regeneration and repair [26].

Pruritis was the third most common presentation as it was diagnosed in 59 (11.8%) patients, which is also in agreement with (Uprety *et al.*) [19]. pruritis in elderly can be attributed to four main factors:

1. Aging skin's immune system makes it more prone to inflammation.
2. Weakening of skin barrier function.
3. Side effects of various medications owing to many comorbidities that may exist in the elderly.
4. Certain neurodegenerative disorders [27].

The current study has shown that premalignant and cancerous skin conditions were the 4th most common elderly dermatological disorder with 56 (11.2%) cases. The study by (Yaldiz *et al.*) reported a prevalence of (9.0%) [17] These findings are relatively high when compared to other studies who reported frequencies of (5.2%), (1.2%), and (1.9%); respectively [4, 23, 28]. A possible reason is that these studies were conducted in tertiary centers where patients with suspicion of malignancy are referred to plastic surgery department instead dermatology department.

Among malignant skin tumors, basal cell carcinoma was the most common. BCC comprises 75%-80% of all skin cancers worldwide, with higher incidence in regions with excess sunlight[66] (such as Iraq). Several studies have reported BCC prevalence ranging from 0.1% to 8.8% [29, 30, 31, 32]. In the present study, BCC had a prevalence of 5.0%.

Actinic keratosis was the most common premalignant skin condition, comprising 10 (2.0%) cases. In a study involving 2100 elderly patients, (Rubegni *et al.*) found the prevalence of AK to be 9.1% [33] (Ozyurt *et al.*) reported a 2.2% prevalence of AK in 720 geriatric patients [31]. (Darjani *et al.*) noted that AK was the most common pre-cancerous disease [29] The lower incidence of actinic keratosis in the current study can be attributed the fact that most of the studied sample had Fitzpatrick skin types III and IV. In a study conducted in Erbil City, Actinic keratosis were found to be the most common type of skin diseases, with a frequency of 44% among the patients investigated with malignant conditions [13].

Papulosquamous skin diseases were the 5th most common finding, constituting 9.6%, Other studies found different frequencies ranging from 4 to 17% [23, 34] Psoriasis was the most common papulosquamous disease, followed by Lichen planus; which is in concordance with the study by (Bilgili *et al.*) [23].

Study limitations

This study is being conducted in a single center, hinders from generalizing the findings of the present study to the entire population.

Study Strength

1. The large sample size.
2. The study was conducted in the largest medical center in Najaf City.

5. Conclusion

From the findings of the present study, the following can be concluded:

1. The most frequent skin diseases were viral and fungal infections
2. Herpes Zoster is the most common viral infection.
3. High rate of fungal infection as related to high rate in general populations.
4. Low rate of bacterial infection reflect good quality of life.
5. Scabies is the most frequent skin infestation.

6. Recommendations

1. Further studies are advised to consider the following:
a) Larger sample size.
b) Multicenter study (inclusion of secondary healthcare centers).
2. It is recommended to establish geriatric dermatology clinic with doctors trained in geriatric dermatology.
3. Since most diseases were preventable, raising the general awareness of dermatological skin diseases in the elderly can have a significant role in preventing the disorder or improving the quality of life by early diagnosis and treatment.

4. Given the demonstrated high number of neoplastic skin conditions (both benign and malignant), other studies to assess the risk factors behind the etiology of neoplastic skin conditions are recommended.

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