

Skin Disorders in Elderly Population Attending Tertiary Care Hospital in Karachi

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Abstract

Introduction: Aging is a permanent and active process which affects all organs of the body, including skin. The texture of the skin decreases with age i.e. structural and physiologic transformation that arise as a natural result of intrinsic aging in addition with the effects of a lifetime of on-going cumulative extrinsic damage and environment insult (e.g. overexposure to solar radiation) can produce a marked vulnerability to dermatologic disorders in the elderly.

Objective: To determine the frequency of skin infections in elderly.

Methods: This was cross sectional study conducted over a period of 1 year. All patients with skin infections aged between 60-65 and over 65 years, including all those who were diabetic and hypertensive were included. Chi Square test was performed to determine the statistical significance of skin diseases and demographic variables, p value <0.05 was considered statistically significant. The study protocol was approved by ethical review committee.

Results: In retired patients, scabies 4.5%, contact dermatitis 2.7% fungal infections and psoriasis 2.3%, purpura 1.8%. In employed patients, scabies 7.3%, fungal infections 6.4%, pruritus 4.5%. In patients of 60-65 years Scabies was (15.5%), fungal infections 3.2%, eczema 6.4% and pruritus was 5.9%.

Conclusion: Scabies was found to be the most common skin disease in all age groups, sexes as well as in employed, unemployed and retired patients. Patients belonging to the upper class, the most common skin diseases found were psoriasis and viral infections, in middle class it was fungal infections and in lower class, scabies was found to be the most common. The frequency of skin cancer and purpura increased with advancing age.

Keywords: Skin infections, Elderly

Introduction

Aging is an irreversible and dynamic process which affects all organs of the body, including skin.¹ The integrity of the skin declines with age i.e. Structural and physiologic changes that occur as a natural consequence of intrinsic aging combined with the effects of a lifetime of ongoing cumulative extrinsic damage and environment insult (e.g. overexposure to solar radiation) can produce a marked susceptibility to dermatologic disorders in the elderly.² The reasons for this are complex and not well understood.³ Cell replacement capacity, barrier function, chemical clearance capacity, sensory perception, mechanical protection, wound healing, immune responsiveness, thermoregulation, sweat production, sebum production, vitamin D production, and capacity to repair DNA results in some inevitable changes, such as roughness, wrinkling, laxity of the skin and atypical presentations of dermatologic diseases.⁴ Due to the degenerative and metabolic changes occurring throughout the skin layers during the aging process, elderly people are vulnerable to a wide variety of dermatological conditions. Neurological and/or systemic diseases, health and hygiene, socioeconomic status, climate, color of skin, gender, nutrition, culture, and personal habits, such as smoking or drinking, etc., may also contribute a role in the genesis of cutaneous conditions in the elderly population,⁵ such as xerosis, fungal infections, psoriasis, scabies, dermatitis, photosensitivity, purpura, uneven pigmentation, comedones.⁶ Demographic aging is now well established. Thus, infections in the elderly will continue to become an increasingly important public health issue.⁷

Importance of Study and Rationale

Little is known about the prevalence of the more commonly seen diseases in Pakistan and only a small number of studies have been conducted to increase our understanding of factors that affect their spread and distribution. Scabies is a neglected disease and needs to be perceived as an important public health problem causing morbidity in resource poor communities. Morbidity in poor communities is usually more severe and may include group A streptococcal pyoderma, and consequently post streptococcal glomerulonephritis. The purpose of this study is to determine the frequency of dermatologic diseases in geriatric patients as well as determining the distribution of the more common diseases within the geriatric population according to strata such as age, occupation and socioeconomic status.

Objectives

To determine the frequency of skin infections in elderly

To determine the predictors of skin infections in elderly

Methodology

This was a cross-sectional study design and non probability convenient sampling technique was used. Patients were recruited from out-door patient department of Abbasi Shaheed hospital and Steel Town hospital from May 2012 till July 2012. Patients included in the study had skin infections aged between 60-65 and over 65 years, including all those who were diabetic and hypertensive because diabetes and hypertension are the most common comorbid conditions. At least 67% of persons with type 2 diabetes mellitus have uncontrolled hypertension.⁸ Patients were included having skin infections including pruritus, dermatitis, xerosis, eczema, psoriasis, scabies,

bacterial infection, fungal infections. Patients who were unwilling and having any systemic disease such as chronic liver disease, thyroid dysfunction, parkinson's disease, stroke and chronic renal failure were excluded on the basis of history, examination and previous investigations. Sample size calculation was done by using WHO software for sample size calculation, where level of significance $\alpha=0.5$, $1-\beta=90$, test value of population proportion $P_0=0.40$, Anticipated value of population proportion $=0.50$, sample size=210.

Data collection

Patients aged 60 years and above belonging to either sex with skin diseases presenting in outdoor patient department were included in this study. Diagnosis of cutaneous diseases was made on history and clinical examination. Any cutaneous diseases with onset before 60 years of age were excluded on the basis of history, examination and previous investigations. Skin disease data from a total of 210 geriatric patients (60 years of age and above) was analyzed according to age, gender, occupational status and socioeconomic status. Skin diseases were categorized into different groups of pruritus, dermatitis, xerosis, eczema, psoriasis, scabies, bacterial infection, fungal infections. Patients were explained the purpose of the study and an informed consent was taken. A questionnaire was developed after an extensive literature search. The questionnaire included data on the demographic profile type of skin infection and cause of skin infection, age, gender occupational and socioeconomic status. Patients were classified into upper, middle and lower class according to their income. For income level of Rs4,000 and less to as much as Rs20,000 were quoted to be the cut off level for the lower class. For middle class, cut off was Rs50,000 to Rs100,000 and less. People earning above Rs20,000 to Rs100,000 were categorized as belonging to the upper strata of the society.⁹ The sample collection was carried out at several hospitals within the city limits of Karachi to cater patients from a wide spectrum of background.

Diagnosis of scabies

The diagnosis of scabies was generally made from the history and the distribution of lesions. The examiner suspected the possibility of scabies in patients with one or more of the following:

- i. generalized pruritus which is worse at night, and spares the head
- ii. A pruritic eruption with characteristic lesions and distribution: small, erythematous papule, often excoriated and tipped with hemorrhagic crusts. Burrow was pathognomonic sign. The distribution of scabies usually involves the sides and webs of the fingers, the flexor aspects of the wrists, the extensor aspects of the elbows, anterior and posterior axillary folds, the skin immediately adjacent to the nipples (especially in women), the periumbilical areas, waist, male genitalia (scrotum, penile shaft, and glans) ,the extensor surface of the knees, the lower half of the buttocks and adjacent thighs, and the lateral and posterior aspects of the feet. The back is relatively free of involvement.
- iii. Other household members with similar symptoms

Data analysis procedure

Data was entered and all analysis was conducted on SPSS (Statistical Package for Social Sciences) Version 20. Descriptive statistics were calculated for continuous variables of age with mean \pm SD. For categorical variables frequency and percentages were

calculated. Data was presented in tables. Chi square was used to compare age and gender with skin diseases, p-value <0.05 was considered statistically significant.

Results

Frequency of diseases in accordance with age, gender, socioeconomic status and occupation were calculated, along with respective cause of disease. Categories were made for age, one included patients falling into age group 60-65 years, and the other above 65 years. In the first group, the frequency of diseases in decreasing order was found as follows: scabies (15.5%), fungal infections 13.6%, eczema 6.4%, pruritus 5.9%, bacterial infections and contact dermatitis 5.5%, psoriasis 5%. In the second age group: scabies 8.6%, fungal infections 5.9%, eczema and xerosis 3.6%, contact dermatitis 2.6%, viral infections 2.3%. In males, scabies 12.7%, fungal infections 8.6%, psoriasis 5.9%, pruritus and contact dermatitis 5.5%, bacterial infections 4.5%.

Socioeconomically, patients were categorized into lower, middle and upper class. In lower class, scabies 15%, fungal infections 9.1%, psoriasis and eczema 5.5%, contact dermatitis 4.1%, pruritus 3.2%. In middle class patients, fungal infections 10.5%, scabies 8.6%, eczema and bacterial infections 4.5%, contact dermatitis 4.1%, pruritus 2.7% in upper class, psoriasis and viral infections 0.9%, pruritus 0.5% were found.

The most common causes of skin diseases found in the patients of: pruritus were idiopathic, occupational, allergy and photosensitivity; contact dermatitis were detergents, hair dye and occupational; xerosis was idiopathic; eczema were allergy, detergents and dryness; psoriasis were genetic, penicillin allergy and idiopathic; purpura were vitamin C deficiency and senile purpura; bacterial infections were *Streptococcus* and *Staphylococcus aureus*; viral infections was herpes; fungal infections were onychomycosis, dermatophytes, detergents, candida, sweating and immunogenic; scabies were *Sarcoptes scabii* and close contact; skin cancer were radiations, photosensitivity and chemicals.

Chi Square test for gender, socioeconomic and occupational status

Chi square test was conducted between skin infections and demographic variables which showed statistical significance in gender, socioeconomic status and occupational status, (p<0.05).

Discussion

In this study scabies was common in both age groups in contrast to Thapa et al,¹⁰ where eczema (35.8%) was most common and in Khawar et al (eczema 40%).¹ after scabies, fungal infections were dominant (13.6%) in both age groups similar to Thapa et al. (13.6%) and Yalcin et al.⁴ Scabies was found to be most common presenting complain in both males (12.7%) and females (11.4%). Pruritus was significantly frequent in males (5.5%) in contrast to females (0.9%) comparable to Thapa et al¹⁰ where male to female ratio was 2:3. Our results showed that the most common disease in the geriatric population was scabies. It was prevalent equally in males and females, but with advancing age, its frequency decreased. The statistics showed that patients who were not employed and belong to lower socioeconomic status were mostly affected. This was due to mite infestation and unhygienic conditions. Poverty plays its own role in forcing people to live in small overcrowded house, which forms the basis of spread of scabies through close contact.

The frequency of pruritus, contact dermatitis, eczema, psoriasis, bacterial, viral and fungal infections decreased with advancing age, probably because the patients of this age

group are comparatively more active socially than the patients above 65 years but in contrast, xerosis, purpura and skin cancers increased as the age increased because most of them get physically and mentally debilitated, and accumulation of mutations along with nutritional deficiencies contribute further to the development of diseases.

The statistics of our study showed that females were more prone to eczema and fungal infections. The excessive use of detergents seemed to be the probable cause. Pruritus, contact dermatitis and bacterial infections were found more commonly in patients who were employed, due to their exposure to environmental hazards however, a large number of unemployed patients presented with fungal infections, because majority of this group was female.

The patients belonging to lower and middle socioeconomic status have equal prevalence of all diseases like exposure to environmental hazards, unhygienic conditions, overcrowded houses, close contact etc, while a few cases of psoriasis and viral infections were seen in the patients belonging to the upper class the reason for this was that they had sufficient means to prevent the cause of diseases at primary level.

Since this study was conducted within a limited time period and with fewer subjects than the international studies, more studies of the same kind are needed in our population to establish a proper data base for the skin disorders in the elderly population.

Conclusion

Scabies was found to be the most common skin disease in all age groups, both sexes as well as in employed, unemployed and retired patients. But in patients belonging to the upper class, the most common skin diseases found were psoriasis and viral infections, in middle class it was fungal infections and in lower class, scabies was found to be the most common. The frequency of skin cancer and purpura increased with advancing age.

Study Limitation

Although the research has reached its aims, there was a limitation that needs to be mentioned. Due to time limit this research was conducted only on a small size of population who attended the department.

Ethical Considerations

The study protocol was approved by ethical review committee. Written informed consent was taken from the participants before their enrolment in this study. The participants' involvement in this study was voluntary and no financial incentives were provided to any study participant.

Recommendations

Overall, our research supports the opinion that skin diseases are a common and inevitable consequence of aging. A lifetime of solar radiation exposure, combined with intrinsic changes in the dermal structures, predisposes geriatric individuals to a wide variety of skin diseases. Despite the relatively small size and geographical limitations of this survey, this study shows that skin diseases are common in patients who do not work and belong to lower socioeconomic status. It is strongly recommended that health awareness programs should be provided at primary health care centers, and if feasible, at their doorstep as well. In this way, skin diseases can be prevented at an early stage and quality of life could be improved in our geriatric population.

Conflict of Interest

The authors declare that they have no competing interests.

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Table 1: Skin Diseases.

Skin Diseases											
	Pruritus	Contact Dermatitis	Xerosis	Eczema	Psoriasis	Purpura	Bacterial Infections	Viral Infections	Fungal Infections	Scabies	Skin Cancer
Age											
60-65 yrs	5.9%	5.5%	1.8%	6.4%	5%	.9%	5.5%	3.2%	13.6%	15.5%	.5%
>65 yrs	.5%	2.7%	3.6%	3.6%	.5%	1.4%	1.8%	2.3%	5.9%	8.6%	1.8%
Gender											

Male	5.5%	5.5%	.9%	4.1%	5.9%	1.4%	4.5%	3.6%	8.6%	12.7%	1.8%
Female	.9%	2.7%	.9%	5.9%	2.7%	.9%	2.3%	1.8%	10.9%	11.4%	.5%
Occupational Status											
Retired	1.4%	2.7%	.9%	1.4%	2.3%	1.8%	1.4%	1.4%	2.3%	4.5%	1.4%
Employed	4.5%	3.6%	0%	2.3%	3.2%	0%	3.2%	.9%	6.4%	7.3%	.5%
Unemployed	.5%	1.8%	.9%	6.4%	3.2%	.5%	2.7%	3.2%	10.9%	12.3%	.5%
Socioeconomic Status											
Lower	3.2%	4.1%	.9%	5.5%	5.5%	.9%	2.3%	2.3%	9.1%	15%	1.4%
Middle	2.7%	4.1%	.9%	4.5%	2.3%	1.4%	4.5%	2.3%	10.5%	8.6%	.9%
Upper	.5%	0%	0%	0%	.9%	0%	0%	.9%	0%	0%	0%

Table 2: Skin diseases compared with demographic variables.

Skin diseases	Demographic variables	p-values
Pruritis	Age	0.55
	Gender	0.001
	Occupational status	0.02
	Socioeconomic status	0.03
Dermatitis	Age	0.45
	Gender	0.034
	Occupational status	0.05
	Socioeconomic status	0.001
Xerosis	Age	0.57

	Gender	0.54
	Occupational status	0.10
	Socioeconomic status	0.05
Eczema	Age	0.75
	Gender	0.043
	Occupational status	0.02
	Socioeconomic status	0.01
Psoriasis	Age	0.53
	Gender	0.023
	Occupational status	0.054
	Socioeconomic status	0.01
Scabies	Age	0.36
	Gender	0.038
	Occupational status	0.034
	Socioeconomic status	0.041
Bacterial infections	Age	0.73
	Gender	0.042
	Occupational status	0.021
	Socioeconomic status	0.01
Fungal infections	Age	0.10
	Gender	0.044
	Occupational status	0.052
	Socioeconomic status	0.01