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A study of geriatric dermatoses in a rural based tertiary care hospital in South India

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ABSTRACT

Introduction: Dermatological problems in the geriatric population are common and often underestimated. A few studies are available on the dermatologic diseases in this population. Hence, this study is undertaken to evaluate the spectrum of skin changes in the elderly population.

Materials and Methods: This study was conducted in the Department of Dermatology, Sri Devaraj Urs Medical College, attached to RL Jalappa Hospital, Kolar, Karnataka, India. A total of 300 patients were recruited for this study, among them 185 (61.6 %) were males and 115 (38.4%) were females. All the patients aged more than 60 years with skin disorders attending the dermatology OPD were included in the study. A detailed physical and clinical examination was performed for all the study subjects. Patients with genodermatoses, albinism, premature aging and inherited disorders of DNA which may interfere with chronological aging skin were excluded from the study.

Results: Out of 300 patients, 185 cases (61.6%) were males and 115 cases (38.4%) were females. Pruritus was the commonest complaint in 186 patients (62%). Among the chronological changes of aged skin, wrinkling was the commonest manifestation observed in 282 (94%) cases. The most commonly observed diseases were eczematous dermatitis in 133 (44.3%) cases, followed by infections and infestations in 122 (40.6%) and papulo-squamous diseases in 33 (11%). A total of 46 (15.3%) patients were found to have papulo-squamous disorders. Psoriasis vulgaris was observed in 21 (7%) cases. Among premalignant and malignant disorders, 4 (1.3%) cases had actinic chelitis, 2 (0.6%) cases of basal cell carcinoma and 1 (0.3%) case of squamous cell carcinoma. A total of 5 patients had connective tissue disorders. The comorbid conditions included hypertension in 49 (16.3%) cases, followed by diabetes mellitus in 31 (10.3%) and 5 (1.6%) patients had hypothyroidism.

Conclusion: Dermatological findings in geriatric population are universal and cause considerable morbidity. This would necessitate the need for conducting an exclusive evaluation for these patients.

1. Introduction

Dermatological problems in the elderly are common and the prevalence will continue to increase because of elevated levels of life expectancy**.** The burden of the dermatological disease in older population is significant and often underestimated.[1] Aging of the skin, chronic diseases, personal skin care habits and poly-pharmacy predisposes the geriatric population for various skin disorders.[2,3]

In India, there are about 104 million elderly individuals out of which 53 million are females and 51 million males according to 2011 population census and this may increase dramatically over the next four decades.[4] The Indian population aged more than 60 and above is projected to increase from 8% in 2010 to 19% in 2050, according to the United Nations Population Division (UN 2011)[5,6] In India the geriatric population was 6.9% of total population in 2011 and may increase to 12.4% by 2026.[7] The most common manifestations of the skin diseases in geriatric population are xerosis, asteatotic dermatitis,

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degenerative changes like wrinkles, infectious diseases including bacterial, viral and fungal infections, infestation, eczema, neoplasms, papulo-squamous disorders, psoriasis, non-healing ulcers, hair and nail changes, immune-bullous disorders like bullous pemphigoid.[7,8]

A few epidemiological studies reported that in the elderly population skin diseases have high prevalence. For example, the prevalence of xerosis cutis range up to 85.5%, benign skin tumours up to 74.5%, fungal infections up to 77% and pressure ulcer (PU) up to 46%..[2] Geriatric patients with skin diseases have an increased risk for mental and behavioural disorders, especially depression.[2,9]

Aging is a complex, natural process which is progressive reduction in maximal functioning and reverse capacity of all organs including skin, time dependent deterioration due to accumulation of molecular damage. The skin is a complex and dynamic organ that shows the most obvious signs of aging. Skin, the largest and most visible organ of the body bears the brunt of being the beacon of ageing.[7,10]

Aging of the skin can classified as intrinsic and extrinsic aging categories. Intrinsic or chronologic aging refers to changes on sun-protected skin and the extrinsic aging, refer to changes on sun-exposed skin. Two major theories of aging exist. The genetic program theory describes it as an irreversible, orderly process, whereas the stochastic theory implicates "wear and tear" by random environmental assaults.[7,11] In addition to this, poor immune response in geriatric population predisposes them to skin diseases. Also, the incidence of cutaneous neoplasms increases due to lack of immune response. Wound healing process is impaired because of reduced inflammatory and immune response, delayed replenishment of blood vessels and diminished collagen degradation.[10] In India, very few studies have been conducted on geriatric dermatoses. Hence, this study is undertaken to evaluate the spectrum of skin changes in the elderly population of a tertiary care hospital.

2. Materials and Methods

This study was conducted in the Department of Dermatology, Venereology, and Leprosy, Sri Devaraj Urs Medical College, attached to RL Jalappa Hospital, a constituent of Sri Devaraj Urs Academy of Higher Education and Research (SDUAHER), Kolar, Karnataka, India. A total of 300 patients were recruited for this study, among them 185 (61.6 %) were males and 115 (38.4%) were females. All patients aged more than 60 years with skin disorders attending dermatology OPD were included in this study. A detailed physical and clinical examination was done for all the study subjects. The following parameters were recorded such as age, sex, age of onset, duration, site, size and number of lesions, and morphology. Those cases with doubtful diagnosis were subjected to investigations like gram stain, tzanck smear, KOH mount, and skin biopsy for histo-pathological examination if necessary. If underlying systemic disease was found relevant investigations were done (CBC, Urine routine, ESR, LFT, RFT, lipid profile, thyroid function test). Prevalence of the dermatoses in elderly and relationship if any with occurrence of dermatoses and the underlying systemic condition were studied. Patients with genodermatoses, albinism, premature aging and inherited disorders of DNA which may interfere with changes of aging skin were excluded from the study.

3. Results

Out of 300 patients, 185 cases (61.6%) were males and 115 cases (38.4%) were females. Maximum number of patients were from rural areas (68.6%) 206 cases. Majority being farmers 96 (51.8%), and housewives 74 (64.3%). Pruritus was the commonest complaint in 186 patients (62%). Most of the patients belonged to 60-70 years age group (182) comprising 60.6 % as shown in Table 1.

Table 1: Age wise distribution of the patients

Age (in years)	No. of Cases	Percentage
60-70	182	60.6%
71-80	73	24.3%
81-90	34	11.3%
91-100	11	3.6%

Among the physiological changes of aging skin wrinkling was the commonest manifestation observed in 282 (94%) cases followed by seborrheic keratosis in 230 (76,6%) cases and xerosis in 185 (61.6%) cases as illustrated in Table 2.

Table 2: Physiological changes of aging in geriatric patients

Physiological changes	No. of Cases	Percentage
Wrinkling	282	94.0%
Seborrheic keratoses	230	76.6%
Xerosis	185	61.6%
Cherry angiomas	178	59.3%
Idiopathic guttate hypomelanosis	132	44.0%
Senile comedones	49	16.3%

The most commonly observed diseases were eczematous dermatitis in 133(44.3%) cases, followed by infections and infestations in 122(40.6%) and papulo-squamous diseases in 33(11%). The most frequent types of eczematous dermatitis were asteatotic eczema in 34(11.3%) cases, discoid eczema in 22(7.3%) cases, hand eczema in 13(4.3%) cases, prurigo nodularis in 11 (3.6%) cases and lichen simplex chronicus in 8(2.6%) cases as shown inTable 3.

The commonly noticed fungal infections were tinea corpris in 28 (9.3%) cases, tinea unguium in 10(3.3%) cases, tinea pedis in 7(2.3%) cases and candidiasis in 5(1.6%) cases. The frequently seen bacterial infections were pyodermas in 32(10.6%) cases. The most frequent viral

Table 3: Prevalence of Eczematous dermatitis in geriatric patients

Disorders **Eczemas**	No. of Cases	Percentage
Asteatotic eczema	34	11.3%
Discoid eczema	22	7.3%
Hand eczema	13	4.3%
Prurigo nodularis	11	3.6%
Lichen simplex chronicus	8	2.6%

infections were herpes zoster in 12(4%) cases and warts in 9 (3%) cases and 6 (2%) patients had scabies as shown in Table 4.

Table 4: Prevalence of Infections and infestations in geriatric patients

Disorders **Infections and infestations**	No. of Cases	Percentage
Dermatophytosis	45	15%
Pyoderma	32	10.6%
Herpes zoster	12	4%
Warts	9	3%
Scabies	6	2%

A total of 46 (15.3%) patients were found to have papulo-squamous disorders in our study. Psoriasis vulgaris was observed in 21(7%) cases, lichen planus in 10 (3.3%) cases and cutaneous lichen sclerosus et atrophicus in 4 (1.3%) cases. In this study, immuno-bullous disorders was observed in 8 (2.6%) cases. There were 4 (1.3%) cases of bullous pemphigoid followed by 2 (0.6%) cases of pemphigus vulgaris, 1 case of dermatitis herpetiformis and Linear IgA disease each as depicted inTable 5.

Table 5: Prevalence of Papulo-squamous and Immuno-bullous disorders in geriatric patients

Disorders **Papulo-squamous disorders**	No. of Cases	Percentage
Psoriasis vulgaris	21	7%
Lichen planus	10	3.3%
Immuno-bullous disorders		
Bullous pemphigoid	4	1.3%
Pemphigus vulgaris	2	0.6%
Dermatitis herpetiformis	1	0.3%
Linear IgA disease	1	o.3%

Among premalignant and malignant disorders, 4 (1.3%) cases had actinic chelitis, 2 (0.6%) cases of basal cell carcinoma and 1 (0.3%) case of squamous cell carcinoma. A total of 6 patients had adverse drug reactions, 3 (1%) cases of fixed drug eruptions, 2 (0.6%) cases of drug induced macular rash and a case (0.3%) of steven-johnson syndrome. A total of 5 patients had connective tissue disorders comprising 3 (1%) cases of discoid lupus erythematosus, and one case (0.3%) of morphea and systemic sclerosis each. Among the other disease conditions, there were 10 (3.3%) cases of post herpetic neuralgia, 8 (2.6%) patients had vitiligo, 9 (3%) patients had alopecia areata, 6 (2%) patients had urticaria, 4 (1.3%) patients had keloid, 2 (0.6%) patients had leucocytoclastic vasculitis, 2 (0.6%) patients were found to have Sweet's syndrome and a case of granuloma annulare as mentioned in table 6. In addition to this, associated systemic illnesses observed in 96 (32%) patients. Hypertension in 49 (16.3%) cases, followed by diabetes mellitus in 31 (10.3%) were the most common diseases and 5 (1.6%) patients had hypothyroidism.

Table 6: Prevalence of Connective tissue disorders, Premalignant and Malignant disorders,adverse drug reactions and other disease condition in geriatric patients

Disorders **Connective tissue disorders**	No. of Cases	Percentage
Discoid lupus erythematosus	3	1%
Morphea	1	0.3%
Systemic sclerosis	1	0.3%
Premalignant and Malignant disorders		
Actinic keratoses	4	1.3%
Basal cell carcinoma	2	0.6%
Squamous cell carcinoma	1	0.3%
Adverse drug reactions		
Fixed drug eruptions	3	1%
Drug rash (macular)	2	0.6%
Steven Johnson's syndrome	1	0.3%
Others		
Post herpetic neuralgia	10	3.3%
vitiligo	8	2.6%
Alopecia areata	9	3%
urticaria	6	2%
keloid	4	1.3%
Sweet's syndrome	2	0.6%
Leucocytoclastic vasculitis	2	0.6%
Granuloma annulare	1	0.3%
Systemic diseases		
Hypertension	49	16.3%
Diabetes mellitus	31	10.3%
hypothyroidism	5	1.6%

4. Discussion

In the present study, all subjects aged above 60 years were appraised. Geriatric population constitutes a large and rapidly growing segment of Indian population. Skin diseases in elderly are increasing and thus can exert a great burden on health care system. It is important to identify the patterns of geriatric skin disorders for effective delivery of health care services. [12]

In our study, various physiological signs of aging were studied, which is an inescapable process. The skin findings were suggestive of changes that were result of cumulative sun exposure during the entire lifespan. These changes of photo aging were superimposed with intrinsic aging. Although most of the changes studied were harmless to

elderly, few had an adverse impact like chronic actinic dermatitis and cutaneous malignancy. The age group of patients with a majority of cutaneous manifestations in our study was comparable to the study conducted by Agarwal R et al.[13]

In our study, wrinkling was observed in 282 (94%) cases. Grover S and Narasimhalu[14] and Durai, Thappa et al[15] have reported wrinkling in 95.5%, and 99% patients respectively which agrees with the results of our study. Most of the wrinkling seen in this study was on sun exposed areas like the face, neck, forearms and dorsa of hands in the form of glyphic wrinkles. A slightly lower incidence of wrinkling in our study could be because of increased tolerance of racially pigmented skin to sunlight.

In the present study, seborrheic keratoses was noted in 230 (76.6%) cases and xerosis was observed in 185 (61.6%) cases. In a study conducted by Leena Raveendra, xerosis was observed in 93% of patients.[15,16] Durai PC, et al. reported xerosis in 99.8% of patients. The high prevalence of xerosis in the present study was similar to study by Raghavendra L[16] and Durai PC.[15]

Preeja R et al., reported the following findings viz., xerosis (54.9%), cherry angioma (17.1%), acrochordon (24.4%), seborrhoeic keratoses (17.8%), senile comedones (9.1%) in their study. Among the eczemas, asteatotic eczema was most commonly (5.8%) noted.[8]

In our study, pruritus was the commonest complaint in 186 patients (62%). Most of the patients belonged to 60-70 years age group (182) comprising 60.6 %. Pruritus is a very common dermatological complaint of the elderly population and the causes can be varied. Patange and Fernandez noted pruritus in 78.5% of their patients which was higher than the what was observed in this study.[17]

In our study eczematous disorders was observed in 88 (29.3%) patients. The total incidence of eczemas in various studies ranges from 11.9% to 58% %.[18–20] The incidence of stasis dermatitis in the study is in concordance with the study by Beauregard and Gilchrest, Souissi A et al., and Liao YH et al,

Commonly observed dermatophytosis in our study were tinea corporis in 28 (9.3%) cases, tinea unguium in 10 (3.3%) cases, tinea pedis in 7 (2.3%) cases and candidiasis in 5 (1.6%) cases. The frequently seen bacterial infections were pyodermas in 32 (10.6%) cases. The most frequent viral infections were herpes zoster in 12 (4%) cases and warts in 9 (3%) cases and 6 (2%) patients had scabies. The above findings were similar to study conducted by by Preeja R et al.[8]

A total of 46 (15.3%) patients were found to have papulo-squamous disorders in our study. Psoriasis vulgaris was observed in 21 (7%) cases, lichen planus in 10 (3.3%) cases and cutaneous lichen sclerosus et atrophicus in 4 (1.3%) cases. Immuno-bullous disorders were observed in 8 (2.6%) cases. There were 4 (1.3%) cases of bullous pemphigoid followed by 2 (0.6%) cases of pemphigus vulgaris, One case each of dermatitis herpetiformis and Linear IgA dermatoses was disease was also noted.

In a study by M. Vairaprabha Devi and N C. Manikandan, the authors reported papulosquamous disorders in 4.5% of the study population. Among them psoriasis was the commonest disorder noted (3%). Thapa DP et al.,[21] reported that the incidence of papulosquamous disorders in geriatric population was 3.3% and Raveendra L, reported that the bullous disorders and eczema were seen in 1.5% and 31% respectively.[16]

In this study, Discoid lupus erythematosus wes observed in 3 (1%), which is comparable with the studies done by Chopra A 2.3% and Najdawi F (0.43%).[22,23] We observed vitiligo in 8 (2.6%) cases .Raveendra L, reported vitiligo in 16 (8%) cases.[16] IIn this study, systemic diseases were observed in 96 (32%) patients. Hypertension was the commonest disease and observed in 49 (16.3%) cases. Radhakrishnan et al., reported incidence of hypertension in 59% of cases.[24] IIn our study, diabetes was noted in 31 (10.3%) which is quite lower than other studies by Radhakrishnan 36%.[24] and Sahoo.[25] We reported 5 (1.6%) patients having hypothyroidism. It may be due to difference in lifestyle of population.

5. Conclusion

Dermatological diseases in geriatric population cause considerable morbidity, especially if associated with other comorbid conditions, so health promotion and education can do much to reduce the risk. Large epidemiological studies in different regions of the country are recommended.

6. Conflict of interest

None.

7. Source of funding

None.

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