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Original research article

A Study On Cutaneous Manifestations In Geriatric Population In A Tertiary Care Hospital

[1]Dr. Y Surya Narayana, [2]Dr. M. Swarna Kumar

[1, 2]Associate Professor, Department of Dermatology, Narayana Medical College, Nellore, Andhra Pradesh, India

Corresponding Author:
Dr. Y Surya Narayana

ABSTRACT

Background: A series of molecular changes over time cause a biological phenomenon called ageing, which is characterized by increasing functional decrease. Due to the structural and physiological changes brought on by intrinsic and extrinsic ageing, human skin, like all other organs, ages chronologically and is prone to skin conditions.

Objectives:

1. To describe the clinical pattern and frequency of skin changes in the elderly.
2. To describe the epidemiological profile of cutaneous diseases in the elderly.
3. To describe the clinical pattern and frequency of pathological skin diseases in the elderly.

Material & Methods

Study Design: Prospective hospital based observational study.

Study area: The study was conducted in Department of Dermatology, Narayana Medical College, Nellore, A.P.

Study Period: June 2016 - December 2016.

Study population: Patients above 60 years of age with dermatological complaints attending outpatient department of DVL, Narayana Medical College Hospital.

Sample size: study consisted a total of 200 subjects.

Sampling method: Simple Random sampling method.

Results: Keratinization disorders are seen in 3 cases, of which darier's disease is most common and seen in 2 cases (1%). Among darier's disease, unilateral darier's disease is seen in 1 case (0.5%), and linear darier's disease in 1 case (0.5%) and ichthyosis vulgaris is seen in 1 case (0.5%).

Conclusion: The skin plays an important role in permeability, transport of metabolites, barrier to penetration of microorganisms and chemicals, UV radiation, regulation of body temperature, social and sexual communication. Due to degenerative and metabolic changes occurring in skin layers owing to aging, elderly people are more prone to various dermatological disorders.

Keywords: Geriatric population, Keratinization disorders, pathological skin diseases

Introduction

A series of molecular changes over time cause a biological phenomenon called ageing, which is characterised by increasing functional decrease. Due to the structural and physiological changes brought on by intrinsic and extrinsic ageing, human skin, like all other organs, ages chronologically and is prone to skin conditions [1]. As people age, their skin loses its ability to perform its usual functions, most notably its ability to heal wounds and respond to infections. The dermo epidermal junction flattens with age, the number of interdigitating declines, and the number of melanocytes drops by 20%, giving the skin and hair a pale appearance [2]. The dermis loses volume and an excess of the brown pigment lipofuscin, a sign of cell injury, accumulates [3].

Diseases are becoming more prevalent among the elderly population as a result of an increase in life expectancy. The normal result of skin ageing is the development of minor dermatoses including pruritus, eczema, xerosis, etc. [4] However, many dermatological disorders, such as skin cancer, can be deadly and cause serious morbidity and a reduction in quality of life [5].

India, a developing country, joined the group of ageing nations in 2001 when the percentage of people 60 and older exceeded 7%. In addition, by 2026, the population of elderly people is predicted to increase. There have been suggestions that this is due to both a rise in life expectancy and a decrease in birth rates. A growing portion of the Indian population is elderly, which has raised concerns across the globe. As a

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result, it is crucial that these patients receive quality medical treatment and services. In India, there aren't many research on the skin issues that older people face.

The clinical manifestations of skin disorders may differ and may not present as classically as they do in younger population [6]. This has led to greater interest in the diseases of the aged, and there is a need to evaluate various cutaneous disorders in the growing geriatric population.

This study was being conducted to assess the range of physiological and pathological skin changes in the elderly patients of a tertiary care hospital in southern India. In order to assess health status and healthcare needs related to skin for better resource allocation, distribution of material and manpower, and help health care providers in better decision-making resulting in higher patient satisfaction, it is essential to have a thorough understanding of the epidemiology as well as gender distribution of dermatological diseases in the geriatric population in this tertiary care hospital.

Objectives

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Sample size: study consisted a total of 200 subjects.

Sampling method: Simple Random sampling method.

Inclusion criteria: Patients above 60 years of age attending outpatient department of DVL.

Exclusion criteria

- Patients under chemo radiation therapy.
- Patients who are not willing to participate in the study.
- Patients with psychiatric diseases.

Ethical consideration: Institutional Ethical committee permission was taken prior to the commencement of the study.

Study tools and Data collection procedure: A detailed history, clinical examination and relevant investigations will be undertaken to arrive at a diagnosis.

Statistical analysis

Data entry was done in Microsoft Excel software. Data analysis was done in Statistical Product and service solutions (SPSS). Continues variables were analysed by mean, standard deviation, median, mode, minimum and maximum. Qualitative variables were described by percentage distribution among groups.

Observations & Results

A total of 200 cases with age above 60 years attending Dermatology, Venereology and Leprology OPD of Narayana Medical College were included in the study.

Table 1: Age distribution

Age groups	Number of patients	Percentage (%)
61-65	70	35
66-70	69	34.5
71-75	40	20
76-80	14	7
80+	7	3.5
Total	200	100

The maximum number of patients in this study belongs to the age group of 61- 65 years (35%), followed by 66- 70 years (34.5%). Least number of patients belongs to the age group of >80 (3.5%). In this study, the youngest patient is 61 years, and the oldest patient is 94 years. The mean age in this study is 68.52 years.

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Table 2: Sex distribution

Sex	Number of patients	Percentage (%)
Male	103	51.5
Female	97	48.5
Total	200	100

In this study, among 200 patients, there were 103 males (51.5%) and 97 females (48.5%). Male: Female ratio is 1.06:1.

The maximum number of patients in this study belonged to the agricultural occupation (38%), followed by housewives (24%). The least number of patients is in a group of businesses (9%).

In this study, among 200 patients 76 were farmers (38%) of which 52 were males, and 24 are females, 48 (24%) were housewives, 33 were retired (16.5%) of which 27 were males, and 6 were females, 25 were laborers (12.5%) of which 14 were males, and 11 were females, 18 were businessmen (9%) of which 10 were males, and 8 were females.

Table 3: Associated diseases

Associated disease	Number of patients	Percentage (%)
Hypertension	48	24
Diabetes mellitus	50	25
Chronic kidney disease	9	4.5
Bronchial asthma	2	1
Ischemic heart disease	6	3
Cerebrovascular accident	1	0.5
Epilepsy	1	0.5
Hypothyroidism	4	2
Chronic obstructive lung disease	2	1
Post cricoid carcinoma	1	0.5
Rheumatic heart disease	1	0.5

In this study of 200 patients, 125 patients have associated systemic diseases. Of these, the most common association is diabetes mellitus (25%) found in 50 cases, followed by hypertension (24%) found in 48 patients. Chronic kidney disease (4.5%) in 9 cases, ischemic heart disease (3%) in 6 cases, hypothyroidism (2%) in 4 cases, chronic obstructive lung disease (1%) in 2 cases, cerebrovascular accident (0.5%) in 1 case, epilepsy (0.5%) in 1 case, post cricoid carcinoma (0.5%) in 1 case and rheumatic heart disease (0.5%) in 1 case.

In this study, generalized pruritus is seen in 39 (19.5%) patients, of which xerosis is associated in 34 (17%) cases, diabetes mellitus in 6 (3%) cases, CKD in 2 (1%) cases, and hypothyroidism in 1 (0.5%) cases. Generalized pruritus is most commonly associated with xerosis in this study.

Table 4: Skin changes with aging

Skin change	Number of patients	Percentage (%)
Xerosis	105	52.5
Wrinkles	70	35
IGH	24	12
Senile lentigines	7	3.5
Senile comedones	12	6

In this study, among skin changes with aging xerosis is predominant, which is seen in 105 (52.5%) cases, followed by wrinkles in 70 (35%) cases, idiopathic guttate hypomelanosis in 24 (12%) cases, senile comedones in 12 (6%) cases and senile lentigines in 7 (3.5%) cases.

Table 5: Pathological skin changes

S. No	Type of skin disease	Number of patients	Percentage (%)
1	Infections	55	27.5
2	Eczematous conditions	25	12.5
3	Pigmentary disorders	7	3.5
4	Bullous disorders	10	5
5	Benign tumors	172	86
6	Connective tissue diseases	4	2
7	Keratinization disorders	3	1.5
8	Drug reactions	2	1
9	Malignant tumors	1	0.5
10	Cutaneous cysts	1	0.5
11	Papulosquamous disorders	25	12.5

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12	Vascular disorders	6	3
13	Psychocutaneous disorders	1	0.5
14	Miscellaneous	54	27

Among various pathological skin changes benign cutaneous proliferations are the most common findings, seen in 172 cases (86%), followed by infections in 55 cases (27.5%), eczematous conditions in 25 cases (12.5%), papulosquamous disorders in 25 cases (12.5%), bullous disorders in 10 cases (5%), pigmentary disorders in 7 cases (3.5%), vascular disorders in 6 cases (3%), connective tissue diseases in 4 cases (2%), keratinization disorders in 3 cases (1.5%), drug reactions in 2 cases (1%), malignant tumors in 1 case (0.5%), cutaneous cysts in 1 case (0.5%), psychocutaneous disorders in 1 case (0.5%) and miscellaneous conditions seen in 54 cases (27%).

Table 6: Infective conditions

Type of infection	Subtype	Number of Cases	Percentage (%)	Total
Bacterial infections	Furunculosis Cellulitis Hansen's disease Paronychia Erysipelas Erythrasma	3 3 8 4 1 1	1.5 1.5 4 2 0.5 0.5	20
Fungal infections	Dermatophytosis Candidiasis Pityriasis capitis	21 8 2	10.5 4 1	31
Viral infections	Herpes zoster Pityriasis rosea Warts	2 1 2	1 0.5 1	5
Arthropod-borne infections	Scabies	2	1	2

In this study, among 200 patients, infections are seen in 55 patients. Of these, maximum infections are fungal, seen in 31 cases (15.5%). Among fungal infections, dermatophytosis is seen in 21 cases (10.5%), candidiasis in 8 cases (4%), pityriasis capitis in 2 cases (1%). Bacterial infections are seen in 20 cases (10%), of which leprosy is seen in 8 cases (4%), cellulitis in 3 cases (1.5%), furunculosis in 3 cases (1.5%), paronychia in 4 cases (2%), erysipelas in 1 case (0.5%) and erythrasma in 1 case (0.5%). Viral infections are seen in 5 cases (2.5%), of which herpes zoster is seen in 2 cases (1%), warts in 2 cases (1%), pityriasis rosea in 1 case (0.5%). Among arthropod infections, scabies is seen in 2 cases (1%).

In this study, among 200 patients, benign tumors are seen in 172 cases (86%). Of these, acrochordons are the most common and are seen in 63 cases (31.5%), followed by seborrhoeic keratosis in 54 cases (27%), dermatosis papulosa nigra in 34 cases (17%), cherry angiomas in 20 cases (10%), lipomas in 1 case (0.5%).

In this study of 200 patients, papulosquamous disorders are seen in 25 cases (12.5%). Among this psoriasis is seen in 20 cases (10%) and lichen planus in 5 cases (2.5%). Among psoriasis, psoriasis vulgaris is seen in 17 cases (8.5%), palmoplantar psoriasis in 1 case (0.5%), and plantar psoriasis in 2 cases (1%). Among lichen planus, classical lichen planus is seen in 2 cases (1%), hypertrophic lichen planus in 3 cases (1.5%).

Pigmentary disorders are seen in 7 cases (3.5%), of which vitiligo vulgaris is seen in 5 cases (2.5%), melasma in 1 case (0.5%), and post-inflammatory hyperpigmentation in 1 case (0.5%).

Table 7: Keratinization disorders

Type	Number of patients	Percentage (%)
Ichthyosis vulgaris	1	0.5
Darier's disease	2	1
Total	3	1.5

Keratinization disorders are seen in 3 cases, of which darier's disease is most common and seen in 2 cases (1%). Among darier's disease, unilateral darier's disease is seen in 1 case (0.5%), and linear darier's disease in 1 case (0.5%) and ichthyosis vulgaris is seen in 1 case (0.5%).

Table 8: Miscellaneous Disorders

S. No	Disease	Number of patients	Percentage (%)
1	Chronic non-healing ulcer	8	4
2	Urticaria	7	3.5
3	Miliaria rubra	6	3
4	Lichen simplex chronicus	6	3
5	Postherpetic neuralgia	4	2

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6	Chronic actinic dermatitis	3	1.5
7	Erythroderma	3	1.5
8	Keloid	3	1.5
9	Lichen amyloidosis	2	1
10	Prurigo nodularis	2	1
11	Sweat dermatitis	2	1
12	Chronic gout	1	0.5
13	Callosity	1	0.5
14	Cutaneous horn	1	0.5
15	Acquired ichthyosis	1	0.5
16	ALHE	1	0.5
17	Photodermatitis	1	0.5
18	Irritated seborrhoeic keratosis	1	0.5
19	Perforating dermatosis	1	0.5
Total		54	27

In this study of 200 patients, miscellaneous disorders are seen in 54 cases (27%). Among these, the most common finding is chronic non- healing ulcers seen in 8 cases (4%) followed by urticaria, which is seen in 7 cases (3.5%). Miliaria rubra in 6 cases (3%), lichen simplex chronicus in 6 cases (3%), postherpetic neuralgia in 4 cases (2%), chronic actinic dermatitis in 3 cases (1.5%), erythroderma in 3 cases (1.5%), keloid in 3 cases (1.5%), lichen amyloidosis in 2 cases (1%), prurigo nodularis in 2 cases (1%), sweat dermatitis in 2 cases (1%), chronic gout in 1 case (0.5%), callosity in 1 case (0.5%), cutaneous horn in 1 case (0.5%), acquired ichthyosis in 1 case (0.5%), angiolymphoid hyperplasia with eosinophilia in 1 case (0.5%), photodermatitis in 1 case (0.5%), irritated seborrhoeic keratosis in 1 case (0.5%) and perforating disorder in 1 case (0.5%).

In this study of 200 patients, nail changes are seen in 147 cases (73.5%). Of these, thickening is seen in 25 cases (12.5%), onychomycosis in 23 cases (11.5%), vertical ridging in 18 cases (9%), subungual hyperkeratosis in 17 cases (8.5%), nail plate dystrophy in 15 cases (7.5%), pitting in 11 cases (5.5%), shiny in 11 cases (5.5%), beau's lines in 6 cases (3%), longitudinal melanonychia in 6 cases (3%), thinning of nail plate in 4 cases (2%), paronychia in 4 cases (2%), pterygium in 2 cases (1%), koilonychia in 2 cases (1%), clubbing in 1 case (0.5%), leukonychia in 1 case (0.5%), splinter hemorrhage in 1 case (0.5%).

Discussion

Aging is progressive, time-dependent deterioration of an organism's structural or functional integrity and may reflect in the ability of the organism to interact with and respond to its environment. Both intrinsic (genetic, chronological aging) and extrinsic aging (environmental, photoaging) contribute to cutaneous aging. Aging skin has a susceptibility to dermatological disorders due to the structural and physiological changes that occur as a consequence of intrinsic and extrinsic aging.

In our study, a total of 200 patients varying in age from 61-94 years were examined. The youngest patient was 61 years old, and the oldest patient was 94 years old. The mean age is 68. 5 years. Out of 200 patients, 70 (35%) patients belonged to the age group of 61-65 years closely followed by 69 (34.5%) patients in the age group of 66- 70. The least number of patients, 7 (3.5%) are seen in the age group of >80 years. 103 patients (51.5%) were males, and 97 patients (48.5%) were females with a male: female ratio of 1.06:1.

In a study by Agarwal *et al*., 68.4% were in the age group of 60 – 69 years and 58.4% (292 patients) were males, and 41.6% (208 patients) were females [7]. In a study by Durai PC, Thappa DM *et al*., out of 500 patients 213 (42.6%) were males, and 287 (57.4%) were females. Mean age in their study was 67.98 in males and 58.93 in females [8].

In another study by Patange SV *et al*., out of 200 patients, 126 (63%) were males, and 74 (37%) were females. 132 patients (66%) patients belonged to 55-64 years age group, 51 patients (25.5%) belonged to the 65-75 age group, only 17 patients (8.5%) were above 75 years of age. The oldest patient was 85 years old [9]. In another study by Cvitanovic H *et al*., of total 822 patients, 356 (43.3%) were males, and 466 (56.7%) were females with a male: female ratio of 0.76:1 [10]. In another study by Ankur Ghosh, out of 500 patients, 346 (69.2%) were males, and 154 (30.8%) were females with a male: female ratio of 2.2:1 [11].

Out of 200 patients, 125 (62.5%) patients had associated diseases. Of these, the most common association was diabetes mellitus seen in 50 (25%) patients, closely followed by hypertension was seen in 48 (24%) patients. Chronic kidney disease was seen in 9 (4.5%) cases, ischemic heart disease in 6 (3%) cases, hypothyroidism in 4 (2%) cases, COPD and bronchial asthma in 2 (1%) cases each and CVA, epilepsy, post cricoid carcinoma, RHD in 1 (0.5%) case each.

In a study by Kshetrimayum S *et al*., out of 250 patients, most common associated conditions were hypertension in 41 (16.4%) cases, and diabetes mellitus in 17 (6.8%) cases [12]. In a study by Raveendra L, out of 200 patients, 108 (54%) patients had associated illnesses.[5] In another study by Pavithra S *et al*.,

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the most common associated diseases were diabetes mellitus seen in 16.8% cases and hypertension in 9.2% cases. Both diabetes and hypertension were seen in 3.6% patients [13].

Among skin changes with aging, 105 (52.5%) patients have xerosis, wrinkles in 70 (35%) patients, idiopathic guttate hypomelanosis in 24 (12%) cases, senile lentigines in 7 (3.5%) cases, and senile comedones in 12 (6%) cases.

Xerosis means dry skin. When associated with eczematous changes, it is called asteatotic eczema. In our study, it is seen in 52.5% cases. In a study by Raveendra L, xerosis was seen in 70% of cases [5]. In Pavithra S *et al*. study, xerosis was seen in 6.6% cases.68 Agarwal R *et al*., noted xerosis in 34% cases [7]. IAnkur Ghosh, noted xerosis in 7.6% cases [11]. In this study, wrinkling was seen in 70 (35%) cases. In a study by Raveendra L, wrinkling was seen in 88% cases.5 In Durai PC *et al*. study, it is seen in 99% cases [8]. In our study, IGH is seen in 24 (12%) cases. This finding is lower in comparison with other studies. Ankur Ghosh found it in 23 (4.6%) cases [11], Durai PC *et al*. found it in 130 (26%) cases [8], Agarwal R *et al*. found it in 259 (51.8%) cases,[7] Raveendra *et al*. found it in 66(33%) cases, 5 Patange SV *et al*. noted it in 25% cases [9].

In a Turkish study by Kilic A *et al*., fungal infections were the most common dermatoses in 49.7% cases [14]. In a study conducted in Singapore by Yap BK *et al*., asteatotic eczema was the most common dermatosis followed by scabies, bacterial infections and other eczematous disorders. Fungal and viral infections were less common [15]. In a Taiwan study conducted by Liao YH *et al*., eczematous dermatitis was most common followed by fungal infections, benign tumors and viral infections [16]. In a Tunisian study conducted by Souissi A *et al*., fungal infections were most common, followed by benign tumours, eczematous dermatitis, keratinization disorders, bacterial infections and viral infections [17]. In another study conducted by Scherer WP *et al*., fungal infections were found to be more common [18].

In another study by Raveendra L, benign tumours were the most common dermatoses followed by infections and infestations in 64 (32%) cases, eczematous disorders in 62 (31%) cases, pigmentary disorders are seen in 28 (14%) cases, papulosquamous disorders in 24 (12%) cases, bullous disorders in 3 cases (1.5%) similar to our study [5].

In a study conducted by Pavithra S *et al*., benign neoplasms were the most common dermatoses and found in 80.5% cases, followed by fungal infections in 20.7% cases, eczemas in 19.2% cases, papulosquamous disorders in 12.3% cases, leg ulcers in 6.6% cases, pigmentary disorders in 5.8% cases, infestations in 4.9% cases, bullous disorders in 4.4% cases, bacterial infections in 3.9% cases, viral infections in 3.4% cases, pressure sores in 2.9% cases, drug rash in 1.2% cases and Hansen's disease in 0.7% cases [13].

In a study by Thapa DP *et al*., eczemas were the most common dermatoses encountered in 35.8% cases, of which seborrhoeic dermatitis was the most common followed by asteatotic eczema in 31.3% cases. Second most common dermatoses were infections, of which fungal infections were most common in 13.6% cases, viral infections in 7% cases and bacterial infections in 2.1% cases, scabies in 4.5% cases, papulosquamous disorders in 3.3% cases, bullous disorders in 1.8% cases, Hansen's disease in 7.6% cases, drug rash in 1.9% cases, pigmentary disorders in 0.6% cases [19]. In a Croatian study conducted by Cvitanovic H *et al*., eczematous dermtoses were found in lower frequency [10].

In Ankur Ghosh study, infections were the most common dermatoses observed, fungal infections being most common among them in 149cases (29.8%), scabies in 51 (10.2%) cases, bacterial infections in 17 (3.4%) cases, viral infections in 29 (5.8%) cases. Eczemas in 31(6.2%) cases, of these allergic contact dermatitis was the most common. ACD is seen in 15 (3%) cases. Vitiligo is seen in 19 (3.8%) cases. Papulosquamous disorders in 25 (5%) cases. Adverse drug reactions in 11 (2.2%) cases. Benign tumours in 48 (9.6%) cases. Ulcers in 19 (3.8%) cases, urticaria in 15 (3%) cases, post herpetic neuralgia in 11 (2.2%) cases [11].

Nail changes are seen in147 cases out of 200. The most common nail change observed is thickening of the nail plate with loss of lustre in 25 (12.5%) cases. Second most common finding is onychomycosis seen in 23 (11.5%) cases.

In a study by Pavithra S *et al*., among nail changes beau's lines were seen in 1.9% cases and lusterless nails were seen in 1.9% cases [13]. Patange Sv *et al*. found subungual hyperkeratosis in 7% cases, nail plate discoloration in 16% cases [9].

Durai PC *et al*. found onychomycosis in 106 cases (21.2%), flattening in 6 (1.2%) cases, blackish discoloration in 5 (1%) cases. Thickening, shininess and splitting in 3 (0.6%) cases each. Longitudinal melanonychia, median canalicular dystrophy and pitting in 2 (0.4%) cases each. Beau's lines, leukonychia, paronychia, pallor, onycholysis and splinter hemorrhages were seen in 1 case (0.2%) each [1].

Conclusion

The skin plays an important role in permeability, transport of metabolites, barrier to penetration of microorganisms and chemicals, UV radiation, regulation of body temperature, social and sexual communication. Due to degenerative and metabolic changes occurring in skin layers owing to aging, elderly people are more prone to various dermatological disorders. Aging occurs due to both intrinsic and

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extrinsic factors. The most common extrinsic factor is the ultra violet radiation. The UV light also accelerates the intrinsic aging in the sun exposed areas of the body.

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