

A CLINICOEPIDEMIOLOGICAL STUDY OF GERIATRIC DERMATOSES

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Abstract

Skin diseases are a common and inevitable consequence of ageing. Moreover, the clinical presentation is not as classical as they do in the younger population. A lifetime of solar exposure, along with intrinsic changes in the dermal structures, predisposes to a variety of skin diseases.

The aim: to study the spectrum of various geriatric dermatoses among our patient population at the Department of Dermatology, Venereology, and Leprosy at Kamineni Academy of Medical Sciences and Research Centre.

Materials and methods: in this study, a total of 200 patients aged 60 years and above attending the DVL OPD of Kamineni Academy of Medical Sciences and Research Centre were included.

Results: maximum number of patients in this study belonged to 60–65 years (60 %), Male to female ratio was 1.86:1. Most of the males had agriculture work, and most of the females were housewives. Diabetes mellitus was the commonest associated systemic disease seen in 68 cases (34 %), and generalised pruritus was the commonest symptom seen in 64 (32 %) cases, of which 42 cases (65.6 %) were associated with xerosis. Pathological skin disorders and eczematous conditions were seen in 56 out of 200 cases. Of this, asteatotic eczema was the common finding among the eczematous conditions seen in 14 cases (7 %). Psoriasis was seen in 32 (16 %) and lichen planus in 10 cases (5 %). Infectious diseases were seen in 78 cases (39 %). Of these, fungal infections were common, seen in 28 cases (14 %). The benign tumour was seborrheic keratosis in this study, seen in 61 cases (30.5 %); among the malignant tumours, 4 cases (2 %) of basal cell carcinoma and 2 cases (1 %) of squamous cell carcinoma were seen. Among 16 cases of bullous disorders, bullous pemphigoid was seen in 12 (6 %) cases. Among 22 cases of psychocutaneous disorders, delusional parasitosis was seen in 10 cases (5 %), and perforating folliculitis in 15 cases (7.5 %). Loss of luster was the commonest nail change seen in 182 cases (91 %), followed by nail plate thickening in 54 cases (27 %). Greying of the hair was seen in all cases. Out of 70 females, diffuse hair loss was seen in 58 cases (82.9 %), and out of 130 males, androgenetic alopecia was seen in 72 cases (55.4 %).

Conclusion: skin diseases cause considerable morbidity in the elderly, particularly if associated with other comorbid conditions. Health education on proper skin care, avoidance of irritants and self-medication etc., would help to reduce the incidence of common dermatoses.

Keywords: Dermatoses, Xerosis, Asteatotic Eczema, Papulosquamous disorders, Psoriasis.

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1. Introduction

Ageing is a biological reality in which there is progressive functional decline due to a series of molecular changes over time. Human skin, like all other organs, undergoes chronological ageing and is susceptible to skin disorders due to structural and physiological changes in response to intrinsic and extrinsic ageing [1]. Common skin changes are xerosis, pruritus, photoaging, wrinkles, eczema, infections, and benign tumours. However, a few fatal skin conditions, like skin malignancy, may lead to significant morbidity.

In 2011, the geriatric population of India tremendously increased to about 104 million and is expected to double by 2050. The reasons proposed for this are an increase in life expectancy as well as a decline in birth rates [1]. The increase in the geriatric population has become a worldwide concern. The greatest challenge faced while evaluating the skin of an old person is to decide between normal versus abnormal and physiological versus pathological. Many skin changes and resulting lesions are considered normal, except that they vary in degree and number. It is imperative for physicians to have a better understanding of the pathophysiology of geriatric skin disorders and their specific management, which differs slightly from an adult population. To date, few geriatric dermatoses studies have been done. Our aim is to study the spectrum of various geriatric dermatoses among our patient population at the Department of Dermatology, Venereology, and Leprosy at the Kamineni Academy of Medical Sciences and Research Centre.

2. Materials And Methods

This is a prospective Clinico epidemiological observational study conducted in the Out-patient clinic of the Department of Dermatology and Venereology, Leprosy (DVL) at Kamineni Academy of Medical Sciences and Research Centre (KAMSRC), LB Nagar, Hyderabad, from November 2019 to November 2021 in 200 Elderly patients > 60 years, attending DVL OPD at KAMSRC, LB Nagar, Hyderabad.

Inclusion criteria: all patients aged more than 60 years patients with comorbidities.

Exclusion criteria: severely ill patients.

Detailed history, including the duration of the disease, site of involvement, occupation, leisure activities and demographic details, was taken. A thorough systemic & dermatological examination was done. Investigations like complete blood count, liver function test, renal function test, random blood sugar, thyroid function test, Woods lamp, fungal culture, biopsy and immunofluorescence were done wherever necessary. The study was conducted after obtaining the approval of the Institutional Ethics Committee of Kamineni Academy of Medical Sciences And Research Centre, number: 19104018002D, from 29-10-2019. Informed consent was taken from all the patients prior to the examination.

Data analysis: data was entered in an MS Excel spreadsheet and was analysed using SPSS v21. Categorical data were represented as numbers and percentages. Data were tabulated, and pie charts and bar diagrams were made for pictorial representation of data wherever suitable.

A total of 200 cases aged above 60 years attending OPD of Kamineni Medical College Hospital were included in the study.

3. Results

The maximum number of patients in this study belonged to the age group of 60–65 years (60 %), followed by 66–70 years (25 %). The eldest patient was of 80 years. Among 200 patients there in our study among 200 patients, 82 were agricultural workers (41 %), of which 64 were males, and 18 were females. 52 females (26 %) were housewives, 58 were retired officers (29 %) of them there

were 56 males and 2 females. 8 males (4 %) were labourers. Thus, most patients in our study belong to agriculture work, and most of the female patients were housewives (**Table 1**).

In our study, diabetes mellitus was the commonest associated disease seen in 68 cases (34 %), followed by hypertension in 64 cases (32 %). Both diabetes mellitus and hypertension were seen in 40 cases. Anaemia was seen in 14 cases (7 %), bronchial asthma in 10 cases (5 %), ischaemic heart disease in 6 cases (3 %), chronic kidney disease in 14 cases (7 %), COPD (chronic obstructive pulmonary disease) in 2 cases (1 %), hypothyroidism in 24 cases (12 %) and benign prostatic hypertrophy in 6 cases (3 %) (**Table 2**).

Table 1
Demographic distribution in the present study

Age Groups	Number of Patients	Percentage (%)
60–65	120	60.0
66–70	50	25.0
71–75	12	6.0
76–80	18	9.0
Total	200	100.0
Gender		
Male	130	65.0
Female	70	35.0
Occupation		
Agriculture	82	41.0
Housewife	52	26.0
Labourer	8	4.0
Retired officer	58	29.0

Table 2
Associated systemic diseases

Associated Systemic Diseases	No. of Cases	Percentage (%)
Diabetes mellitus	68	34.0
Hypertension	64	32.0
Anaemia	14	7.0
Ischaemic heart disease	6	3.0
Bronchial asthma	10	5.0
Chronic Kidney disease	14	7.0
COPD	2	1.0
Hypothyroidism	24	12.0
Benign prostatic hypertrophy	6	3.0
No systemic associations	60	30.0

Generalised pruritus was seen in 64 cases in our study (32 %) out of 200 cases. Among them, xerosis was most commonly associated with generalised pruritus in 42 cases (65.6 %), hypertension in 22 cases (34.4 %), diabetes mellitus in 20 cases (31.3 %), anaemia in 2 cases (3.1 %), bronchial asthma in 4 cases (6.3 %), chronic kidney disease in 6 cases (9.4 %), hypothyroidism in 12 cases (18.8 %), and ischemic heart disease in 2 cases (3.1 %). Thus, senile pruritus was commonly associated with xerosis in this study (**Table 3**).

Among physiological skin changes with ageing, IGH (idiopathic guttate hypomelanosis) was seen most commonly in this study in 106 cases (53 %), followed by xerosis in 96 cases (48 %), wrinkling in 80 cases (40 %), senile comedones in 24 cases (12 %), and senile lentigenes in 72 cases (36 %). In some of these cases, a combination of the above findings was seen (**Table 4**).

In our study, eczematous conditions were seen in 56 cases (28 %). Asteatotic eczema was seen in 14 cases (7 %), followed by allergic contact dermatitis in 10 cases (5 %). Irritant contact dermatitis and stasis eczema were seen in 6 cases each (3 %). Airborne contact dermatitis, Chronic

eczema, hand eczema, nummular eczema and seborrheic dermatitis were seen in 4 cases each (2 %). In our study, among the 42 cases of papulosquamous disorders, psoriasis was seen in 32 cases, and lichen planus was seen in 10 cases (Table 5).

Table 3

Generalised pruritus – conditions associated

Conditions associated with GP	No of Cases	Percentage, % (n = 64)
Xerosis	42	65.6
Diabetes mellitus	20	31.3
Hypertension	22	34.4
Anaemia	2	3.1
Bronchial asthma	4	6.3
Chronic Kidney disease	6	9.4
Hypothyroidism	12	18.8
Ischemic heart disease	2	3.1

Table 4

Physiological skin changes with ageing

Skin Changes	Number of Patients	Percentage, %
Xerosis	96	48.0
Wrinkling	80	40.0
IGH	106	53.0
Senile comedones	24	12.0
Senile lentigines	72	36.0

Table 5

Pathological skin changes eczematous conditions

Type of eczematous conditions	No. of cases	Percentage (%)
Air Borne Contact Dermatitis	4	2.0
Asteatotic Eczema	14	7.0
Allergic Contact Dermatitis	10	5.0
Chronic Eczema	4	2.0
Hand Eczema	4	2.0
Irritant Contact Dermatitis	6	3.0
Nummular Eczema	4	2.0
Seborrheic Dermatitis	4	2.0
Stasis Eczema	6	3.0
Type of Papulosquamous Disorders		
Psoriasis	32	16.0
Lichen planus	10	5.0

In our study, infections were seen in 78 cases (39 %), of which fungal infections were seen in 28 cases (14 %). Bacterial infections were seen in 22 cases (11 %), and viral infections were seen in 28 cases (14 %).

Among the 28 cases of fungal infections, tinea was seen in 24 cases (12 %) and candidiasis in 4 cases (2 %). Of the bacterial infections, cellulitis was seen in 10 cases (5 %), folliculitis in 8 cases (4 %), and furuncle in 4 cases (2 %). Among the viral infections, herpes zoster was seen in 24 cases (12 %) and viral warts in 4 cases (2 %).

Out of 200 cases, infestations like scabies were observed in 20 cases (10 %) (Table 6).

Among the benign skin lesions seen in our study, the most common was seborrheic keratoses with 61 cases (30.5 %), followed by cherry angiomas in 28 cases (14 %), acrochordons in 19 cases (9.5 %) and dermatosis papulosa nigra in 16 cases (8 %). Combined features of the above findings were seen in some cases.

The most common malignant condition seen in our study was basal cell carcinoma, seen in 4 cases, and squamous cell carcinoma of lips was seen in 2 cases (**Table 7**).

Table 6
Types of infection

Type of Infections	Sub Type	No. of Cases	Percentage (%)
Fungal Infections	Fungal Total	28	14.0
	Tinea	24	12.0
	Candidiasis	4	2.0
Bacterial Infections	Bacterial Total	22	11.0
	Cellulitis	10	5.0
	Folliculitis	8	4.0
	Furuncle	4	2.0
Viral Infections	Viral Total	28	14.0
	Herpes zoster	24	12.0
	Viral warts	4	2.0

Table 7
Benign and malignant tumours of the skin

Benign tumours	No of cases	Percentage (%)
Seborrhoeic keratosis	61	30.5
Cherry angiomas	28	14.0
Dermatosis papulosa nigra	16	8.0
Acrochordons	19	9.5
Malignant Tumors		
Basal cell carcinoma	4	2.0
Squamous cell carcinoma	2	1.0

Bullous pemphigoid was seen most frequently among the bullous disorders in 12 cases, and pemphigus vulgaris was seen in 4 cases. Among the psychocutaneous disorders, delusional parasitosis was seen in 10 cases (5%), prurigo nodularis in 7 cases (3.5%) and prurigo simplex in 5 cases (2.5%). Among the 38 miscellaneous skin conditions, we have seen perforating folliculitis in 15 cases (7.5%), lichen simplex chronicus in 9 cases (4.5%), amyloidosis and vitiligo seen in 4 cases (2%) each, urticaria in 6 cases (3%) (**Table 8**).

Table 8
Bullous disorders

Bullous Disorders	No of cases	Percentage (%)
Bullous pemphigoid	12	6.0
Pemphigus vulgaris	4	2.0
Psychocutaneous Disorders		
Delusional parasitosis	10	5.0
Prurigo nodularis	7	3.5
Prurigo simplex	5	2.5
Miscellaneous Conditions		
Amyloidosis	4	2.0
Urticaria	6	3.0
Lichen Simplex Chronicus	9	4.5
Perforating Folliculitis	15	7.5
Vitiligo	4	2.0

Out of all the nail changes in our study, loss of luster was the commonest nail change seen in 182 cases (91 %), followed by nail plate thickening seen in 54 cases (27 %), longitudinal ridging in 48 cases (24 %), subungual hyperkeratosis and pitting seen in 32 cases (16 %) each, and onychomycosis in 16 cases (8 %). In some of these cases, combinations of findings were seen. In our study, greying of hair was seen in all cases 200 (100 %). Diffuse hair loss in females was seen in 58 cases (29 %), androgenetic alopecia in males was seen in 72 cases (36 %) (Table 9).

Table 9
Nail and hair changes in our study

Nail Changes	No of Cases	Percentage (%)
Loss of luster	182	91.0
Longitudinal ridging	48	24.0
Subungual Hyperkeratosis	32	16.0
Onychomycosis	16	8.0
Thickening	54	27.0
Pitting	32	16.0
Hair Changes		
Diffuse hair loss in females	58	29.0
Androgenetic alopecia in males	72	36.0



Fig. 1. Images in the present study

4. Discussion

Ageing is defined as an irreversible process, beginning or accelerating at maturity, which results in an increased range or number of deviations from an ideal state. Old skin is dry and rough, atrophic, wrinkled, unevenly pigmented, shows loss of elasticity, and is prone to develop a number of tumours. Ageing skin has susceptibility to dermatological disorders due to the structural and physiological changes that occur as a consequence of intrinsic and extrinsic ageing.

Discoveries in medical sciences and improved health care services have increased the average life span of man. With the increase in the percentage of geriatric patients, the burden of dermatologic diseases in the elderly is also increasing. Because of both physical and mental disability, which account for poor attendance in such cases, the dermatologic demands are largely unmet. This makes it imperative to study in detail the problems of the aged so that proper dermatological care can be provided to them. Several studies on geriatric dermatoses have been conducted in India and across the country, but no such study has been undertaken in this part of the country.

In this study, a total of 200 patients varying in age from 60–80 years were examined. Of these, 130 patients (65 %) were males, and 70 (35 %) were females. The eldest patient was 80 years of age. Male to female ratio was 1.86:1.

The maximum number belonged to the 65–70 years age group (62 %). Hamza et al. [2] reported that 47.5 % were males and 52.5 % were females. Raghavendra et al. [3] reported that 61.6 % were males and 38.4 % were females. The majority belonged to the 60–70 years age group (60.6 %). Mohammed Abu et al. [4] reported that 53.7 % were females and 46.3 % were males.

Among the 200 cases in this study, 140 (70 %) had associated systemic illness. This is higher than found in other studies. Diabetes mellitus was the commonest association seen in 68 (34 %), followed by hypertension in 64 cases (32 %). Kumar D et al. [5] reported that hypertension was the commonest systemic disease association (23.2 %), followed by diabetes mellitus 19.6 %, and 5.6 % of people were affected by both diseases. Agarwal R et al. [6] found that hypertension (61.0 %) had the highest incidence, followed by diabetes mellitus (51.4 %). In the study done by Pavithra et al. [7] associated systemic diseases, diabetes mellitus was the commonest (16.8 %), followed by hypertension (9.2 %), while a smaller (3.6 %) number of cases had a combination of the two. Kshetrimayum et al. [8] observed associated systemic illness in 31.2 % of cases, of which hypertension was most common, followed by diabetes. Raveendra et al. [9] reported 54 % had a systemic illness in which hypertension was commonest, followed by diabetes. Raghavendra et al. [3] reported systemic illness in 32 % of cases in which hypertension (16.3 %) was common, followed by diabetes (10.3 %). Mohammed Abu et al. [4] reported associated comorbidities in 44.3 % of which diabetes was more common, followed by hypertension. Patange and Fernandez [10] observed associated systemic ailments in 30 % of cases. In a study by Priya Cinna and Thappa, Diabetes (28.9 %) and Hypertension (25.5 %) was the commonest associated condition, which is similar to our study.

Among 200 cases, generalised pruritus was seen in 64 cases (32 %), of which xerosis was associated with generalised pruritus in 42 cases (65.6 %), hypertension in 22 cases (34.4 %), diabetes mellitus in 20 cases (31.3 %), anaemia in 2 cases (3.1 %), kidney disease in 6 cases (9.4 %), hypothyroidism in 12 cases (18.8 %). Patange and Fernandez [10] noticed generalised pruritus in 78.5 % of cases, and Priya Cinna and Thappa [11] observed pruritus in 49.6 % of cases, of whom 29.8 % were associated with xerosis. Agarwal R et al.⁵ found pruritus in 56.4 %. Raveendra et al. [9] found pruritus in 44 % cases. Hamza et al. [2] reported it in 11.2 % of cases. Raghavendra et al. [3] reported pruritus in 62 % of cases.

The incidence of generalised pruritus in our study was lower than that of Patange and Fernandez, Priya Cinna and Thappa [10, 11]. In elderly individuals, pruritus is associated with dry skin, as a result of which there is altered skin pigmentation and an overall increase in skin fragility. Systemic diseases tend to lower the threshold for itch. Even a mild stimulus can also trigger an exaggerated pruritic response in some patients. Xerosis results from a decrease in overall skin hydration. It may exacerbate pruritus in geriatric patients with systemic diseases. This is true for geriatric patients who are institutionalised or for individuals who are suffering from dementia whose sedentary lifestyle and general inactivity distract them from pruritic stimuli.

Ageing skin is particularly vulnerable to environmental insults due to the structural and physiological changes that occur as a consequence of both intrinsic and extrinsic ageing. It literally means dry skin. It is called asteatotic eczema when it is associated with eczematous changes. It was a common finding in our study and observed in 96 patients out of 200 (48 %).

Chopra et al. [12] noticed xerosis in 108 (50.8 %) cases. Kumar D et al. [5] also reported a similar incidence of xerosis (45.2 %). Agarwal R et al. [6] observed xerosis in 40 % of cases. Raveendra et al. [9] reported it in 92 % of cases which were very high compared to other studies. Hamza et al. [2] reported it in 13.8 % of cases. Raghavendra et al. [3] reported it in 61.6 % of cases.

Also, our study was similar to Chopra et al. [12] observation. The high incidence of xerosis could be attributed to less use of emollients and usage of harsher soaps by the subjects of the study. This was observed in 80 patients out of 200 (40 %). This incidence was lower than found in other studies. Patange and Fernandez [10] did not mention the incidence of wrinkling. Priya Cinna and Thappa [11] reported an incidence of 100 % in their study. Agarwal R et al. [6] reported wrinkles were the most common cutaneous manifestation seen in 97.8 % of cases. Raveendra et al [9] reported it in 88 % cases. Raghavendra et al. [3] reported it in 94 % of cases. Mohammed Abu et al. [4] reported wrinkles in 4.2 % of cases. In our study, most of the wrinkling was observed on sun-exposed areas like the face, neck, forearms, and dorsal of hands.

In our study, among 200 cases, IGH was seen in 106 (53 %). This observation was higher than seen in other studies. Priya Cinna and Thappa found it in 26 % (130 cases). Kumar D et al. [5] also reported a high incidence of IGH seen in 51.2 % of cases. Raveendra et al. [9] reported IGH in 33 % cases. Raghavendra et al. [3] reported it in 44 % of cases. In our study, most lesions are observed in non-sun-exposed areas like the chest and shins of the lower limb.

Among 200, it was found in 24 cases (12 %) in this study which was comparable to the study conducted by Patange and Fernandez [10], who reported an incidence of 11.5 %. Priya Cinna and Thappa [11] found it in 23 cases (4.6 %). Grover and Narasimhalu [13] have seen it in 13 cases (6.5 %). Kumar D et al. [5] reported it in 6.6 % of cases. Raveendra et al [9] reported it in 28 % cases. Raghavendra et al. [3] reported it in 16.3 % of cases.

In our study, senile lentiginos were found in 72 cases out of 200 (36 %). It was contrary to the findings of the study conducted by Patange and Fernandez [2], who observed an incidence of 12 %. Raveendra et al. [7] reported it in 15 % cases. Racial influence could be the cause for the lower incidence seen in our study.

Among 200 cases, eczematous conditions were found in 56 (28 %) cases in our study. Of these, asteatotic eczema was found in 14 cases (7 %), followed by allergic contact dermatitis in 10 cases (5 %). Irritant contact dermatitis and stasis eczema were seen in 6 cases each (3 %). Airborne contact dermatitis, Chronic eczema, hand eczema, nummular eczema and seborrheic dermatitis were seen in 4 cases each (2 %). Kumar D et al. [5] observed in their study that the commonest dermatitis was allergic contact dermatitis (10 %), followed by stasis dermatitis (4.4 %), pompholyx (3.2 %), nummular eczema (2.4 %) and irritant contact dermatitis (1.6 %). Agarwal R et al. [1] reported allergic contact dermatitis in 30.6 %, followed by irritant contact dermatitis in 11.2 %, and asteatotic eczema in 10.8 % of cases. Raveendra et al. [6] reported eczema in 31 % of cases in which lichen simplex chronicus was the commonest seen in 10 % of cases. Raghavendra et al. [8] reported eczematous dermatitis in 44.3 % of cases, in which asteatotic eczema was seen 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. The current prevalence of eczema globally – is from 0.9 % in India to 22.5 % in Ecuador for 6- to 7-year-olds and from 0.2 % in China to 24.6 % in Colombia for 13- to 14-year-olds [9]. This variation may reflect true differences or disparate study designs, sampling methodologies, definitions of eczema and reported age groups.

The incidence of eczema in our study was higher than found in other studies. Our study had a higher proportion of contact dermatitis and a lower proportion of stasis eczema when compared to other studies [2]. It includes psoriasis and lichen planus in this study (42 cases, 21 %). In this study, psoriasis was seen in 32 cases out of 200 (16 %), which was compared to a study done by Griffiths CE [3], who observed it in 50.4 % of cases. Out of 200, lichen planus was seen in 10 cases in our study (5 %). Our study was comparable with a study by Neelagiri et al. [4], who reported

a 5 % incidence of lichen planus. Kumar D et al. [10] found that 18.4 % of the study population had one form of papule squamous disease, the commonest being psoriasis 9.2 %, followed by lichen planus 2.4 %. Kshetrimayum et al. [5] observed papulosquamous disorders in 10.4 % of cases, in which psoriasis was observed in 6 % and lichen planus in 4.4 % of cases. Agarwal R et al. [6] found papulosquamous disorders in 35.6 %, with psoriasis observed in 20 % of cases. Raveendra et al. [6] found papulosquamous disorders in 12 %, of which psoriasis was seen in 7 % and lichen planus in 5 %. Raghavendra et al. [6] reported it in 15.3 % of cases, of which psoriasis was seen in 7 % of cases and lichen planus in 3.3 % of cases. In a study by Liu P et al. [7], psoriasis was seen in 6.20 % of the total study population. Das et al. [12] found that psoriasis was present in 8.1 %.

Among 200 cases, infective conditions were seen in 78 patients (39 %) in this study. Out of these, fungal infections were seen in 28 cases (14 %), bacterial infections were seen in 22 cases (11 %), and viral infections in 28 cases (14 %). Among the fungal infections, tinea was seen in 24 cases (12 %), and candidiasis was seen in 4 cases (2 %). Among bacterial infections, cellulitis was seen in 10 cases (5 %), folliculitis in 8 cases (4 %) and furuncle in 4 cases (2 %). Among viral infections, herpes zoster was seen in 24 cases (12 %), and 4 cases (2 %) of viral warts were seen. The higher prevalence of dermatophyte infection could be because of poor hygienic conditions and the long hot and humid climate in the area. Other contributory factors are poor glycemic control, poor microcirculation, peripheral vascular disease, peripheral neuropathy, and decreased immune response, which have been implicated in increased susceptibility to infections among the elderly. Kumar D et al. [10] reported 75 (30 %) patients were suffering from infection; fungal (38, 50.66 %), followed by bacterial (24, 32 %), and viral (13, 17.33 %). Agarwal R et al. [1] reported infections and infestations were the most common dermatoses, of which bacterial infection was high, with an incidence of 29.2 % cases. Herpes zoster was seen in 5.4 %, and dermatophytosis was observed in 30.2 % of cases. Vidya et al. [85] found infections in 34.5 % of cases. Fungal infection was the commonest (17.5 %), followed by bacterial (8.5 %) and viral (5 %). Kshetrimayum et al. [5] reported infections in 26.4 % of cases, in which viral was most common (14.8 %), followed by fungal (8.85 %) and bacterial. Herpes Zoster was seen in 13.2 % of cases. Raveendra et al. [8] found infections in 32 % of cases, with fungal being the most commonest (11 %). Raghavendra et al. [8] reported infections in 40.6 % of cases, with dermatophytosis in 15 % of cases, herpes zoster in 4 %, and warts in 3 % of cases. Hamza et al. [13] reported fungal infections in 15.3 % of cases, viral infections in 6 % of cases (herpes zoster 2.8 %, warts 2 % and HSV 0.5 %) and bacterial infections in 5.9 % of cases. Mohammed Abu et al. [14] reported infections in 23.7 % of cases (6.4 % bacterial, 6.2 % viral, 5.4 % parasitic, and 5.2 % fungal). In elderly people, decreases in personal care, epidermal turnover, and immunologic functions were reported, possibly responsible for the high prevalence rate of fungal infections [15]. Decreased immune surveillance in the elderly may be related to ageing and systemic diseases, providing more opportunity for the increased prevalence rate of bacterial and viral infections in elderly patients [16]. The majority of the infections were also contributed by poor hygiene, overcrowding, neglect, delay in seeking treatment and self-medication. Most of the infections were also readily treatable and could have been managed at the level of primary health giver.

Out of 200 cases, seborrheic keratoses were seen in 61 (30.5 %) cases. Cherry angioma was seen in 28 (14 %) cases, dermatosis papulosa nigra in 16 (8 %) cases, acrochordons in 19 (9.5 %) cases. Kumar D et al. [10] reported seborrheic keratosis in 42.4 % and cheery angioma in 33.2 %. Agarwal R et al. [6] reported cherry angiomas in 91.8 % of cases. Raveendra et al. [6] reported cherry angiomas in 37 % of cases. Raghavendra et al. [6] reported seborrheic keratosis in 76.6 % and cherry angiomas in 59.3 % of cases. Mohammed Abu et al. [14] reported seborrheic keratosis in 8 % of cases. Moscarella E [17] reported seborrheic keratosis in 43 % and cherry angioma in 63 % of cases. The incidence of seborrheic keratosis, dermatosis papulosa nigra and cherry angioma was less when compared to other studies mentioned above.

There were 4 cases (2 %) of basal cell carcinoma and 2 cases (1 %) of squamous cell carcinoma seen in this study among the malignant tumours (3 %). It is comparable to the study conducted by Kumar D et al. [10] reported 5.2 % malignant cases. The prevalence of malignant skin tumours in various studies ranges from 4.4 % to 29.8 % [18, 19]. Our study had a low frequency of malignant tumours (3 %), comparable to the study done by Del Bino S et al. [20] but lower than the frequency

found in other studies outside India, which may be explained by the basis of genetic variability or photoprotective role of melanin in skin type IV/V.

Agarwal R et al. [1] found that a total of 12 patients (2.4 %) were found to have malignant disorders in our study. Three cases (0.6 %) each of squamous cell carcinoma, Basal cell carcinoma. Kshetrimayum et al. [5] reported SCC in 0.8 % followed by BCC in 0.4 % of cases. Raveendra et al. [6] reported, however, have not reported any malignant cases in their study. Raghavendra et al. [8] reported BCC in 0.6 % and SCC in 0.3 % of cases. Basal cell carcinoma was the most common skin cancer (>75 %) and is related to chronic ultraviolet light exposure.

Among 200 cases, bullous disorders were seen in 16 (8 %) cases, out of which bullous pemphigoid was seen in 12 cases (6 %) and pemphigus vulgaris was seen in 4 cases (2 %). Bullous pemphigoid is common after 60 years due to the age-associated increase in circulating antibodies and changes in the basement membrane, consistent with our study. Kumar D et al. [10] reported an incidence of 6.4 % for bullous disorders similar to our study. They observed pemphigus vulgaris in nine (3.1 %) individuals and bullous pemphigoid in eight (1.6 %) individuals. Agarwal R et al. [6] reported ten cases (2 %) of bullous pemphigoid followed by 4 cases (0.8 %) of pemphigus vulgaris. Raghavendra et al. [8] reported bullous disorders in 2.6 % of cases, of which bullous pemphigoid was seen in 1.3 % of cases and pemphigus vulgaris in 0.6 % of cases. Priya Cinna and Thappa [11] found pemphigus vulgaris in 9 cases (1.8 %), which is similar to our study. They have reported an incidence of bullous pemphigoid in 8 cases (1.6 %).

Out of 200 cases, the total number of psychocutaneous disorders in this study was 22 cases (11 %). Out of them, delusional parasitosis was seen in 10 cases (5 %), prurigo nodularis was seen in 7 cases (3.5 %), and prurigo simplex was seen in 5 cases (2.5 %). Agarwal R et al. [1] reported delusional parasitosis in 2 cases (0.4 %), which is less compared to our study.

In our study, perforating folliculitis was seen in 15 cases (7.5 %), lichen simplex chronicus was seen in 9 cases (4.5 %), amyloidosis and vitiligo seen in 4 cases (2 %) each, urticaria in 6 cases (3 %).

In our study, loss of luster was the commonest nail change seen in 182 cases (91 %), followed by nail plate thickening seen in 54 cases (27 %), longitudinal ridging in 48 cases (24 %), subungual hyperkeratosis and pitting seen in 32 cases (16 %) each and onychomycosis in 16 cases (8 %). Agarwal R et al. [1] found that nail thinning in 180 cases (36 %) was the most common change, followed by an equal incidence of nail dystrophy and nail pitting (20 %). Raveendra et al. [6] reported vertical ridging in 47 % and loss of lustre in 44 % of cases. The incidence of onychomycosis was lower than found in other studies.

Greying of hair was seen in nearly all cases. In our study, 58 out of 70 females (82.9 %) showed diffuse thinning of hair. Androgenetic alopecia was seen in 72 out of 130 males (55.4 %). Raveendra et al. [6] discovered greying of hair in 90 % of cases. Androgenic alopecia was seen in 18 % males.

Limitations of the study: The limitations observed in our study could be because of bias in referral because the population was obtained from the tertiary centre. In addition, our study does not bring out the differences on the grounds of regional and ethnic variations, as people from all over the country are referred to the premium skin centre of this tertiary care hospital.

Prospects for further research: Another important issue left untouched is the emergence of drug resistance among the elderly as a result of the indiscriminate use of antibiotics and polypharmacy. Several factors are responsible for the increase in the emerging resistance pattern among the elderly. It is mostly seen among institutionalised patients. A dermatologist must be aware of the resistance patterns prevailing in a geographical area. This issue needs to be addressed at various levels to discourage over-the-counter drug use of various medicines. The drug-resistant infections are not only difficult to treat, but the use of antibiotics for a long time adversely affects the functioning of various body systems, such as the liver and kidney, which are already vulnerable to injury due to the effects of ageing. Hence, further studies need to be carried out touching this aspect of geriatric health.

5. Conclusion

A maximum number of patients in this study belonged to 60–65 years (60 %); there were 130 males (65 %), with male to female ratio of 1.86:1. Diabetes mellitus was the commonest associa-

ted systemic disease seen in 68 cases (34 %). Generalised pruritus was the commonest symptom seen in 64 (32 %) cases, of which 42 cases (65.6 %) were associated with xerosis. Among the pathological skin disorders, eczematous conditions were seen in 56 out of 200 cases. Of this, asteatotic eczema was the common finding among the eczematous conditions seen in 14 cases (7 %). Infectious diseases were seen in 78 cases (39 %) in this study. Of these, fungal infections were common, seen in 28 cases (14 %); the most common benign tumour was seborrheic keratosis in this study, seen in 61 cases (30.5 %), cherry angioma in 28 cases (14 %), dermatosis papulosa nigra in 16 cases (8 %) and acrochordons in 19 cases (9.5 %). Malignant tumours, 4 cases (2 %) of basal cell carcinoma and 2 cases (1 %) of squamous cell carcinoma were seen. Among 16 cases of bullous disorders, bullous pemphigoid was seen in 12 (6 %) cases and pemphigus vulgaris was seen in 4 cases (2 %). Among 22 cases of psychocutaneous disorders, delusional parasitosis was seen in 10 cases (5 %), prurigo nodularis in 7 cases (3.5 %) and prurigo simplex in 5 cases (2.5 %). Loss of luster was the commonest nail change seen in 182 cases (91 %), followed by nail plate thickening in 54 cases (27 %), longitudinal ridging seen in 48 cases (24 %), subungual hyperkeratosis and pitting seen in 32 cases (16 %) each. Greying of the hair was seen in all cases. Out of 70 females, diffuse hair loss was seen in 58 cases (82.9 %), and out of 130 males, androgenetic alopecia was seen in 72 cases (55.4 %).

In our study, various physiological signs of ageing were studied, which is an inescapable process along with pathological changes. Skin diseases cause considerable morbidity in the elderly, particularly if associated with other comorbid conditions. Health education on proper skin care, avoidance of irritants and self-medication etc., would help to reduce the incidence of common dermatoses. Further studies in the field are needed to help reduce the burden on the elderly population, who are at greater risk of disorders with advanced age, general health issues, drug therapy and chronic diseases. As the proportion of the world's population in older ages continues to increase, the need for more knowledge of this group becomes essential to assist policymakers in their role to define, formulate programs and also raise public awareness.

Conflict of interest

The authors declare that there is no conflict of interest in relation to this paper, as well as the published research results, including the financial aspects of conducting the research, obtaining and using its results, as well as any non-financial personal relationships.

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Data availability

Data will be made available on reasonable request.

References

- [1] Agarwal, R., Sharma, L., Chopra, A., Mitra, D., Saraswat, N. (2019). A cross-sectional observational study of geriatric dermatoses in a Tertiary Care Hospital of Northern India. *Indian Dermatology Online Journal*, 10 (5), 524–529. doi: https://doi.org/10.4103/idoj.idoj_282_18
- [2] Pedersen, C. J., Uddin, M. J., Saha, S. K., Darmstadt, G. L. (2020). Prevalence of atopic dermatitis, asthma and rhinitis from infancy through adulthood in rural Bangladesh: a population-based, cross-sectional survey. *BMJ Open*, 10 (11), e042380. doi: <https://doi.org/10.1136/bmjopen-2020-042380>
- [3] Griffiths, C. E. M., van de Kerkhof, P., Czarnecka-Operacz, M. (2017). Psoriasis and Atopic Dermatitis. *Dermatology and Therapy*, 7 (S1), 31–41. doi: <https://doi.org/10.1007/s13555-016-0167-9>
- [4] Neelagiri, S., Janardhan, B., Reddy, Ks. R., Sreedhar, V. (2017). Co-occurrence of psoriasis, vitiligo, and lichen planus in a single patient. *Indian Journal of Paediatric Dermatology*, 19 (2), 157–160 doi: https://doi.org/10.4103/ijpd.ijpd_127_16
- [5] Kshetrimayum, S., Thokchom, N. S., Vanlalhriatpuii, Hafi, N. A. B. (2017). Pattern of geriatric dermatoses at a tertiary care center in North-East India. *International Journal of Research in Dermatology*, 3 (4), 527–534. doi: <https://doi.org/10.18203/issn.2455-4529.intjresdermatol20175377>
- [6] Raveendra, L. (2014). A clinical study of geriatric dermatoses. *Our Dermatology Online*, 5 (3), 235–239. doi: <https://doi.org/10.7241/ourd.20143.59>

- [7] Liu, P., Kuang, Y., Ye, L., Peng, C., Chen, W., Shen, M. et al. (2022). Predicting the Risk of Psoriatic Arthritis in Plaque Psoriasis Patients: Development and Assessment of a New Predictive Nomogram. *Frontiers in Immunology*, 12. doi: <https://doi.org/10.3389/fimmu.2021.740968>
- [8] Raghavendra, B. N., Rajesh, G. (2020). A study of geriatric dermatoses in a rural based tertiary care hospital in South India. *IP Indian Journal of Clinical and Experimental Dermatology*, 6 (1), 62–66. doi: <https://doi.org/10.18231/j.ijced.2020.014>
- [9] Chidwick, K., Busingye, D., Pollack, A., Osman, R., Yoo, J., Blogg, S. et al. (2020). Prevalence, incidence and management of atopic dermatitis in Australian general practice using routinely collected data from MedicineInsight. *Australasian Journal of Dermatology*, 61 (3). doi: <https://doi.org/10.1111/ajd.13268>
- [10] Das, A., Kumar, D., Bandyopadhyay, D., Chowdhury, S., Das, N., Sharma, P., Kumar, A. (2021). Dermatoses in the elderly: Clinico-demographic profile of patients attending a tertiary care centre. *Indian Journal of Dermatology*, 66 (1), 74–80. doi: https://doi.org/10.4103/ijd.ijd_245_20
- [11] Varma, K., Shesha, H., Kumar, U. (2017). A Clinico- Epidemiological Study of Geriatric Dermatoses in Tertiary Care Centre, Ujjain. *IP Indian Journal of Clinical and Experimental Dermatology*, 3 (4), 142–147.
- [12] Das, S., Adhicari, P. (2018). A hospital-based clinical study of childhood psoriasis in a tertiary care center of Northeast India. *Indian Journal of Paediatric Dermatology*, 19 (4), 321–325. doi: https://doi.org/10.4103/ijpd.ijpd_86_17
- [13] Yıldız, H. (2019). The prevalence of the geriatric dermatoses among elderly patients attending dermatology outpatient clinic in Eskisehir, Turkey. *Southern Clinics of Istanbul Eurasia*, 30 (1), 47–51. doi: <https://doi.org/10.14744/scie.2019.46855>
- [14] El-Hamd, M., Abd-Elmaged, W., Mohammed, N. (2020). Skin disorders among elderly patients: clinicodemographic characteristics of 808 Egyptian patients. *Egyptian Journal of Dermatology and Venerology*, 40 (1), 38–44. doi: https://doi.org/10.4103/ejdv.ejdv_22_19
- [15] Rayens, E., Norris, K. A. (2022). Prevalence and Healthcare Burden of Fungal Infections in the United States, 2018. *Open Forum Infectious Diseases*, 9 (1). doi: <https://doi.org/10.1093/ofid/ofab593>
- [16] Bongomin, F., Gago, S., Oladele, R., Denning, D. (2017). Global and Multi-National Prevalence of Fungal Diseases – Estimate Precision. *Journal of Fungi*, 3 (4), 57. doi: <https://doi.org/10.3390/jof3040057>
- [17] Moscarella, E., Brancaccio, G., Briatico, G., Ronchi, A., Piana, S., Argenziano, G. (2021). Differential Diagnosis and Management on Seborrheic Keratosis in Elderly Patients. *Clinical, Cosmetic and Investigational Dermatology*, Volume 14, 395–406. doi: <https://doi.org/10.2147/ccid.s267246>
- [18] Leiter, U., Keim, U., Eigentler, T., Katalinic, A., Holleczek, B., Martus, P., Garbe, C. (2017). Incidence, Mortality, and Trends of Nonmelanoma Skin Cancer in Germany. *Journal of Investigative Dermatology*, 137 (9), 1860–1867. doi: <https://doi.org/10.1016/j.jid.2017.04.020>
- [19] Eisemann, N., Waldmann, A., Geller, A. C., Weinstock, M. A., Volkmer, B., Greinert, R. et al. (2014). Non-Melanoma Skin Cancer Incidence and Impact of Skin Cancer Screening on Incidence. *Journal of Investigative Dermatology*, 134 (1), 43–50. doi: <https://doi.org/10.1038/jid.2013.304>
- [20] Del Bino, S., Duval, C., Bernerd, F. (2018). Clinical and Biological Characterization of Skin Pigmentation Diversity and Its Consequences on UV Impact. *International Journal of Molecular Sciences*, 19 (9), 2668. doi: <https://doi.org/10.3390/ijms19092668>

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