

Inpatient Dermatology: A Reterospective Analysis of Admitted Patients in Dermatology Department Services Hospital, Lahore

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Abstract: *Objective:* Dermatology is primarily considered an outpatient based allied specialty of medicine in which significant number of patients require hospitalization to control disease and this improves their quality of life. *Methods:* A retrospective analysis of admitted patients in dermatology department of services institute of medical sciences/services hospital Lahore was done from 2016-2022. Dermatological diseases were categorized into respective groups. Demographic data; patient identifier number; date of admission; date of discharge, length of hospital stay and final diagnosis were considered. All data was converted into excel sheet. Mean and standard deviation was calculated for quantitative variables, frequency and percentages were calculated for qualitative variables. Data was analyzed in SPSS version 25.0. *Results:* A total number of 1467 patients admitted including 925 (63.05%) male and 542 (36.95%) female. Most common age bracket was 21-40 years and 41-60 years admitted over these years. Male patients dominated female patients throughout. We have recorded psoriasis (78.75%) as the most common reason for admission followed by erythroderma due to psoriasis (44.30%), SJS/TEN (49.24%), systemic lupus erythematosus (36.84 %) and pemphigus vulgaris (33.79%). *Conclusion:* Dermatology is an important medical allied specialty which not only shares a major burden of outpatient but a significant number of patients require hospitalization for extensive management. This indoor admission not only enhances the clinical acumen of dermatology residents but increases the scope of interspecialty training. Further large scale multicentric studies are recommended to estimate the hospital disease burden of skin patients.

Keywords: Inpatient, Dermatology, Services Hospital, Quality of Life, Admission, Skin Diseases, Epidemiology, Skin and Connective Tissue Diseases

1. Introduction

Dermatology is generally considered a non-acute, outpatient-based specialty. Dermatological conditions and diseases significantly disturb quality of life of patients and there is associated morbidity. Many hospitals lack exclusive indoor services for patients with severe skin diseases. [1] There are about 3000 acute and chronic skin diseases known; they affecting people of different ethnicities and socioeconomic strata. An increase of 78.8% in hospital admission has been noted due to skin diseases during the past two decades in England and Wales. [2] An increase of 53.7%

noted in disability adjusted life years for all the skin and subcutaneous diseases from 1990 to 2017 in India. [3] Dermatological diseases are usually described by other disciplines as, "skin rash". [4] Inpatient dermatology is an important aspect of holistic patient care and can have a significant positive impact on the patient's quality of life. The existing literature is lacking regarding the profile of patients with dermatological diseases requiring hospital admission. [5] This study reviews the characteristics of patients admitted over a seven-year period to the dermatology ward of our institute.

2. Methodology

We did a retrospective chart analysis of the discharge sheets of patients admitted in the dermatology inpatient facility of the Services Institute of Medical Sciences, Services Hospital, Lahore. A government tertiary care teaching hospital located in the center of city and catering larger population across province Punjab. The dermatology ward is 30 bedded including four with provision of isolation facilities for patients with extensive skin barrier loss. Details of patients admitted in the dermatology ward between January 1, 2016 and December 31, 2022 were obtained from the department's indoor record. An excel sheet was used to collect demographic data; patient identifier number; date of admission; date of discharge, length of hospital stay and final diagnosis. We excluded patients admitted only for day care from the study. Diagnoses were categorized as papulosquamous conditions, connective tissue diseases, immunobullous conditions, infections, vasculitis and others groups. The data was then analyzed through the Statistical Package for Social Sciences version 25.0 for Windows. Variables analyzed for all admissions included patient age, gender, duration of admission stay, primary dermatological diagnosis, hospital stay. Mean and standard deviation was calculated for quantitative variables while frequency and percentages were calculated for qualitative variables.

3. Results

A total number of 1467 patients admitted from 2019 to 2022.

Among these patients 925 (63.05%) were male and 542 (36.95%) were female table 1. The age range was 1-90 years table 1, while the most common age of presentation was age group 21-40 years and 41-60 years over the years Figure 1. Hospital stay of admitted patients ranged from 3.96 ± 0.79 to 14.70 ± 12.20 days and the maximum stay recorded was 140 days Table 2. We have noted 2 mortalities during the 7 years Table 1. A variable trend of admission was noted 2016 till 2022. The minimum number of admission were observed in 2020 as it was COVID epidemic Figure 3. Male patients were dominating female patients in terms of indoor admission throughout Figure 2. No significant difference was seen for male and female patients' admission over the years Chi Square test = 2.835, p-value = 0.725. We have recorded psoriasis (78.75%) as the most common reason for admission followed by erythroderma due to psoriasis (44.30%), SJS/TEN (49.24%), systemic lupus erythematosus (36.84 %) and pemphigus vulgaris (33.79%) table 3.

Table 1. Demographic information of admitted patients.

| | Total |
|-----------------------------------|--------------|
| Total Admission | 1467 |
| Mortality | 2 |
| Male | 925 (63.05%) |
| Female | 542 (36.95%) |
| Age Range [Min-Max] Years | [1-90] |
| Range hospital stay[Min-Max] Days | [1-140] |

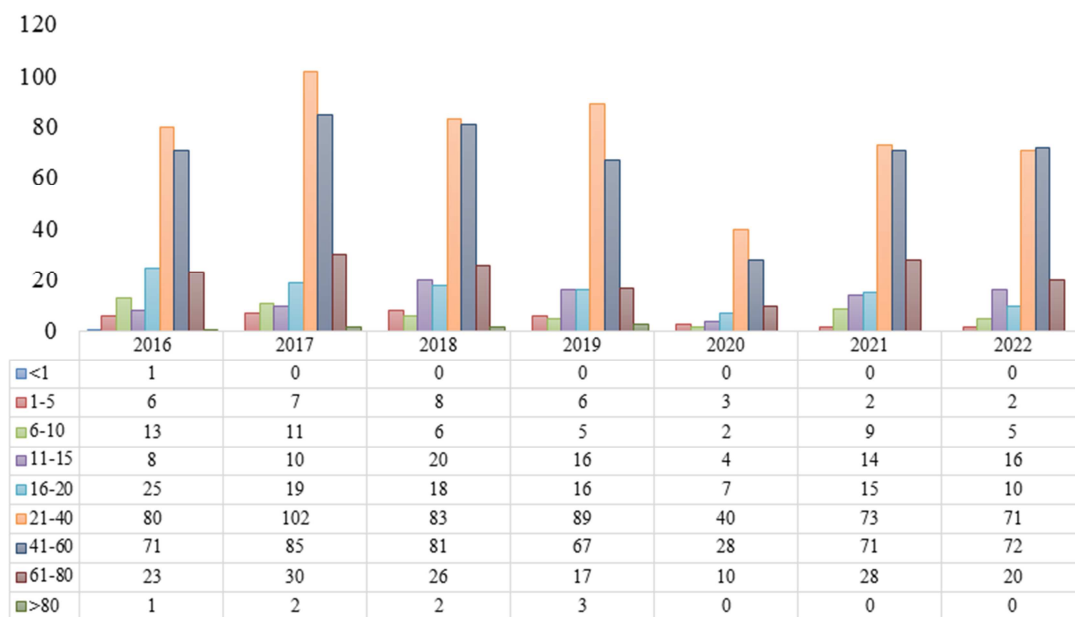
Table 2. Duration of Hospital stay.

| Sn | Diagnosis | Hospital Stay | | |
|----|----------------------------|-------------------|-----|-----|
| | | Mean \pm SD | Min | Max |
| 1 | Infection | 9.69 \pm 8.21 | 1 | 40 |
| 2 | Eczema | 9.48 \pm 8.60 | 1 | 62 |
| 3 | Erythroderma | 12.25 \pm 11.61 | 1 | 79 |
| 4 | Papulosquamous disorders | 12.57 \pm 12.48 | 1 | 120 |
| 5 | Immunobullous | 14.70 \pm 12.20 | 1 | 69 |
| 6 | Drug Reactions | 8.77 \pm 6.69 | 1 | 35 |
| 7 | Hair and Nail | 3.96 \pm 0.79 | 1 | 7 |
| 8 | Disorders of pigmentation | 4.35 \pm 0.38 | 1 | 6 |
| 9 | Vasculitis | 9.45 \pm 8.18 | 1 | 140 |
| 10 | Connective tissue disorder | 11.85 \pm 11.78 | 1 | 81 |
| 11 | Miscellaneous | 10.53 \pm 14.91 | 1 | 28 |

Table 3. List of Dermatology diagnosis of all patients.

| | n=1467 | |
|---------------------------------|-----------|---------|
| | Frequency | Percent |
| Papulosquamous disorders | 320 | 21.81% |
| Psoriasis | 252 | 78.75% |
| Pityriasis rubra pilaris | 30 | 9.38% |
| Pityriasis lichenoides | 38 | 11.88% |
| Immunobullous disorders | 290 | 19.77% |
| Pemphigus vulgaris | 98 | 33.79% |
| Pemphigus foliaceus | 50 | 17.24% |
| Bullous pemphigoid | 59 | 20.34% |
| Cicatricial pemphigoid | 33 | 11.38% |
| Linear IgA disease | 20 | 6.90% |
| Epidermolysis bullosa acquisita | 15 | 5.17% |
| Dermatitis herpetiformis | 10 | 3.45% |
| Others | 5 | 1.72% |

| | n=1467 | |
|----------------------------------|-----------|---------|
| | Frequency | Percent |
| Cutaneous infections | 216 | 14.72% |
| Mycetoma | 10 | 4.63% |
| Deep fungal infections | 25 | 11.57% |
| Cellulitis | 62 | 28.70% |
| Cutaneous tuberculosis | 34 | 15.74% |
| Generalized verrucosis | 10 | 4.63% |
| Muco cutaneous leishmaniasis | 37 | 17.13% |
| Leprosy | 5 | 2.31% |
| Sexually transmitted diseases | 13 | 6.02% |
| Herpes zoster | 9 | 4.17% |
| Generalized furunculosis | 7 | 3.24% |
| Others | 4 | 1.85% |
| Cutaneous adverse drug reactions | 132 | 9% |
| SJS/TEN | 65 | 49.24% |
| Maculopapular rash | 30 | 22.73% |
| Fixed drug eruption | 22 | 16.67% |
| Other | 15 | 11.36% |
| Connective tissue diseases | 133 | 9.07% |
| Systemic lupus erythematosus | 49 | 36.84% |
| Systemic sclerosis | 28 | 21.05% |
| Others | 20 | 15.04% |
| Dermatomyositis | 15 | 11.28% |
| overlap syndrome | 13 | 9.77% |
| Morphea | 8 | 6.02% |
| Eczema | 157 | 10.70% |
| Erythroderma | 158 | 10.77% |
| Erythroderma due to psoriasis | 70 | 44.30% |
| Dermatitis | 33 | 20.89% |
| Drugs | 50 | 31.65% |
| Other | 5 | 3.16% |
| Vasculitis | 32 | 2.18% |
| Small vessel vasculitis | 10 | 31.25% |
| Chrugg strauss syndrome | 9 | 28.13% |
| Cutaneous PAN | 8 | 25.00% |
| Cryoglobulineamias | 3 | 9.38% |
| Others | 2 | 6.25% |
| miscellaneous | 29 | 1.98% |



Chi Square test=35.172, p-value=0.687

Figure 1. Age distribution of patients

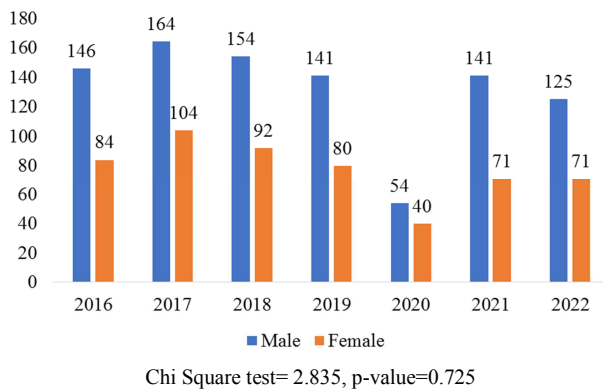


Figure 2. Number of Admission in relation to Gender of Patients.

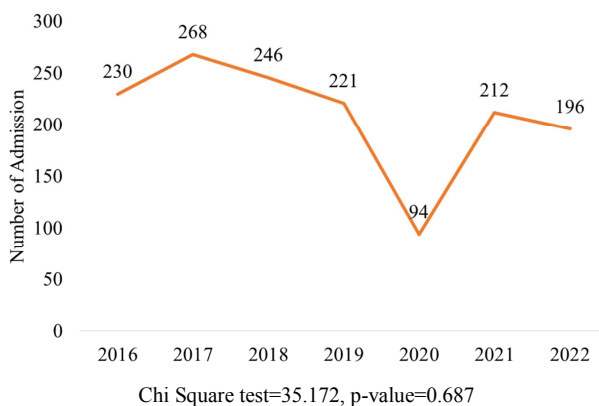


Figure 3. Admission trend during 2016-2021.

4. Discussion

Dermatology: the study of skin, the science of dermatology has transformed all over centuries from Ancient Egyptian papyri and Hippocratic writings till 18th and 19th centuries when specialty integrated itself as a field of medical study based on the first classifications of dermatoses, diagnostic methods, and drug treatments. [6] Skin diseases are the 4th leading cause of nonfatal disease burden according to Global Burden of Disease project. [7] Dermatology is essentially an out-patient discipline but considerable number of patient require hospitalization for disease management. Skin dermatoses have a wide spectrum and can either present primary cutaneous conditions, or skin may become a window to underlying systemic diseases so called secondary cutaneous conditions and some conditions may develop during hospital stay, which may be termed tertiary cutaneous disorders. [8]

We retrospectively reviewed the characteristics of 1467 patients who were admitted in dermatology department of Services Institute of Medical Sciences, Lahore. Among the admitted patients the most common diagnosis remained psoriasis, followed by erythroderma due to psoriasis, SJS/TEN, systemic lupus erythematosus and pemphigus vulgaris. Whereas, Aman S et Al noted eczemas to be most common followed by cutaneous infections which is different from our observation. [9] A research conducted in Australian hospital, psoriasis and eczemas were again commonest classified under group of inflammatory diseases. [10] Gupta S

et al, noted commonest presentation to be immunobullous and connective tissue diseases from North India. [1] Results from an inpatient review of São Paulo, Brazil showed eczema/Dermatitis and psoriasis to be the commonest cause for admission. [11] In an Iranian research the commonest diseases among admitted patients was immunobullous diseases followed by psoriasis and eczemas. [12] Another retrospective analysis carried out in Jeddah, KSA the commonest cause of admission was again eczema. [13] Psoriasis, eczemas and immune bullous diseases are the most common diseases in most of the researches in the past and we have noted the same.

Mean duration of hospital stay in our research ranged from 9-14 days. Maximum length of hospital stay was recorded in vasculitis of 140 days which is less than noted by Sen A et al, where the mean duration of hospital stay was 22.2±15.7 days; ranging from 1 to 164 days. [12] While Gupta V et al, noted that the mean duration of stay in hospital was 13.95±11.67 days (range 1-118 days) which is similar to our findings. [1] In Australian inpatient analysis majority patients stayed for less than 10 days but few patients had to stay for more than 30 days. [10] The patients who stayed longer were mainly suffering from eczemas, infections and ulcers while in our set up patients suffering from immunobullous diseases, connective tissue diseases, psoriasis and vasculitis stayed longer. [10] The reason for longer stay is probably because of their residence in far-flung areas and frequent follow ups not possible due to travel expenditures.

Among the admitted patients there were 63% males and 36% female. Male patients dominated throughout in terms of indoor admission during the years 2016 till 2022. The highest number of patients were admitted under the age group 21-40 years and 41-60 years over the years. This is in contrast to the findings of Aman S et al in Mayo Hospital Pakistan who noted 58% females and 42% males; while the commonest age of admission was 20-40 which is similar to ours. [7] While in an Australian study there were 56% males and 44% female, while mean age was 42 years which is similar to our findings. [10] We have also noted patients admitted for squamous cell and basal carcinomas, pigmentary conditions including Addisonian pattern of pigmentation, ashy dermatosis, twenty nail dystrophy and hair shaft disorders. These patients were admitted for evaluation, confirmation of diagnosis and referred to oncology in case of malignancies.

Over a period of 7 years the total number of admissions were 1467, averaging 200-250 admissions per year except in year 2020, when total admissions were only 94. This was the year when Pakistan was facing the COVID crisis. In a population-based national study from Ontario, Canada utilizing administrative healthcare retrospective analysis of a 17-year period, 161,358 patients were hospitalized for diseases of the skin as the primary diagnosis, with an annual average of 9,492 admissions. [14] We have presented data of only 7 years of patients admitted in Services hospital, Lahore city where the burden of skin diseases is shared by several teaching hospitals in government and private set up. Over the past decade, the

subspecialty has expanded and excelled in research and education and brought major innovation health care system [15]. Hence a multicentric analysis is required to analyze the burden of skin disease and conditions on healthcare system.

5. Conclusion

Dermatology is an important medical allied speciality which not only shares a major burden of outpatient but a significant number of patients require hospitalization for extensive management. This indoor admission not only enhances the clinical acumen of dermatology residents but increases the scope of inter-speciality training. Further large scale multicentric studies are recommended to estimate the hospital disease burden of skin patients.

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Conflict of Interests

We have no conflict of interest to declare.

Ethical Approval

Ethical approval was taken from from internal review board.

Consent

Patients anonymity was maintained while collecting data hence informed consent is not applicable.

Author Contributions

SS: Conducted the research, collected and organized data, analysed and interpreted and wrote the final draft.

FA: Conceived and designed the study, analysed the data and revised the final draft.

SA: Analyzed data and revised the final draft.

AC: Collected and organized the data.

SB: Collected Data

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