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PATTERN OF DERMATOLOGY CROSS CONSULTATIONS IN A TERTIARY CARE TEACHING HOSPITAL IN NORTH INDIA

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Abstract: Background: A wide spectrum of cutaneous findings is prevalent in hospitalized patients and associated with significant morbidity. Rapid detection and identification of these changes can have a significant impact on hospitalized patients. **Aims and objectives:** To characterize the patient profile and referral pattern of inpatient dermatology consultation. **Method:** This is a retrospective study reviewing all inpatient referrals for dermatology consultations during a six month period in a tertiary care teaching hospital. The data obtained was regarding the patient profile, requesting department, reason for hospitalization and dermatologic diagnosis made. Also an attempt was made to find out an association between dermatological disorder and systemic pathology and the number and pattern of admissions done for primary dermatological disorders by non dermatologists. **Results:** Out of 501 cross consultations made, majority of the referrals were from the department of medicine. The most common dermatological diagnosis encountered were infection, drug rash, generalized pruritus and eczemas. Out of a total of 501 consultations, 146 (29.1%) were associated with an underlying systemic pathology and in 28 out of 501 patients (5.6%), skin symptoms were the major/sole reason for hospitalization. **Conclusion:** Common skin diseases account for majority of inpatient dermatology consultations. An alliance between the dermatologists and non dermatologists is required to decrease the morbidity and improve the patient care.

Keywords: Cross Consultation, Dermatology, Eczema, Skin Infections



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INTRODUCTION

Skin is arguably the largest immunologically active organ in the body. It not only manifests primarily dermatological disorders, but also acts as a mirror to the underlying systemic pathology, thus making it an interdisciplinary organ. With the advent of new and more effective therapeutic strategies for skin disorders, there has been a significant decline in the number of patients hospitalized by dermatology departments. As a result, dermatology Inpatient care is provided more often in the consultation setting.

It has been found that more than 20% of the population has a relevant skin problem with an important impact on quality of life, making it eminent that many of the patients hospitalized by non-dermatologists have skin diseases as an additional medical problem, or might be admitted for a dermatologic disorder *per se*. [1] In addition, growing number of drugs are given to the patients and it is well known that 5-15% will develop an adverse drug reaction and skin is the most common organ involved. [2] Very commonly, dermatologic consult often leads to revision to the original diagnosis made by the referring physician, thereby helping in better and wholesome management to the patient.

Thus, in order to highlight the impact of dermatologic consultation on diagnosis and treatment of Inpatients, we conducted a study to characterize the profile of dermatological issues frequently encountered in in-patient setting of a tertiary level teaching hospital.

MATERIAL AND METHODS:

In the current study, we retrospectively evaluated all Inpatient dermatologic consultations done over a period of 6 months in our institute. Each dermatology consultation was done by a dermatology consultant, accompanied by two dermatology residents. Data obtained included- patient's age & gender, requesting department, reason for hospitalization and dermatologic diagnosis made. Special emphasis was laid to find out the association between dermatological disorder and systemic pathology and the incidence of admission for primary dermatological disorder by non-dermatologists.

RESULTS

Patient demographics:

A total of 501 in patient consultations were made to the dermatology unit in the study period. The average number of consultations made were 83.5 per month. These patients included 331 (66.1%) males and 170 (33.9%) females. The mean age of patients included in the study was 48.9 years (range 1.5 month to 92 years). The majority of the patients were 15-60 years old

(n=324; 64.7%), followed by those beyond 60 years of age (n=165; 32.9 %) and less than 15 years of age (n=12; 2.4%).

Services requesting consultations:

The services requesting consultation most frequently were- medicine (23.3%), cardiology (12.4%), gastroenterology (9.6%), neurology (7.2%), neurosurgery (7.0%) [Table 1]. The various primary non-dermatological disorders for which patients were admitted under various specialities are mentioned in Table 2.

Table 1 : Services requesting consultations

Department					
	Frequency	Percent	Department	Frequency	Percent
Medicine	118	23.3	Obstetrics and gynae	27	5.4
Cardiology	62	12.4	Endocrinology	22	4.4
Gastroenterology	48	9.6	Orthopaedics	20	4.0
Neurology	36	7.2	Paediatrics	16	3.2
Neurosurgery	35	7.0	Chest and TB	12	2.4
Nephrology	32	6.4	Oncology	5	1.0
Psychiatry	30	6.0	ENT	3	0.6
Surgery	29	5.8	Gastrosurgery	3	0.6
			Oncosurgery	2	0.4
			Plastic surgery	1	0.2

Table 2: Primary Non-Dermatological Diagnosis:

Primary diagnosis	Frequency	Percentage	Primary diagnosis	Frequency	Percentage
Infection	73	14.6	Neoplasia	11	2.2
Cardiovascular	66	13.2	Drug reaction	5	1
Gastrointestinal	62	12.4	Others(paediatrics, dermatitis, haematology,)	21	4.2
Diabetes	45	9.0			
Trauma	44	8.8			
Neurology	42	8.4			
Renal	36	7.2			
Gynaecological	28	5.6			

Psychiatry	27	5.4
Pulmonary	19	3.8
Rhematological	12	2.4

Dermatological Diagnoses:

The most common diagnoses encountered during cross consultations were concentrated within six major categories- infections, drug rash, generalized pruritus, endogenous and exogenous eczemas. (Table 3)

Table 3: Proportion of dermatologic diagnosis (multiple response)

Diagnosis	Number of consultations(%)	Comments (number of consults)
Infections	140(28)	<ul style="list-style-type: none"> Fungal- Dermatophytic (48), candidiasis (27) Bacterial- Pyodermas(11), cellulitis(11), impetigo(3), ecthyma(2), carbuncle(2) Viral- herpes simplex(23), herpes zoster (4), viral exanthems(7), human papilloma virus (1), chickenpox (1).
Drug Rash	61(12.2)	Maculopapular rash (56), SJS/TEN(3), FDE(2)
Endogenous eczema	44(8.8)	Asteotic eczema (15), seborrheic eczema(11), Atopic eczema(10), Discoid Eczema(5), Stasis eczema(3)
Exogenous eczemas	41 (8.2)	Contact dermatitis (22), photodermatitis (10), I.E.D (7)
Generalized Pruritus	46 (9.2)	
Allergic	21 (4.2)	Acute/chronic urticaria (20), angioedema (5)
Papulosquamous disorders	24 (4.8)	Psoriasis (21), Lichen planus(3)
Scabies	20 (4.0)	
Ecchymoses / petechiae	15(3)	
Vasculitis	9(1.8)	
Acne/ Acneiform eruption	9(1.8)	
CTD	5(1.0)	Systemic sclerosis(2),

		Dermatomyositis(1),Rowell's syndrome(1), DLE(1)
Miscellaneous	67(13.2)	Miliaria(15), xerosis(11), aphthae(7),macular amyloidosis(4), schamberg's disease(4), hair disorders (4)vitiligo(3), sebaceous cyst(2), reactive perforating collagenoses (2), perioral dermatitis(2), Burns(2), pyoderma gangrenosum(1), STD(1), pemphigus foliaceus(1)

Abbreviations used: SJS/TEN- Stevens Johnson syndrome/ Toxic epidermal Necrolysis, FDE- Fixed Drug Eruption, D.L.E-Discoid lupus erythematosus, I.E.D- Infective eczematoid dermatitis, S.T.D-Sexually transmitted diseases, C. T. D- connective tissue diseases

Infections:

Out of 140 consultations attributed to infections, fungal infections accounted for 53.5% (n=75) consultations. These included 48 cases with dermatophytic infections and 27 cases with candidiasis. Viral infections (36 cases) included 23 cases with herpes simplex infections, less common ones being herpes zoster, chicken pox, viral exanthems and human papilloma virus infections. Bacterial infections were diagnosed in 29 cases (20.7%) and included pyoderma, cellulitis, impetigo, ecthyma and carbuncle.

Drug eruptions:

There were 61 consultations for drug eruptions, out of which 56 (91.8%) were uncomplicated maculopapular drug eruptions. The remainder included 3 cases with SJS/ TEN and 2 with FDE.

Eczemas:

A total of 85 consultations (17.0 %) were made for eczemas, out of which 44 cases (8.8%) had endogenous eczema, out of which asteotic eczema was the most commonly encountered eczema, accounting for 34.1 % (n=15) cases of endogenous eczema, followed by seborrhoeic (25.0%) and atopic eczema (22.7%). Exogenous eczemas contributed to 8.2% of the consultations, out of which, majority were for contact dermatitis.

Consultation profile according to age group:

The consultation profile classified according to age group has been given in Table 4. The salient features of the classification are as under.

- **15-60 years:** This age group contributed to the majority of inpatient consultations, that is 64.7%. In this age group, the majority of consultations were for skin infections (27.5%), out of which fungal infections were the most common. The second most common cause was drug eruptions (13.9%), followed by pruritus (9.0%) and endogenous eczema (9.0%).
- **>60 years:** Here again, majority of the consultations done were for infectious diseases, out of which fungal infections accounted for the majority. Endogenous eczema (13.9%), especially asteotic eczema was the second most common dermatoses encountered. This was followed by pruritus in 10.3% cases and drug rash in 8.5% cases, indicating that the latter is less common in this age group as compared to the younger age group.
- **<15 years:** In this age group, majority of consultations were done for miliaria (33.3%), followed by scabies and drug rash, accounting for 16.7% cases each. Skin infections (except for a single case of chicken pox), drug rash and exogenous eczemas were not encountered in this age group, suggesting that the profile of dermatoses in paediatric age group is much different from the above two age groups.

Overall, all the diseases were more common in the 15-60 years age group, except for vasculitis, which was more frequently encountered in the elderly.

Table 4: Consultation profile according to age

	<15 years N(%)	15-60 years N(%)	>60 years N(%)
Allergic	1 (8.3)	16(4.9)	4(2.4)
Bacterial infection	0(0)	19(5.9)	11(6.7)
Fungal infection	0(0)	44(13.6)	30(18.2)
Viral infection	1(8.3)	26(8.0)	9(5.5)
Scabies	2(16.7)	12(3.7)	6(3.6)
CTD	1(8.3)	4(1.2)	0(0)
Endogenous eczema	0(0)	29(9.0)	12(13.9)
Exogenous eczema	0(0)	29(5.8)	12(7.3)
Maculopapular drug rash	2(16.7)	42(13.0)	12(7.3)
SJS/TEN	0(0)	2(0.6)	1(0.6)
FDE	0(0)	1(0.3)	1(0.6)
Vasculitis	0(0)	4(1.2)	5(3.0)
Pruritus	0(0)	29(9.0)	17(10.3)
Papulosquamous disorders	0(0)	17(5.2)	7(4.2)
Acne	0(0)	9(2.8)	0(0)
Miliaria	4(33.3)	10(3.1)	1(0.6)

Others	1(8.3)	34(10.5)	58(15.7)
Total	12(100)	324(100)	165(100)

N= number of various dermatosis

Distribution of dermatosis in various departments:

The prevalence of the six most commonly diagnosed skin diseases during dermatological cross consultation in various departments has been tabulated in Table 5. It was observed that all of the 6 most commonly diagnosed skin diseases were encountered in the department of medicine. Out of all the cases of drug rash, the department of medicine contributed 37.7% cases and, neurosurgery and neurology contributed to 9.8% cases each. Again in the case of skin infections, the majority of contribution came from the department of medicine, accounting for 20.7% cases, followed by cardiology (17.1%) and surgery (8.6%).

It should be noted that the majority of the consultations were for skin infections from all the departments, except for nephrology and gastroenterology, where most of the consultations were for pruritus, particularly associated with chronic liver and kidney disease.

Out of a total of 501 consultations, 146 (29.1%) were associated with underlying systemic pathology.

Table 5 :The prevalence of the 6 most common skin diseases in various departments+

Skin disease	Total	Medicine N*(%) ^s	Cardio N*(%) ^s	Gastro N*(%) ^s	Surgery N*(%) ^s	Neurosurgery N*(%) ^s	Nephrology N*(%) ^s	Neurology N*(%) ^s	Paediatrics N*(%) ^s	Psychiatry N*(%) ^s	Obs and gynae N*(%) ^s
Infections	140	29(20.7)	24(17.1)	9(6.4)	12(8.6)	7(5.0)	6(4.3)	9(6.4)	3(2.1)	11(7.9)	9(6.4)
Drug Rash	61	23(37.7)	4(6.6)	5(8.1)	1(1.6)	6(9.8)	3(4.9)	6(9.8)	2(3.3)	1(1.6)	1(1.6)
Endogenous eczema	44	8(18.2)	7(15.9)	4(9.1)	1(2.3)	1(2.2)	2(4.5)	5(11.3)	0(0)	5(11.3)	2(4.5)
Exogenous eczemas	41	10 (24.3)	5(12.2)	3(7.3)	3(7.3)	3(7.3)	2(4.9)	3(7.3)	1(2.4)	1(2.4)	4(9.6)
Pruritus	46	13 (28.2)	5(10.9)	10(21.7)	1(2.2)	2(4.3)	8(17.4)	1(2.2)	0(0)	1(2.1)	3(6.5)
Allergic	21	6 (23.1)	1(4.8)	2(7.6)	0(0)	2(7.6)	1(4.8)	1(4.8)	1(4.8)	2(9.6)	2(9.5)

+ total percentage will not amount to 100% as all departments have not been included

*N= number of cases encountered in the particular department

\$ proportion of cases of a particular disorder contributed by a particular department.

Skin disease as a reason for hospital admission:

An analysis was performed to determine whether skin related disease was the primary cause for hospitalization. It was found that in 28 of 501 consultations (5.6%), the skin symptom was the sole or major reason for admission. The diagnosis in these 28 consultations and the departments under which these patients were admitted has been given in Table 6.

Table 6: Dermatologic diseases as a cause for admission and the various departments in which admissions were made

Category	Diagnosis	Frequency	Department	Number of admissions (%)
Infections		12		
	Cellulitis	9	Medicine	12(42.9)
	Viral exanthema	2	Surgery	9(32.1)
			Gastroenterology	2(7.1)
	Oral thrush	1		
Drug rash			Nephrology	2(7.1)
	Maculopapular drug rash	4	Paediatrics	1(3.6)
	SJS/TEN	3	Cardiology	1(3.6)
	Urticaria with angioedema	1		
CTDs		3		
	Dermatomyositis	1		
	Rowells Syndrome	1		
	Systemic Sclerosis	1		
Others		5		
	Atopic eczema	1		
	Vasculitis	1		
	Scrotal Dermatitis	1		
	Pemphigus foliaceus	1		
	Severe pruritus because of chronic kidney disease	1		
	Total	28		28(100%)

Dermatoses in diabetics versus non-diabetics:

On comparing the diabetic population with the non-diabetics (Table 9), a statistically significant higher incidence of bacterial (17.7% vs 4.8%) and fungal infections (28.9% vs 13.3%) was noted amongst diabetics ($P < 0.05$). The incidence of psoriasis and eczemas was almost similar in both the groups.

Table 7: Dermatoses in diabetics versus non diabetics

Dermatosis	Total	Non-diabetics (N*=456)	Diabetics (N*=45)	p-value/ significance
Bacterial infections	30	22 (4.8%)	8(17.7%)	<0.05
Fungal infections	74	61(13.3%)	13(28.9%)	<0.05
Eczemas	85	77(16.9%)	8(17.8%)	>0.05
Viral infections	36	35(7.7%)	1(2.2%)	>0.05
Psoriasis	21	19(4.2%)	2(4.4%)	>0.05
Drug rash	56	54(11.8%)	2(4.5%)	

DISCUSSION

Skin problems are a common cause of morbidity in hospitalized Inpatients. In this report, we analyze the pattern of dermatosis in a tertiary care teaching hospital. Out of a total of 501 consults, 64.7% patients were between 15 to 60 years of age, with the mean age of 48.9 years. This age distribution is similar to that seen in a study by Fernandes et al [2] where the mean age was 59 years. However, in contrast to our study, consult requests were more frequent for patients younger than 45 years of age or more than 60 years of age in some studies. [4,5]

Our study showed that the discipline of medicine made the maximum requests for in patient dermatologic services, which is in keeping with many other studies.[4,5,6,7] In our study, the most common consultative dermatology diagnosis were- skin infections (28 %), drug rash (12.2%) and eczemas (17%). This was concordant with the study done by Fernandes et al, in which the most common dermatologic diagnosis made on cross consultations were- infections (33.2%), followed by eczemas (9.5%) and drug eruptions (7.3%). (3) Beauer and Maroon, in their study, also found that infections were the most common dermatologic diagnosis in inpatient

setting. (5) Similar results were also reported by Koh in his study of dermatological problems in haematology ward, where infection was the most common dermatologic diagnoses, followed by dermatitis. (8)

Cellulitis, drug eruptions and viral exanthem were the most common cause of dermatology related hospital admissions. Similarly, Bauer and Maroon, (5) in their study on inpatient dermatology consultations mainly involving adults and McMahon et al, (9) in their study involving pediatric inpatients, reported infectious diseases to be the most common reason for hospital admission for primary dermatologic conditions. In our study, cutaneous manifestations were associated with systemic disease in 29.1% consults. This was much higher than described by Itin (2) and Fernandes et al, (3) who reported an association in 15.7% and 10.6%, respectively. The associations most commonly seen were a higher incidence of skin infections in diabetics, pruritus in patients with chronic kidney and liver disease and pyoderma gangrenosum in patients with inflammatory bowel disease.

A distinctive pattern of dermatoses according to the age of patient was also observed. In the geriatric population, the most common cause for seeking dermatological consult was eczematous dermatitis, particularly asteotic eczema. This is in keeping with the conventional teaching that an age related decrease in skin lipids both from the epidermis and sebaceous glands complicated by impaired epidermal permeability barrier leads to xerosis. [10] A study from Turkey conducted on 4099 geriatric patients found eczematous dermatitis to be the most common disorder. [11] Another study in Singapore, also reported xerosis and asteatotic eczema as the most common disorders, followed by scabies, bacterial infections, and eczematous dermatitis. [12] On the other hand, in the paediatric population, miliaria accounted for majority, i.e, 33% of the consults, which is justified by the fact that ours is a tropical country and it is well known that the incidence of miliaria is the highest in hot and humid climate, infants being especially prone. [13]

We also observed that the maximum number of consults from the department of nephrology were for pruritus in concordance with the fact that severe pruritus occurs in one-third of renal failure cases and up to 85% of patients on haemodialysis. [14] Amongst the diabetics, a statistically significant higher number of bacterial and fungal infections was seen, as has been found in previous studies. [15,16]

The importance of early dermatology consultation, particularly within the first 24 hours of patient's admission or onset of skin related signs and symptoms, cannot be stressed enough. This is because the appearance of various dermatoses changes with time, and an early diagnosis and institution can greatly improve the prognosis of the patient and reduce the chances of development of systemic complications. This should thus, motivate non-

dermatologists to request dermatology consultations at the earliest. In our department, consultations are usually completed within 24 hours, thereby greatly improving the standard of care at our hospital.

The limitations of our study include the small number of patients, and its retrospective nature, where some data was not adequately recorded and incomplete. The paucity of histological information also limited the interpretation of our data. Most of the dermatological conditions were diagnosed clinically, and investigations like biopsy, KOH smear, Tzanck smear, etc were either not deemed necessary, or refused by the patient due to financial constraints.

CONCLUSION

Common skin diseases account for majority of inpatient dermatology consultations. This calls for prompt dermatology consults which can greatly aid in reducing the morbidity of hospitalized patients, making adequate and early diagnosis, thus saving time and cost of hospitalization. Also, dermatology consultations can prove to be very educational for non dermatologists and can make them more vigilant in associating systemic symptoms with dermatologic signs. Thus, an alliance between the dermatologists and non dermatologists can synergistically improve the patient care.

REFERENCES

1. Bingefors K, Lindberg M, Isacson D. Self-reported dermatological problems and use of prescribed topical drugs correlate with decreased quality of life: an epidemiological survey. *Br J Dermatol.* 2002 Aug;147(2):285-90.
2. Itin PH. Dermatologic Consultations in the Hospital Ward: The skin, an Interdisciplinary Organ. *Dermatology* 2009;219:193-194.
3. Fernandes IC, Velho G, Selores M. Dermatology inpatient consultation in a Portuguese university hospital. *Dermatol Online J.* 2012 Jun 15;18(6):16.
4. Falanga V, Schachner LA, Rae V, Ceballos PI, Gonzalez A, Liang G, Banks R. Dermatologic consultations in the hospital setting. *Arch Dermatol.* 1994 Aug;130(8):1022-5.
5. Bauer J, Maroon M. Dermatology inpatient consultations: a retrospective study. *J Am Acad Dermatol.* 2010;62(3):518–519.
6. Mancusi S, Festa Neto C. Inpatient dermatological consultations in a university hospital. *Clinics (Sao Paulo)* 2010;65(9):851–855.

7. Peñate Y, Guillermo N, Melwani P, Martel R, Borrego L. Dermatologists in hospital wards: an 8-year study of dermatology consultations. *Dermatology (Basel)*2009; 219(3):225–231.
8. Koh H. A retrospective analysis of dermatological problems in a hematology ward. *Clin Cosmet Investig Dermatol*. 2013 Jun 4;6:145-9
9. McMahon P, Goddard D, Frieden IJ. Pediatric dermatology inpatient consultations: a retrospective study of 427 cases. *J Am Acad Dermatol*. 2013 Jun;68(6):926-31
10. Choi EH, Man MQ, Xu P, et al. Stratum corneum acidification is impaired in moderately aged human and murine skin. *J Invest Dermatol* 2007; 127:2847–2856
11. Yalcin B, Tamer E, Toy GG, et al. The prevalence of skin diseases in the elderly: analysis of 4099 geriatric patients. *Int J Dermatol* 2006; 45: 672–676.
12. Yap BK, Siew GM, Goh LC. Pattern of skin diseases in the elderly at the National Skin Centre (Singapore) 1990. *Singapore Med J* 1994; 35: 147–150.
13. Mowad CM, McGinley KJ, Foglia A, Leyden JJ. A role of extracellular polysaccharide substance produced by *Staphylococcus epidermidis* in milaria. *J Am Acad Dermatol* 1995; 33: 729–33.
14. Young AW Jr, Sweeney EW, David DS et al. Dermatologic evaluation of pruritus in patients on hemodialysis. *N Y State J Med* 1973; 73: 2670–4.
15. Huntley AC. The cutaneous manifestations of diabetes. *J Am Acad Dermatol* 1982;7: 427–55.
16. Boyne M, Dobs AS, Krasner AS, Provost TT. Evaluation and treatment of endocrine disorders. In: Provost TT, Flynn JA, eds. *Cutaneous Medicine. Cutaneous Manifestations of Systemic Disease*. Hamilton, Ontario: B.C. Decker, 2001: 413–51.