Original Article

Dermatology referral of inpatients from other disciplines : pattern and impact on managent of patients in a tertiary care hospital

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Although dermatology has traditionally been practiced through outpatient consultation, hospitalized patients often have dermatologic problems. Along with common dermatological diseases hospitalized patients may have a wider spectrum of severe and serious dermatological conditions, associated with significant morbidity within hospitals which demands dermatological expertise. These often provide a clue to the future diagnosis, prognosis and treatment of patients. To analyze the causes of inpatient dermatology referrals, departments sending referrals, and impact of dermatology consultation on patient management. In this year-long prospective observational study of 398 patients we used a specific data collection form to record information on consultations for patients admitted between February 2017 and December 2017. The demographic details, specialties requesting consultation, cause of referral, and dermatological advice have been recorded and analyzed. General medicine requested the maximum number of referrals, and infections (43.46%) are the most common cause for referral. Most variable and interestng cases were referred from the department of Paediatrics, followed by General Medicine. Accurate diagnosis on referrals was provided by only 34.01% of nondermatologists. Common dermatological disorders were often misdiagnosed by these physicians. Our study revealed the importance of inpatient medical dermatology referral in terms of both service and education. While dermatologic referral leads to improved patient care, there is a need for better training of nondermatologists enabling them to recognize and treat common dermatoses. Apart from that, dermatologist also get enriched by evaluating different dermatological findings in patients suffering from systemic disease.

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Dermatologic consultations often have a huge impact on inpatient care and outcome, though Dermatology is primarily considered to be an outpatient-catering specialty although modern dermatology needs not only beds but operation theatre and 'ITU'. Most often, patients admitted in a different speciality with some specific medical complaints, show features of cutaneous signs and symptoms, which may be tell-tale sign specifying some internal disease. As skin diseases are often diagnosed clinically and without the support of objective tests, misdiagnoses by care givers other than specialists often happen. Thus, dermatologic referral should be mandatory when the clinical diagnosis is uncertain, particularly when there is an unexpected or unexplained cutaneous manifestation during the course of the disease.The interdepartmental referral not only helps in patient care but also improves the diagnostic accuracy and clinical knowledge of the clinician[1-5]. The present study was conducted to see the type of dermatological diseases encountered among patients admitted in other wards and its impact on patient management at a tertiary care teaching institute of West Bengal.

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Materials and Methods

This study was carried out at the tertiary care teaching institute of Kolkata for 1 year duration (Feb 2017 to Jan 2018). During this period all the inpatients referred from non-dermatology wards to dermatology unit were attended by one visiting consultant along with one or more residents. Where diagnostic intricacies existed, opinion of another consultant was sought. In case of diagnostic dilemma, specific investigations such as KOH examination,

Gram's smear, Tzanck smear, slit skin smear, skin biopsy, dermatosopy, nerve conduction velocity, and also blood and radiological investigations were undertaken to reach the diagnosis. Referral services were also provided to non-ambulatory sick patients in intensive care units or other wards. Details of the referring unit, patients' demographic profile, primary diagnosis for which patient was admitted, provisional diagnosis of dermatoses if made by the admitting consultant, and final diagnosis of dermatoses by specialist dermatologist were recorded in a proforma for analysis and interpretation. All the patients were examined within 24 hours of request for referral. Institutional Ethics Committee approval was obtained for the study and all the data have been preserved for future reference.

Result

A total of 398 referrals were received during the study period. The average number of patients seen per month was 31. There were 170 males (42.71%) and 228 females (57.28%), with a M:F ratio of 1:1.34 (Table 1). The spectrum of age of the attended patients ranged widely from 1 day to 87 years. Majority of the patients (212; 53.26%) were in 19-45 year age group at the time of consultation.

The referral service of the dermatologist was sought by almost all the specialties. The referral was most frequently sought by the inpatient department of General Medicine (214,53.76%), thus accounting for nearly half of the total patients, followed by those of Gynaecology and Obstetrics (52,13.06%), Pediatrics (38,9.54%) and Surgery (23,5.77%)(Table 2).

A total of 391 dermatological diagnoses were made among 398 patients other 7 patients were referred for some non-specific symptoms.

Infections and infestations were the most common (173,43.46%) cause of referral and included viral infections (76), fungal infections (45), bacterial infections (18), parasitic infestations (25), and mycobacterial infections (9) (Table 3). "Viral infections" accounted for almost half (43.93%) of the infective group. This was followed by and drug reactions (43,10.80%) and eczema (52,13.06%).

Table 1 — *Departmentwise referral list*

Department	Total no of patients	Male (%)	Female (%)
Medicine	214	98	116
Surgery	23	16	7
Gynae	52	NA	52
Orthopedic	19	11	8
Chest medicine	12	7	5
Eye	7	2	5
Ent	4	2	2
Psychiatry	16	9	7
Cardiology	4	3	1
Paediatric	38	16	22
Neuromedicine	5	2	3
Plastic surgery	3	3	0
Urology	1	1	0
TOTAL	398(100%)	170 (42.71%)	228 (57.28%)

Table 2 — *Probable Etiology of Referral (Total = 398)*

Medicine [Total patients 214 (53.76%) :			
Drug reaction	42	Viral exanthem	60
Collagen vascular disease	18	Vasculitis	9
Bullous dermatosis	7	Tinea	11
Non healing ulcer	5	Leprosy	5
Dermatitis	21	Oral ulcer	8
Pyoderma gangrenosum	1	Perforating dermatosis	1
Reiter's disease	1	Varicella	6
Diabetic dermatosis	6	Post inflammatory exfoliation	2
Erythema nodosum	7	Others	4
Surgery [Total patients 23 (5.77%) :			
Cellulitis	12	Non healing ulcer	2
Contact dermatitis	5	Herpes simplex	1
Scabies	2	Tinea	1
Gynae [Total patients 52 (13.06%) :			
Pregnancy dermatosis	17	Tinea corposis	11
Xerosis	7	Varicella	3
VDRL positive	2	Scabies	4
Genital LSA	1	Genital wart	3
Herpes simplex	1	Other	3
Orthopedic [Total patients 19 (4.77%) :			
Contact dermatitis	7	Herpes simplex	2
Tinea corporis	5	Cellulitis	3
Scabies	2		
Chest medicine [Total patients 12 (3.01%) :			
Tinea corporis	6	Scabies	2
Scrofuloderma	1	Post inflammatory exfoliation	1
Scleroderma	1	Lichen simplex chronicum	1
Eye [Total patients 7 (1.75%) :			
Herpes zoster	4	Seborrhoic bhepharitis	1
Contact dermatitis	2		
ENT [Total patients 4 (1.005%) :			
Oral LP	2	Aphthous ulcer	1
Herpes Zoster	1		
Psychiatry [Total patients 16 (4.02%) :			
Pediculosis capitis	10	Pediculosis corporis	3
Scabies	1	Xerotic eczema	2
Cardiology [Total patients 4 (1.005%) :			
Tinea corposis	2	Alopecia areata	1
Onychomycosis	1		
Paediatric [Total patients 38 (9.54%) :			
Prupura fulminence	3	Hypomelanosis of Ito	1
Neonatal pustulosis	3	Papular urticaria	8
Varicella	2	Candidal intertrigo	5
Miliaria rubra	4	Hemangioma	2
Carbon baby syndrome	1	Childhood Dermatomyositis	1
Tinea	4	Dermatitis	4
Neuromedicine [Total patients 5 (1.25%) :			
Leprosy	3	Scabies	1
Drug reaction	1		
Plastic surgery [Total patients 3 (0.75%) :			
Non healing ulcer	2	Eczema	1
Urology [Total patients 1 (0.25%) :			
Varicella	1		

The most common types of drug reactions were maculopapular rash, Stevens Johnson syndrome, and erythema multiforme. A total of 26 patients out of 43 diagnosed with drug reaction and in addition to 7 cases of immunobullous diseases, were transferred to our side for better management.

We found that 18 patients had dermatologic manifestations of systemic diseases.We diagnosed huge bulla on legs and ulcerated lesions on sole in cases of diabetes. We identified vasculitic lesions in patients subsequently diagnosed as a case of collagen vascular disease.Perforating dermatosis was seen in patients on dialysis for chronic renal failure.

Some dermatological conditions that include lichen planus, pigmentary disorders, lichen sclerosus et atrophicus, wart, reiter's diaease, nevus, alopecia were found to be less common, accounting for <3 cases each.

Table 3 — *Diseasewise referral list*

Diseases	No of patients	Percentages
Drug reaction	43	10.80%
Infection :		
Fungal	45	43.46%
Bacterial	18	
Viral	76	
Parasite	25	
Mycobacterium	9	
Dermatitis	52	13.06%
Collagen vascular disese	20	5.02%
Non healing ulcer	9	2.26%
Vasculitis	9	2.26%
Pregnancy dermatosis	17	4.27%
STD	5	1.25%
Bullous dermatosis	7	1.75%
Panniculitis :		
Erythema nodosum	7	1.75%
Oral ulcer	11	2.76%
Genetic disorders	1	0.25%
Nevus/ hemangioma	3	0.75%
Uncommon but specific dermatological diseases	24	6.03%
Others :		
Miliaria, hair fall, nail dystrophy, non-specific itching etc.	17	4.27%

We also got some uncommon dermatological diseases like carbon baby syndrome, reiter's disease, pyodema gangrenosum etc. which was getting treatment wrongly by the respective department and was diagnosed after dermatological referral.

Most variable and interestng cases were referred from the department of Paediatrics, followed by General Medicine (Table 2).

The different diagnoses made by the dermatologists after examining the referred patients have been tabulated in Table 2.

Our study showed that referring physicians could correctly mention the category of skin disorders in 34.01% cases on the dermatology referral sheets (eg, skin infections, immunobullous disorders), while in the remaining, only a vague diagnosis was provided (eg, "skin rash," "round lesion" "skin changes" etc). An additional investigations, specifically skin biopsy was performed in 18.32% of the referred cases to confirm the diagnosis.

Discussion

In our study, most of the patients referred for dermatology consultations were in 19-45 year age group (212; 53.26%) and a similar result was obtained in a study conducted in the USA[6]. In the said study, males have outnumbered females while in our study showed females were more commonly referred for dermatological opinion (M:F ratio of 1:1.34). Another study from India showed equal gender distribution in referral cases[7].

The referral pattern from different specialties has varied in different studies possibly due to differing pattern of dermatoses seen in different regions. In the present study, General Medicine accounted for the highest proportion of dermatological consultation (214,53.76%), as seen in several other published studies[2,3,8-15]. It is possibly due to higher admission rates in General Medicine wards and Dermatology is treated as an allied subject of General Medicine.

Gynaecology (13.06%), followed by Paediatrics (9.54%) specialities accounted for other common referrals in the current study. This result differs from other studies[2,3,8,10,11,14]. General Surgery requested maximum referrals (29.76%) in the study conducted by Walia and Deb from India. However we found only 5.77% referral from General Surgery indoor. Our finding in this resect is close to that of another study done in India[7,16]. Interestingly, in some studies, neurology unit has accounted for a significant number of referrals after Internal Medicine[5,12,13]. But the present study revealed only 5 cases (1.27%) from Neurology department. In an Indian study from Secunderabad, Surgery (29.8%) and Internal Medicine (29.7%) departments were responsible for more than half of the referrals to dermatologists[16].

Only 4.02% of referrals in our study were requested by the Psychiatry Department in contrast to some other studies, where Psychiatry accounted for almost 16% of the total referrals[6,17,18].

The pattern of dermatosesin referred cases seen in the reviewed studies is difficult to compare because the classification and quantification criteria were not uniform. However, in most of the studies,the frequent dermatological diagnoses were infections, dermatitis and drug reactions[8,10-13,16,19-25]. These were the most common diagnoses also observed in our study.

Drug rash, viral infections, dermatophytosis, connective tissue diseases, and dermatitis were the common dermatological diagnoses in patients referred from the Medicine Department whereas cellulitis or bacterial infection was most commonly found in patients from the Surgical wards. Most interestingly, we noticed that though we got a large number of referral from Paediatric department, it did not follow any pattern.

Before referral to the Dermatology unit, a tentative dermatological diagnosis was made in 57% patients only by the referring unit, and it was found to be correct in only 31% of the patients which is close to two Indian studies,

depicting 30.20% and 39% respectively[7,16]. Another Indian study from south Rajasthan showed it to be only 20%[20]. Other studies from Portugal,US,and Brazil have reported that a correct diagnosis was made in 23.9%, 48%, and 33% of the patients, respectively[3,8,13]. These studies also showed inability of many clinicians other than dermatologists to recognize simple cutaneous infections such as scabies,eczema, tinea or drug reactions, particularly drug hypersensitivity syndrome which is of serious concern, thus emphasizing the need for dermatological referral by non-dermatologist.

The final diagnoses made by the dermatologists revealed infections (43.46%), drug reactions (10.80%), and eczema/dermatitis (13.06%) to be the most common skin disorders. This finding coroborates with other studies[3,16,20].

In an Indian study conducted by Balai M *et al*, 26% of gynecological referrals were due to venereal disease research laboratory (VDRL) test positivity in a titer of <1:8. In our study we only found 2 patients of VDRL positivity with significant titre[20].

Conclution

We may conclude that many common dermatological disorders cannot be diagnosed or are misdiagnosed by the non-dermatologists in our setup. A proper dermatological evaluation aids in the diagnosis and management of several conditions and in addition, makes the treatment less time-consuming and more cost-effective. Apart from that,dermatologist also get enriched by evaluating different dermatological findings in patients suffering from systemic disease. The clinical findings and course of such diseases get modified with proper advice from dermatologist. Dermatologist also get acquainted with the improvised and modified management of dermatological conditions in those patients of systemic diseases. Further, such referral is essentially required for medicolegal aspect.So, referral system is a very appreciable practice and is beneficial for both doctors and patients.

Conflict of Interest : NIL

References

1 Itin PH — Dermatologic Consultations in the Hospital Ward: The Skin, an Interdisciplinary Organ. *Dermatology* 2009; **219:** 193-4.

2 Lorente-Lavirgen AI, Bernabeu-Wittel J, Pulpillo-Ruiz A, de la Torre-García JM, Conejo-Mir J — Inpatient Dermatology Consultation in a Spanish Tertiary Care Hospital: A Prospective Cohort Study. *Actas Dermosifiliogr* 2013; *104:* 148-55.

3 Falanga V, Schachner LA, Rae V, Ceballos PI, González A, Liang G, *et al* — Dermatologic consultations in the hospital setting. *Arch Dermatol* 1994; **130:** 1022-5.

4 Nahass GT — Inpatient dermatology consultation. Dermatol Clin 2000; **18:** 533-42.

5 Fischer M, Bergert H, Marsch WC — The dermatologic consultation. *Hautarzt* 2004; **55:** 543-8.

6 Davila M, Christenson LJ, Sontheimer RD — Epidemiology and outcomes of dermatology in-patient consultations in a Midwestern U.S. university hospital. *Dermatol Online J* 2010; **16:** 12.

7 Chowdhury SN, Podder I, Saha A, Bandyopadhyay D — Interdepartmental Dermatology: Characteristics and Impact of Dermatology Inpatient Referrals at a Teaching Hospital in Eastern India. *Indian J Dermatol* 2017; **62:** 29-32.

8 Fernandes IC, Velho G, Selores M — Dermatology inpatient consultation in a Portuguese university hospital. *Dermatol Online J* 2012; **18:** 16.

9 Fischer M, Bergert H, Marsch WC — The dermatologic consultation. *Hautarzt* 2004; **55:** 543-8. [PubMed]

10 Hardwick N, Saxe N — Patterns of dermatology referrals in a general hospital. *Br J Dermatol* 1986; **115:** 167-76. [PubMed]

11 Itin PH. Impact of a department of dermatology within the global concept of a large hospital setting - Analysis of 594 consultations requested by non-dermatologists. *Dermatology* 1999; **199:** 76-9.

12 Penate Y, Guillermo N, Melwani P, Martel R, Borrego L — Dermatologists in Hospital Wards: An 8-year Study of Dermatology Consultation. *Dermatology* 2009; **219:** 225-31. [PubMed]
13 Mancusi S, CyroFesta N — Inpatient dermatological consultation in university hospital. *Clinics* 2010; **65:** 851-5. [PMC free article] [PubMed]
14 Arora PN, Aggarwal SK, Ramakrishnan SK — Analysis of dermatological referrals (a series of 662 cases from Baseband Army Hospital complex) *Indian J Dermatol* 1989; **34:** 1-8. [PubMed]
15 Storan ER, McEvoy MT, Wetter DA, el-Azhary RA, Camilleri MJ, Bridges AG, *et al* — Experience of a year of adult hospital dermatology consultations. *Int J Dermatol* 2015; **54:** 1150-6.
16 Walia NS, Deb S — Dermatology referrals in the hospital setting. *Indian J DermatolVenereolLeprol* 2004; **70:** 285-7.
17 Jessop S, McKenzie R, Milne J, Rapp S, Sobey G — Pattern of admissions to a tertiary dermatology unit in South Africa. *Int J Dermatol* 2002; **41:** 568-70.
18 Ahmad K, Ramsay B — Analysis of inpatient dermatologic referrals: Insight into the educational needs of trainee doctors. *Ir J Med Sci* 2009; **178:** 69-71.
19 Tay LK, Lee HY, Thirumoothy T, Pang SM — Dermatology referrals in an East Asian tertiary hospital: A need for inpatient medical dermatology. *ClinExpDermatol* 2011; **36:** 129-34.
20 Balai M, Gupta LK, Khare AK, Mittal A, Mehta S, Bharti G — Pattern of inpatient referrals to dermatology at a tertiary care centre of South Rajasthan. *Indian Dermatol Online J* 2017; **8:** 25-8.
21 Storan ER, McEvoy MT, Wetter DA, el-Azhary RA, Camilleri MJ, Bridges AG, *et al* — Experience of a year of adult hospital dermatology consultations. *Int J Dermatol* 2015; **54:** 1150-6. [PubMed]
22 Kiellberg Larsen H, Sand C — Referral pattern of skin diseases in an acute outpatient dermatological clinic in Copenhagen. *Acta Derm Venereol* 2005; **85:** 509-11. [PubMed]
23 Ahmad K, Ramsay B — Analysis of inpatient dermatologic referrals: Insight into the educational needs of trainee doctors. *Ir J Med Sci* 2009; **178:** 69-71. [PubMed]
24 Davila M, Chrisrenson LJ, Sontheimer RD — Epidemiology and outcomes of dermatology in-patient consultations in a Midwestern U.S. university hospital. *Dermatol Online J* 2010; **16:** 12. [PubMed]
25 Antic M, Conen D, Itin PH — Teaching effects of dermatological consultations on non-dermatologists in the field of internal medicine. A study of 1,290 inpatients. *Dermatology* 2004; **208:** 32-7.