

Research Article



A STUDY ON DRUG PRESCRIBING PATTERN AND USE OF CORTICOSTEROIDS IN DERMATOLOGICAL CONDITIONS AT A TERTIARY CARE TEACHING HOSPITAL

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ABSTRACT

This study was carried out to find out prescribing pattern of corticosteroids in dermatology department of tertiary care teaching hospital in Tamilnadu, India. Prescriptions of 268 patients were collected from both inpatients and outpatients over a period of 9 months (July 2010-March 2011). This information was analyzed by using WHO guidelines. The average number of drugs per prescription was 8.63 ± 1.8 and 2.72 ± 0.6 in inpatients and outpatients respectively. The most commonly prescribed topical drugs were corticosteroids and their combination (5%, 16.3%) and systemic agents were antihistamines (10.3%, 36.7%) followed by antibacterials (14%, 15%) and emollients (9%, 10.8%). Of the 1102 medications prescribed, 117 were topical corticosteroids. In most prescriptions, information about frequency of application, duration of treatment, and site of application was adequate and majority of prescription have been written rationally.

Keywords: Prescription pattern, Corticosteroids, Dermatology, Rationality.

INTRODUCTION

In 1985 WHO convened a major conference in Nairobi on the rational use of Drugs. Since that time efforts have increased to improve drug use practices. An essential tool for such work is an objective method to measure drug use in health facilities that will describe drug use pattern and prescribing behavior. Drugs play an important role in protecting, maintaining and restoring health. Prescription writing is a science and an art, as it conveys the message from the prescriber to the patient. The treatment of diseases by the use of essential drugs, prescribed by their generic names, has been emphasized by the WHO and the National Health Policy of India¹.

Dermatology is one of the few disciplines in which we are able to apply therapy directly to the target site. The concentration, the vehicle and the frequency of application can all be altered according to the response, which can easily be monitored. Among the drugs used in dermatology are vitamins/minerals, antibiotics, antiseptics, antifungal, antiviral, antihistamines, emollients, keratolytics, antiparasitics and topical corticosteroids.²

Topical corticosteroids, which were introduced in the late 1950s, have revolutionized the practice of dermatology and they still constitute one of the largest groups of drugs used in this discipline. As a general rule, physicians should use the weakest possible corticosteroid that will treat the dermatological condition. Topical corticosteroids are mainly used for non-infective dermatologic disorders associated with inflammation such as psoriasis, atopic dermatitis, contact dermatitis and otitis externa. Topical corticosteroids have many adverse reactions such as hypersensitivity, percutaneous absorption and tachyphylaxis. The potent anti-inflammatory and immunosuppressant actions of oral, and sometimes

topical corticosteroids increase susceptibility to bacterial and fungal infections, and therefore may preclude their use when infection is the known main cause of the condition. In addition, children may be more vulnerable than adults to systemic effects of topical corticosteroids because percutaneous absorption is greater.³

The patterns of drug use in a hospital setting need to be monitored intermittently in order to analyze their rationality and to offer feedback and/or suggestions to drug prescribers so as to enable and effect suitable modifications in prescribing pattern to increase the therapeutic benefits and reduce adverse effects.

MATERIALS AND METHODS

A prospective study was carried out in department of dermatology of SRM Medical College Hospital and Research Centre, Kattankulathur in Kanchipuram district, Tamil Nadu, India. A data collection form was prepared which includes patient as well as medication related information. 268 prescriptions were collected during July 2010 to February 2011. All relevant and necessary information for the study was collected from the outpatient department cards, treatment charts and verbal communication with the patients. Patient related parameters includes age, sex and drug related data such as name of the drug, dosage form, dosing frequency, duration, route of administration and diagnosis data also noted. This information was analyzed by using WHO guidelines as described in accordance with "How to investigate drug use in health facilities?"

RESULTS AND DISCUSSION

Corticosteroids are one of the largest groups of drugs used in dermatology and their rational use can minimize the systemic and cutaneous side effects. The result of this



study indicates that the topical corticosteroids were commonly prescribed for patients attending to the dermatology department.

A total of 268 prescriptions were analyzed during the study period. Highest numbers of patients were in male between the age group of 11-20 years (30%) and in female 21-30 years (30%) in inpatients and 21-30 years (35%, 26%) in both male and female in outpatients. Amongst 63 inpatients, 33 were males and 30 were females and 205 outpatients, 96 were males 109 were females. The mean age of the inpatients was 36 ± 19.42 , 35 ± 15.1 years but in outpatients 34.9 ± 16.91 , 25.3 ± 15.5 years in males and females respectively. (Table I)

Table I: Age wise-sex distribution

INPATIENTS (n=63)				
Age Group	Male	Percentage	Female	Percentage
0-10	1	3%	2	7%
11-20	10	30%	2	7%
21-30	4	12%	9	30%
31-40	2	6%	6	20%
41-50	4	12%	7	23%
51-60	8	24%	2	7%
> 60	4	12%	2	7%
Total	33		30	
OUTPATIENTS (n=205)				
0-10	7	7%	26	24%
11-20	7	7%	14	13%
21-30	34	35%	28	26%
31-40	14	15%	20	18%
41-50	7	7%	14	13%
51-60	20	21%	7	6%
> 60	7	7%	-	0%
Total	96		109	

In inpatients psoriasis was found most common (21%) among the male and systemic lupus erythematous (20%) in female followed by eczema (18.18%, 13.33%) and in outpatients tinea (12.5%) was most common disease in male and urticaria (22%) in female followed by acne vulgaris (11.5%, 18.3%) (Table II).

Table.III reveals the distribution of drug by drug category, was found that the most frequently administered drug were antibiotics (14%) followed by vitamins (33.3%), H₂ receptor blockers (11%) and antihistamines (10.3%) in inpatients and in outpatients antihistamines (36.7%) followed by topical corticosteroids (16.1%), antibacterials (15.4%) and emollients (10.8%). In inpatients out of 544 drugs 50(9.2%) were systemic steroids. Among this the most frequently prescribed type was dexamethasone sodium (39 out of 50) via intravenous route. Other widely used steroid was prednisolone (11 out of 50). This analysis showed that antihistamines were the most commonly prescribed systemic agents in dermatology because of disease prevalence with related symptoms of itching (associated with fungal infection, scabies and eczema). Vitamins are usually recommended along with oral antibiotics to prevent vitamin deficiency associated with death of normal microflora. The liquid paraffin is most commonly prescribed drug in the emollient

category. Dexamethasone sodium phosphate by intravenous route was highly prescribed amongst systemic steroids. It is due to its potency and longer duration of action.

Table II: Disease Pattern

INPATIENTS				
Disease	Male	Percentage	Female	Percentage
Cellulitis	2	6.06%	4	13.33%
Dermatitis	2	6.06%	2	6.67%
Drug allergy	6	18.18%	0	0.00%
Eczema	6	18.18%	4	13.33%
Erythroderma	0	0.00%	2	6.67%
Lichen Plannus	2	6.06%	0	0.00%
Pemphigus vulgaris	2	6.06%	2	6.67%
Pruritus	0	0.00%	2	6.67%
Psoriasis	7	21.21%	4	13.33%
Pyoderma	4	12.12%	0	0.00%
SLE	0	0.00%	6	20.00%
Tinea	0	0.00%	4	13.33%
OUTPATIENTS				
Acne vulgaris	11	11.50%	20	18.30%
Alopecia	4	4.20%	0	0%
Chickenpox	8	8.30%	4	3.70%
Dermatitis	6	6.30%	4	3.70%
Eczema	5	5.20%	2	1.80%
Gynaecomastia	3	3.10%	0	0%
Hansen's Disease	2	2.10%	2	1.80%
Hyper pigmented papule	7	7.30%	8	7.30%
Insect bite allergy	0	0%	2	1.80%
Pemphigus vulgaris	4	4.20%	6	5.50%
Psoriasis	9	9.40%	10	9.20%
Scabies	7	7.30%	9	8.30%
Tinea	12	12.50%	7	6.40%
Urticaria	10	10.40%	24	22%
Miscellaneous	8	8.30%	11	10%

Table III: Distribution of drug by drug group

INPATIENTS		
Drug Category	Number of drugs	Percentage
Analgesic	31	5.70%
Anti viral	12	2.20%
Antibiotics	76	14%
Antifungal	31	5.70%
Antihistamine	56	10.30%
Calcium	33	6%
Emollient	49	9%
Folate antagonist	37	6.80%
H ₂ receptor antagonist	60	11%
Systemic steroids	50	9.20%
Topical steroids	27	5%
Vitamins	71	13.30%
Miscellaneous	11	2%
Total	544	100
OUTPATIENTS		
Analgesic	25	4.50%
Antibacterial	86	15.40%
Antifungal	20	3.60%
Antihistamine	205	36.70%
Antiviral	12	2.20%
Emollient	60	10.80%
H ₂ receptor antagonist	5	0.90%
Scabicide	15	2.70%
Systemic steroids	0	0%
Topical steroids	90	16.10%
Vitamins	30	5.40%
Miscellaneous	10	1.80%
Total	558	100%



Most of inpatients received more than 3 drugs (93.7%). 14.3% of the prescription contains 10 drugs. The average drug prescribed for inpatients was 8.63 drugs per prescription. In outpatients 29.26% of prescription contains 3 drugs, 24.39% contain 4 drugs and 22% prescription contains only single drug. The average drug prescribed for outpatient was 2.72 drugs per prescription (Table.IV)

Table IV: Incidence of Polypharmacy

INPATIENTS		
No. of drugs per prescription	No. of prescriptions	Percentage
1	0	0%
2	0	0%
3	4	6.3%
4	7	11.11%
5	4	6.35%
6	7	11.11%
7	4	6.35%
8	6	9.52%
9	2	3.17%
10	9	14.28%
11	4	6.35%
12	4	6.35%
13	2	3.17%
14	6	9.52%
15	4	6.35%
Total	63	100
OUTPATIENTS		
1	45	21.95%
2	40	19.51%
3	60	29.26%
4	50	24.39%
5	7	3.41%
6	3	1.46%
Total	205	100%

The trend of the polypharmacy may be due to the patient's expectations and demand of quick relief, the incorrect diagnosis, and the influence of the lucrative promotional programmes of the drug companies.⁴

All topical steroids were prescribed by brand name and prescribing systemic agents in generic name was very low and most of the prescriptions were prescribed in brand names (92.5%) (Table V). The prescribing of drugs by their generic names could minimize the cost and thus increase prescription compliance.

Table V: Distribution of prescription item in Generic/Brand name-Inpatients

INPATIENTS			
Prescription item	Generic	Brand	Total
Single drug	41	475	516
Combination	0	28	28
OUTPATIENTS			
Single drug	42	462	504
Combination	0	54	54

The most common reason for not prescribing generic drugs was:

1. Doubt about efficacy and bioavailability of generic formulations.
2. Lack of information on availability of generic formulations from pharmaceutical companies.

Limitations of the study were:

1. No categorization of prescribers was taken into consideration (junior/senior residents, lecturers, associate professors, professors).
2. It represents a limited population of patients.
3. The time of period of the study was limited.

Very potent topical steroid with anti microbial combination was most commonly prescribed (51.8%, 27.7%) followed by potent corticosteroids with antimicrobials (44.4%, 22.3%). Topical corticosteroids alone were rarely prescribed for inpatients (3.75%) but in outpatients 32.2% were topical corticosteroids alone (Table.VI).

Table VI: Topical corticosteroids available and their prescription pattern

INPATIENTS				
Potency	Alone		Combination with antibacterial	
	No.	%	No.	%
Mild	0	0	0	0
Moderate	0	0	0	0
Potent	1	3.703	12	44.44
Very potent	0	0	14	51.85
Total	1	3.7	26	96.29
OUTPATIENTS				
	No.	%	No.	%
Mild	0	0	0	0
Moderate	11	12.23	0	0
Potent	18	20	20	22.3
Very potent	16	17.77	25	27.7
Total	45	50	45	50

Table VII: Consideration of various parameters while prescribing topical corticosteroids

INPATIENTS (n=27)	
Parameters	No. of Prescription on which specified
Frequency of application	27(100%)
Duration of treatment	27 (100%)
Site of application	27(100%)
OUTPATIENTS (n=90)	
Frequency of application	81(90%)
Duration of treatment	79(87.8%)
Site of application	85(94.4%)



Table VII describes Frequency of application, duration of treatment, site application were mentioned in all inpatient treatment chart but frequency of application in 90%, site of application in 94.4% and duration of treatment in 87.75% were mentioned in outpatient treatment chart. This analysis shows that prescribing information was adequate in majority of cases.

CONCLUSION

The present study reveals that topical corticosteroids of very potent and potent groups were commonly prescribed and prescribing information was adequate in majority of cases. The mean number of drugs was however low in outpatients. The percentage of prescribing pattern by generic name was low and efforts may be initiated to encourage the same. This report is aimed for the benefit of the patients, providing feed back to the prescribers and desirable in rationalizing prescribing practices.

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