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Original Research Article

Prescription audit of Corticosteroids in Dermatology OPD of a tertiary care teaching hospital of tribal region of central-south India

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Abstract

Objectives: To assess the utilization pattern of Corticosteroids in tertiary care teaching hospital of Bastar district, a tribal region of Chhattisgarh state at central-south India.

Methods: All the prescriptions issued to the patients attending the dermatology OPD from January 2015 to March 2015 were recorded and assessed as per WHO guidelines for Drug Utilization Studies.

Results: The total number of drugs prescribed in the 3650 prescriptions was 10,002 with the average number of drugs per prescription being 2.74. Corticosteroids were prescribed in 753 prescriptions (20.63% of all prescriptions). Corticosteroid is most commonly prescribed for Allergic Contact Dermatitis. Corticosteroids were most commonly given by the topical route (70.87%). Injectable Corticosteroids were prescribed only in 3.88% of total Corticosteroid use. High potency corticosteroids were prescribed most frequently (55.34%) followed by moderate potency (33.48%). Very high potency drugs were prescribed only in 63 out of 730 (8.63%). Most of the steroids were prescribed by generic names (88.98%). Duration of application was not mentioned in 62.95%.

Conclusions: Use of Corticosteroids were not the top in list but adequate information was not written in some of the records with regard to the site of application, duration and quantity of the corticosteroid to be dispensed. Use of the drugs mostly by generic name is a welcome initiative towards the rationality. Prescribing practice of high potent and moderate potent topical corticosteroids was found to be high.

Keywords: Corticosteroids, Prescription, Audit, Dermatology, Tribal.

1. Introduction

Drug therapy is a major component of patient's management in health care settings and providing the right medicine to the right people at the right time is a central priority of health care, which is ensured by the effective implementation of the WHO's recommendations on rational drug policies.

The term 'Audit' means a methodical examination or review of a condition or situation with the intent of verification. It is an exercise which tries to find out input versus output based on available resources.

Periodic or regular 'prescription auditing' may minimize overuse and misuse of drugs, plan essential drug selection and estimate the drug need of the community. The said data are of great value to health administrators, policy makers, manufacturers, distributors, health professionals and various consumer groups for their decision making.

Dermatological conditions account for up to 2% of consultations in general practice worldwide [1].

With the skin being the largest and most accessible organ to treat, Corticosteroid therapy comprises the mainstay treatment of many dermatologic conditions since they were first introduced in early 1950s [2].

The various indications for which Corticosteroids are used include psoriasis, vitiligo, eczema, atopic dermatitis, phimosis, acute radiation dermatitis, lichen sclerosus etc.

However, unjustifiable irrational prescription of Corticosteroids is a common occurrence in clinical practice and they are being abused by health professionals and patients. Irrational use of Corticosteroids causes complications in the patient's health since Corticosteroids are associated with a number of side effects, both superficial and systemic.

Local adverse effects of Corticosteroids include skin atrophy, contact dermatitis, tachyphylaxis, striae, telangiectasia, acneiform dermatitis, and so on, whereas systemic reactions may occur in the form of hypothalamic-pituitary-adrenal suppression, Cushing's disease, and femoral head osteonecrosis [3].

Furthermore, the abuse of Corticosteroids is worsened when some general practitioners prescribe Corticosteroids for all skin rashes and for protracted periods [4].

Since there is lack of data regarding the utilization of Corticosteroid in the central-south India, this study was performed to assess the utilization pattern of Corticosteroids in tertiary care teaching hospital of Bastar district, a tribal region of Chhattisgarh state. So that the output of the study will be helpful to promote rational drug use of Corticosteroids and improves the standards of medical treatment.

2. Materials and methods

This prospective, observational study was carried out in Late B.R.K.M. Govt. Medical College, a tertiary care teaching centre situated at Jagdalpur city of Bastar district, a tribal region of Chhattisgarh state of India for duration of three months from January 2015 to March 2015 after taking permission from the Institutional Ethics Committee.

All the prescriptions issued to the patients attending the dermatology outpatient department following the consultation were entered in the case record forms as per WHO guidelines (1993) for Drug Utilization Studies. The data collected included age, sex, symptoms, number of drugs, and potency of the Corticosteroid, and whether the dose, duration, strength, quantity to be applied, and frequency of administration was mentioned.

3. Results

This study included 3650 prescriptions collected from various age groups comprising of around 51.48% male and 48.52% female patients. A maximum of around 32.63% prescriptions were collected from age group of 21-30 year followed by 23.64% from the age group of 11-20 year.

Table 1: Socio-demographic characteristics of patients

	Characteristics	Frequency (n=3650)	Percent
Gender	Male	1879	51.48
	Female	1771	48.52
Age	0-10	395	10.82
	11-20	863	23.64
	21-30	1191	32.63
	31-40	539	14.77
	41-50	331	9.07
	51-60	186	5.10
	>60	145	3.97

The patient's name, age and sex were mentioned on 100 % of the prescriptions. Diagnosis was included in 89.31 % of the prescriptions. The total number of drugs prescribed in the 3650 prescriptions was 10,002 with the average number of drugs per prescription being 2.74. The maximum number of drugs on a single prescription was seven and the minimum was one. For 473 patients (12.96%), ≥4 drugs were prescribed on a single prescription. Injections were minimally prescribed to the patients. No drugs prescribed in 4.15% cases and were treated by Laser, minor surgical procedure or reassurance. Fixed dose combinations were given in 1.38% cases. Total 8% of the prescriptions carried instructions or special instructions to patient, rest all patients were given verbal instructions.

Of the 10,002 drugs, the most commonly prescribed class of drugs was Antiallergics (23.35%) followed by Antacids (17.52%) whereas Corticosteroids were 10.30% of total drugs prescribed.

Table 2: Main therapeutic categories of drugs

Category	Total Number of Drugs	Percentage
Analgesics	343	3.43
Antacids	1752	17.52
Antiallergics	2336	23.35
Antibiotics	1302	13.02
Antiemetics	71	0.71
Antifungals	1468	14.68
Corticosteroids	1030	10.30
Scabicides	921	9.21
Miscellaneous	779	7.79
Total	10002	

Analyses of prescriptions showed that 34 skin conditions in 3650 prescriptions were noted in which Corticosteroids were prescribed. Corticosteroids were prescribed in 753 prescriptions (20.63% of all prescriptions). The total number of Corticosteroid prescribed in the 3650 prescriptions was 1030 with the average number of Corticosteroid per prescription being 0.28. Corticosteroid is most commonly prescribed for Allergic Contact Dermatitis (198patients, 5.42% of total prescription) followed by Melasma (138 patients, 3.78% of total prescription).

Table 3: Common indications for Corticosteroids

Disease/ Diagnosis	No. of Cases	Percent (n=753)	% of total prescription (n=3650)
Allergic Contact Dermatitis	198	26.29	5.42
Melasma	138	18.33	3.78
Prurigo Simplex	75	9.96	2.05
Lichen Simplex Chronicus	55	7.30	1.51
Vitiligo	47	6.24	1.29
Nummular Eczema	36	4.78	0.99
Eczema	23	3.05	0.63
Tinea Incognito	18	2.39	0.49
Balanoposthitis	16	2.12	0.44
Polymorphic Light Eruption	15	1.99	0.41
Others	132	17.53	3.62
Total	753		

Out of the 753Corticosteroid treated patients, 476 (63.21%) patients were prescribed only one Corticosteroid while 277 (36.79%) patients were given more than one Corticosteroids like oral Corticosteroid along with topical corticosteroids.

Majority of the Corticosteroid were given by the topical route (730 out of 1030, 70.87%) while few Corticosteroids (25.14%) were given by oral route. Injectable Corticosteroids were prescribed only in 3.88% of total Corticosteroid use. None of the prescriptions contained more than one topical Corticosteroid.

Among topical Corticosteroid, strength of topical Corticosteroid preparation was mentioned in 88.22% of the prescriptions. In Present study, high potency Corticosteroids were prescribed most frequently (55.34%) followed by moderate potency (33.48%). Very high potency drugs were prescribed only in 63out of 730 (8.63%). Betamethasone valerate was the most commonly used drug followed by Mometasone furoate.

Table 4: Details of Topical Corticosteroids

Potency	Corticosteroid	Frequency (N=730)	%
Low	Hydrocortisone acetate	4	0.55
Moderate	Beclomethasone dipropionate	26	3.56
	Fluocinolone acetonide 0.05%	3	0.41
	Fluticasone propionate 0.05%	35	4.79
	Mometasone furoate 0.1%	193	26.44
	Triamcinolone acetonide 0.1%	2	0.27
High	Betamethasone valerate 0.1% Ointment	404	55.34
Very High	Clobetasol propionate 0.05%	63	8.63

Table 5: Details of systemic Corticosteroids

Systemic Corticosteroid	Frequency(N=300)	%
Hydrocortisone (IV)	10	86.67
Prednisolone (Oral)	260	3.33
Triamcinolone acetonide (Intralesional)	30	10.00

Most of the Corticosteroids (88.98%) were prescribed by generic names. In majority (62.95%) of the prescriptions, duration of application was not mentioned. Frequency of application was mentioned in all the 100 % of the prescriptions while site of application was told verbally to most of the patient. Quantity of the topical Corticosteroid to be applied was not mentioned in any of the prescriptions.

Table 6: Details of information of prescriptions for Corticosteroids (n=753)

Parameters	Not specified in	
	Frequency	%
Generic Names	83	11.02
Strength	157	20.85
Quantity to be used	753	100
Duration of Treatment	474	62.95
Site of application	572	75.96
Frequency of application	0	0.00

Very less Corticosteroids were given as combination products containing antimicrobials, whereas majority (92.62%) were given alone. Antiallergics were most commonly drugs co-prescribed along with Corticosteroids.

4. Discussion

Although many studies have observed the irrational use of Corticosteroids, our target was to know the

pattern of Corticosteroid use in tribal region of central-south India for which data is lacking. Hence this study was done to know and verify the prevalent disease pattern and the utilization pattern of Corticosteroids in Dermatology OPD of a tertiary care teaching hospital of tribal region of central India.

Knowing the patterns of skin diseases is necessary to provide adequate therapeutic services to those suffering from these diseases [5]. Analysis of the patient data revealed that inflammatory skin conditions mainly dermatitis, were the most common diagnosis. This explains the greater use of topical Corticosteroids, as topical Corticosteroids are a first line anti-inflammatory treatment for dermatitis and other inflammatory conditions [6].

The most commonly prescribed drug group in this study was antiallergic agents and antacid which is different from the study documented in North Palestine [7] where Corticosteroids were the most common drug category used.

Among the antimicrobial agents, antifungal agents were the most prescribed antimicrobial drug class as fungal skin infections were the prevalent infectious skin conditions documented in the present study. The predominance of infectious skin diseases might be explained by overcrowding and poor environmental hygiene. In addition, the hot, humid environment is considered to be a predisposing factor and the skin disease is therefore very common in tropical countries [8, 9].

It has been recommended that the limit of number of drugs per prescription should be two otherwise there will be increased risk of drug interactions [10]. But in the current study, the average number of drugs per prescription was found to be 2.74. This number is higher than the recommended by Narwane et al. but somewhat similar with studies conducted in western Nepal [11], North Palestine [7] and different parts of India [10, 12-14].

Among the total number of drugs prescribed in this study, most of them were prescribed by the topical route followed by oral and injectable routes. Similar data was reported by a study conducted in India [14]. The reason for high percentage of topical drugs being prescribed is that topical route offers several advantages, including the avoidance of systemic adverse effects and systemic toxicity and hence it is the preferred route of administration in dermatology [14, 15].

In present study, Corticosteroid use accounted for the 10.30% of total drug used. Studies conducted in north Palestine (56.5%) and Tamilnadu, India (32.2%) showed a higher prevalence of topical Corticosteroids being prescribed for outpatients visiting dermatology clinics, respectively [7,12]. So result of present study shows the lower use of Corticosteroids. These results are somewhat similar with other studies like in western Nepal (16.9%) [11] and the two other studies done in Ludhiana Hospital, India (13.4% & 8.8%) [14, 16].

Out of all the Corticosteroids prescribed in this study, 88.98% were prescribed by generic names. This finding is different from other studies like [12, 17] and study from north Palestine [7,8]. It could be the effect of strict guidelines issued by the hospital administration as per directions by higher authority to promote the drug use by generic names. Prescribing drugs by their generic names decreases the prescription errors, it's also known to increases accessibility and prescription compliance due to lower cost of generic products [18].

Duration of application was mentioned in only 37.05% of the records reviewed, which is higher than the study in North Palestine (28.4%) and in Ambajogai, India (13.4%) but lower than the study in Tamil Nadu (87.8%) and in Kerala, India (93%). Of all the topical Corticosteroids prescribed, the site of application was indicated in 24.04%. Our finding was lower when compared to the North Palestine (63%) and the Tamilnadu, India (94.4%) studies but higher than the Ambajogai, India study (0%) [7, 12, 19].

In present study, topical Corticosteroids from the four potency category i.e. low, moderate, high and very high were prescribed. Nonetheless, high potency (55.34%) topical Corticosteroids were found to be the most commonly prescribed topical Corticosteroids followed by moderate potency Corticosteroids. Among the all topical steroids betamethasone valerate 0.1% ointment was the most commonly prescribed drug (55.34%), which is a high potent topical Corticosteroid, followed by mometasone furoate 0.1% (26.44%), a moderate potent topical Corticosteroid. Very high potency Corticosteroids were used less commonly. This result is different from studies conducted in India where clobetasol (ranging from 27.7% - 91%) was the most commonly prescribed drug among the topical Corticosteroids [10, 12, 13, 20]. Although tendency of prescribing very high potency topical Corticosteroids is lower when compared to the studies in India, it shows that there is a tendency of using high potency topical Corticosteroids in the studied dermatology outpatient department. The result found in this study is somewhat similar from the North Palestine study, where betamethasone valerate 0.1% was the main therapeutic agent (22%) [7].

The prescription of very high potent Corticosteroids should be limited when possible. Long and excessive use may carry the risk of suppression of the hypothalamic-pituitary-adrenal axis as well as local adverse effects [21]. This pattern of prescription may be influenced by the availability of the preparation in the hospital pharmacy and the choice of the dermatologist. The hospital

authorities should make provisions for making low-potency Corticosteroids available in the hospital pharmacy taking into consideration the adverse effects of high and very high potency Corticosteroids. Topical Corticosteroids are appropriate for the vast majority of patients, and the potency of the Corticosteroid chosen should be individualized based on the severity of the dermatitis, the location of the affected skin, the surface area of the affected skin, and the age of the patient [22].

Although we found some positive data regarding the Corticosteroid use, same study can be repeated to evaluate any improvement after creating awareness about the more rational prescription of topical Corticosteroids.

Also there is a need to put more emphasis on rational and complete prescription of topical Corticosteroids. The doctor should prescribe medicines with a social perspective in mind to provide the health needs which is best for society in every aspect. Promoting Continuing medical education for dermatologist and physician will be a welcome move, if implemented. Finger Tip Unit (FTU) method can be a simple tool to help doctors and patients for a better understanding of the amount of topical Corticosteroid to be used. The use of FTU should be promoted worldwide to reduce the variations in the use of topical Corticosteroids and to encourage adherence to therapy [23, 24]. Periodic screening of drug utilization pattern should to be done on regular basis to verify suitable modification in the prescription of drugs to increase the clinical benefit and decrease the adverse drug reactions. It is also observed that Corticosteroid use without consulting a dermatologist is a common practice among the community despite the fact that their use is associated with a wide range of adverse effects, which may be due to poor pharmacy regulations and the matter has to be confirmed and addressed by further studies.

5. Conclusion

From this study, it can be concluded that allergic contact dermatitis is the most common skin disease observed in the studied dermatology clinic where the Corticosteroid was indicated and that infectious skin diseases account for the majority of the skin dermatoses when combined. Use of Corticosteroids and its combination were not the top in list but adequate information was not written in some of the records with regard to the site of application, duration and quantity of the Corticosteroid to be dispensed. Use of the drugs mostly by generic name is a welcome initiative towards the rationality. It was also found out that betamethasone valerate 0.1% and mometasone furoate were the two most commonly prescribed agents which are high potency and moderate potency topical Corticosteroids, respectively. Prescribing practice of high potent and moderate potent topical Corticosteroids was found to be high.

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