

Drug prescribing pattern of topical corticosteroids in dermatology unit of a tertiary-care hospital

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Abstract

Background: Considering the economic burden of the skin disease treatment and because of its high disease prevalence, it is important to study the drug prescribing patterns of skin diseases. The data pertaining to drug usage patterns of topical corticosteroids in skin conditions are particularly lacking.

Objective: To study the demographic details and drug prescription pattern in patients with skin diseases who were on topical corticosteroids.

Materials and Methods: It was a prospective cross-sectional study conducted in the Dermatology Department, Azeezia Institute of Medical Sciences and Research, Meeyannoor, Kollam, Kerala, India, for 6 months. The patients with skin diseases who were on topical corticosteroids were included. The data were collected prospectively by direct observation in a specially designed pro forma containing relevant detail such as demographic, disease, and drug data. The data were analyzed as counts and percentages.

Result: The patients were of age < 20 years (33%) and 21–40 years (30%), with female subjects (62%) being the majority; patients from rural area (62%) were commonly affected. The most common skin conditions encountered were dermatitis (47%) and psoriasis (14%). The most common topical corticosteroid prescribed was clobetasol propionate (60%). Many of the topical corticosteroids were prescribed in fixed dose combination (42%). Majority of the topical corticosteroids prescribed were of very potent (73%) and potent (14%). Average drug per prescription was 3.6. In prescriptions, 57% were specified using generic names. None of them were specified with either strength or quantity. Only 21% were specified with area of application, 25% with route of administration, and 23% with frequency of administration.

Conclusion: There is a need to put more emphasis on rational and complete prescribing of drugs for skin diseases.

KEY WORDS: Prescribing pattern, topical corticosteroids, dermatology

Introduction

In general practice, skin diseases account for significant number of cases. Dermatological problems manifests as

primary and secondary cutaneous complaints, which are particularly more common in India. Among these, allergy and itches are widely observed in most of these patients. Many people suffer from common skin problems that are common in all the age groups. The skin problems that are commonly found are acne, burn scars, hyperhidrosis, psoriasis, scabies, vitiligo, pediculosis, herpes simplex infection, varicella, herpes zoster, erythema, urticaria, and so on.^[1]

Corticosteroids play a vital role in the treatment of many diseases including skin. Probably, it has greater applications in dermatological practice in topical form. These drugs are extensively prescribed by the consultants because of their strong immunosuppressive and anti-inflammatory actions. This practice has led to quite often overprescribing of these

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drugs and, thereby, increasing adverse drug reactions.^[2] The topical corticosteroids were introduced in early 1950s; since then, they are widely prescribed medication in dermatology clinics.^[3] This requires essential care in the selection of corticosteroid drugs for use and their dosage regimen.

Skin conditions that are characterized by hyperproliferation, inflammation, and immunologic involvement can be effectively treated by topical corticosteroids.^[4] They are also broadly used in the curing of the oral mucosal vesiculo-erosive diseases in order to decrease pain and inflammation.^[5] The symptoms of burning and pruritic lesions are relieved by topical corticosteroids.^[6]

On the basis of their potency, British National Formulary (BNF) divides the topical corticosteroids into four groups, whereas American system divides them into seven classes,^[7] where class I represents super potent or ultrapotent drugs and class VII the least potent. The physicians must have a complete knowledge of the drugs in each class; however, they must be aware of their potency of at least one or two agents in each class in order to safely and efficiently treat the steroid-responsive skin conditions.

The anti-inflammatory properties of the topical corticosteroids are the primary reason for their use. Ironically, the mechanisms of the same useful anti-inflammatory properties are also the reason for their adverse effects.^[8] The topical application disadvantages are adrenal suppression, epidermal and dermal thinning, purpura, striae, steroid-induced rosacea, perioral dermatitis, and hypertrichosis.^[9]

In 1977, the WHO described the marketing, distribution, prescription, and use of drugs in a society as the drug utilization research, with particular stress on the consequences of medical, social, and economic aspects.^[10] Such studies form the influential exploratory tools to determine the role of drugs in the society. They give rise to a strong sociomedical and health economics, which form the fundamental in making health-care decisions. The prescriptions need to be audited periodically to enhance the therapeutic effectiveness, reduce the adverse effects, and provide criticism to prescribers. Hence, these audits are performed to supervise, check, and analyze the execution of medical treatment standards at all the levels of the health-care delivery system.^[11]

Considering the economic burden of the skin disease treatment and because of its high disease prevalence, it is of important to study the drug prescribing patterns of skin diseases. The data pertaining to drug usage patterns of topical corticosteroids in skin conditions are particularly lacking. Keeping these facts in consideration, this study was undertaken in patients who were on topical corticosteroids treatment under the dermatology unit of the teaching hospital to generate baseline data and analyze various aspects of drug prescribing practices. Hence, we conducted the study with the objectives to study the demographic details and drug prescription pattern in patients with skin diseases who are on topical corticosteroids.

Materials and Methods

Study Design, Site, and Duration

This prospective cross-sectional study was conducted in the Dermatology Department, Azeezia Institute of Medical Sciences and Research, Meeyannoor, Kollam, Kerala, India, for 6 months. The ethical clearance was taken from the Institutional Ethics Committee.

Study Schedule and Plan

Patients with skin diseases who were on topical corticosteroids were included. Patients who were unable to respond to verbal questions, pregnant and lactating women, and patients with psychological disorders were excluded. The data were collected prospectively by direct observation in a specially designed pro forma containing relevant detail such as demographic, disease, and drug data. The prescriptions were analyzed for the following demographic details: different skin conditions that were diagnosed, details of drugs prescribed (topical corticosteroid prescribed alone or in fixed dose combination, potency, and topical corticosteroid alone or with systemic corticosteroid), number of drugs per prescription, and details of information not included or specified on prescriptions for topical corticosteroids (generic name, strength, quantity, area of application, route of administration, and frequency of administration).

Statistical Analysis

The data were analyzed using descriptive statistics. Ratios, proportions, and percentages were used to describe the data.

Result

The patients were of age < 20 years (33%) and 21–40 years (30%), with female subjects (62%) being the majority; patients from rural area (62%) were commonly affected [Table 1].

The most common skin conditions encountered were dermatitis (47%) and psoriasis (14%) [Table 2]. The most common topical corticosteroids prescribed were clobetasol propionate (60%), mometasone furoate (16%), betamethasone dipropionate (10%), and halobetasol (9%) [Table 3].

Many of the topical corticosteroids were prescribed in fixed dose combination (42%). The most commonly used combination was fusidic acid, gentamicin, salicylic acid, Neosporin, and clotrimazole [Table 4].

Majority of the topical corticosteroids prescribed were of very potent (73%) and potent (14%). Oral corticosteroids along with the topical preparation were prescribed for 39% of the patients. Among the category of systemic oral corticosteroid, 36 (92%) of the patients were prescribed with prednisolone. Three (8%) of the patients were prescribed with injection triamcinolone.

Table 1: Demographic details of study participants

Characteristics	N = 100, (%)
Age (years)	
<20	33 (33)
21–40	30 (30)
41–60	21 (21)
>60	16 (16)
Gender	
Female subjects	62 (62)
Male subjects	38 (38)
Residence	
Urban	38 (38)
Rural	62 (62)
Literacy	
Literates	85 (85)
College and above	34 (34)
Secondary school	24 (24)
Primary school	27 (27)
Illiterates	15 (15)
Occupation	
Students	30 (30)
Business	23 (23)
Housewife	27 (27)
Unemployed	20 (20)
Diabetes mellitus	
Absent	88 (88)
Hypertension	
Absent	86 (86)

Majority of the patients were prescribed with antihistaminics (84%); antibiotics (44%), among them, majority were of topical antibiotics (29%); and emollients and skin protective agents (23%).

Among other miscellaneous drugs (31%), antioxidants, antifungals, multivitamins and minerals, and hematinics were commonly prescribed.

Average drug per prescription was 3.6 [Table 5]. In prescriptions, 57% was specified using generic names. None of them were specified with either strength or quantity. Only 21% were specified with area of application, 25% with route of administration, and 23% with frequency of administration [Table 6].

Discussion

Drug utilization or drug use evaluation studies are the enduring, valid, and organized quality enhancement processes. These studies are designed to review drug use and prescribing patterns of drug with current recommendations or guidelines for the treatment of a certain disease. They evaluate drug use at a population level, according to age, sex, and social class. The prescriptions need to be audited periodically to enhance the therapeutic effectiveness, reduce the

Table 2: Different conditions that were diagnosed in study participants

Skin conditions read on prescription	N = 100, (%)
Dermatitis	47 (47)
Psoriasis	14 (14)
Pustulosis	9 (9)
Polymorphous light eruption	5 (5)
Urticaria	6 (6)
Vitiligo	4 (4)
Lichen planus	3 (3)
Others	12 (12)
Pompholyx	2 (2)
Fissure foot	2 (2)
Tinea corporis	1 (1)
Pseudoacanthosis nigricans	1 (1)
Pityriasis alba and exfoliative keratolysis	1 (1)
Macular amyloidosis	1 (1)
Lichenification	1 (1)
Intertrigo	1 (1)
Insect bite reaction	1 (1)
Icthyosis	1 (1)

Table 3: Topical corticosteroid prescribed in study participants

Topical corticosteroid used	N = 100, (%)
Clobetasol propionate	60 (60)
Mometasone furoate	16 (16)
Betamethasone dipropionate	10 (10)
Halobetasol	9 (9)
Hydrocortisone	2 (2)
Fluocinolone acetonide	1 (1)
Fluticasone propionate	2 (2)

adverse effects, provide criticism to prescribers and analyze the execution of medical treatment standards.

Data evaluation is the most crucial step in the drug utilization studies. Summarizing the data into the major categories of results and verifying the point of deviation of the data from the previously described guidelines and usage criteria are very important steps. Then, the reasons for this deviation should be evaluated. For any drug utilization study to be successful, scientific interpretation of the results instead of a value judgment needs to be prepared and results of the same should be circulated.

In our study, patients of were of age < 20 years (33%) and 21–40 years (30%), with female subjects (62%) being the majority; patients from rural area (62%) were commonly affected, which was comparable with the study done by Ankit and Bharat.^[2]

In our study, the most common skin conditions encountered were dermatitis (47%) and psoriasis (14%). It could be explained by the occupation: many were in close association with cashew factory, which explains occupational dermatitis.

Table 4: Details of the drugs prescribed

Characteristics	N = 100, (%)
Topical corticosteroid used	
Alone	58 (58)
Combination	42 (42)
Topical corticosteroid in combination with	
Fusidic acid	13 (13)
Gentamicin	12 (12)
Salicylic acid	8 (8)
Neosporin	2 (2)
Fusidic acid + clotrimazole	1 (1)
Fusidic acid + Neosporin//	1 (1)
Salicylic acid + gentamicin	1 (1)
Salicylic acid + fusidic acid	1 (1)
Fusidic acid + Neosporin + clotrimazole	2 (2)
Gentamicin + clotrimazole + Neosporin	1 (1)
Topical corticosteroid potency	
Very potent	73 (73)
Potent	14 (14)
Moderate	1 (1)
Mild	2 (2)
Very potent and potent	4 (4)
Very potent and mild	3 (3)
Potent and mild	2 (2)
Very potent, potent, and mild	1 (1)
Only topical corticosteroid/topical corticosteroid + systemic	
Only topical corticosteroid	58 (58)
Topical corticosteroid + oral	39 (39)
Topical corticosteroid + injection	1 (1)
Topical corticosteroid + oral + injection	2 (2)
Antihistaminics prescribed	84 (84)
Antibiotics prescribed	44 (44)
Emollients and skin protective agents prescribed	23 (23)
Other drugs prescribed	31 (31)

Table 5: Number of drugs per prescription

Number of drugs per prescription	N = 100, (%)
1	1 (1)
2	11 (11)
3	38 (38)
4	28 (28)
5	20 (20)
6	2 (2)

Table 6: Details of information not included in prescriptions for topical corticosteroids

Not-specified parameters in prescription	N = 100, (%)
Generic name	43 (43)
Strength	100 (100)
Quantity	100 (100)
Area of application	79 (79)
Route of administration	75 (75)
Frequency of administration	77 (77)

In the study by Divyashanthi and Manivannan,^[12] psoriasis followed by dermatitis were most common conditions for which topical corticosteroids were prescribed.

In our study, the most common topical corticosteroid prescribed were clobetasol propionate (60%), mometasone

furoate (16%), betamethasone dipropionate (10%), and halobetasol (9%). In the study done by Jena *et al.*,^[13] clobetasol was the most common topical corticosteroid that was prescribed too. In contrast to it, the study done by

Javsén *et al.*^[14] showed betamethasone as the commonly used one.

In our study, majority of topical corticosteroid were prescribed in combination (42%). Most commonly used combination was fusidic acid, gentamicin, salicylic acid, Neosporin, and clotrimazole, which was similar to the study done by Mirshad *et al.*^[15] Topical antibiotics should only be used where the infection is limited to a small area of the skin. A short course of a suitable oral antibiotic may be indicated in more severe cases. The development of resistance needs to be prevented by sensibly prescribing all the antimicrobials, including topical agents.

In our study, the majority of topical corticosteroids prescribed were of very potent (73%) and potent (14%), which was comparable with Saravanakumar *et al.*^[16] and Jena *et al.*^[13]

In our study, 39% patients were prescribed oral corticosteroid along with the topical preparation. Among the category of systemic oral corticosteroid, 36 (92%) patients were prescribed with prednisolone. Three (3%) patients were prescribed with injection triamcinolone. They rarely use injectable preparation to avoid systemic side effect.

In our study, majority of patients were prescribed with antihistaminics (84%); antibiotics (44%), among them, majority were of topical antibiotics (29%); and emollients and skin protective agents (23%).

Among other miscellaneous drugs (31%), antioxidants, antifungals, multivitamins and minerals, and hematinics were commonly prescribed.

In our study, average drug per prescription was 3.6, which was similar to the study done by Padma *et al.*^[17] It is advisable that the average number of drugs prescribed must be kept as less as possible, because higher numbers always result in raised risk of drug interactions, adverse drug reactions, reduced medication observance, and eventually, raised cost of prescription.

In 57% of the prescriptions, generic name was specified. None of them were specified with either strength or quantity. Only 21% were specified with the area of application, 25% with route of administration, and 23% with frequency of administration, which was comparable with studies done by Rathod *et al.*^[18] and Ashok Kumar *et al.*^[19] and in contrast to the study done by Uppal *et al.*^[20]

The underusage of steroids leads to subtherapeutic effect, whereas the overdosage of steroids, with prescriptions not mentioning the particular quantity of the steroids, results in different adverse effects. The responsibility should also be shared by the pharmacists to educate the patients about correct application of topical corticosteroids, the frequency of application, and so on. The patients should also understand the disease and its progression, the complications caused by improper treatment, and overuse and misuse of medications and their outcomes.

Conclusion

The researchers and policymakers can utilize the baseline data collected by such studies to improve prescribing practice. Many measures have proven useful and efficient in enhancing rational drug use and should be suggested for general use. These are standard treatment guidelines; essential drug lists; establishing drug and therapeutic committee; problem-based basic training in pharmacotherapy; targeted continuing education; availability, accessibility, and affordability of drugs of a good standard; drug information centers; drug use evaluation; and drug bulletins.

There is a need to put more emphasis on rational and complete prescribing of drugs on the undergraduate medical curriculum in India. Continuing medical education for practicing physicians is also greatly needed. It is necessary to implement and ensure success.

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