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## PRESCRIBING PRACTICES OF TOPICAL CORTICOSTEROIDS IN THE OUTPATIENT DERMATOLOGY DEPARTMENT OF A TERTIARY CARE TEACHING HOSPITAL

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### Keywords:

Prescription, Topical corticosteroids, Dermatology, Outpatient department

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**ABSTRACT: Introduction:** Topical corticosteroids are mainstay of treatment for many skin conditions but extensive prescription of them may lead to increase in adverse reactions. So, periodic audit of prescriptions will help in enhancing the therapeutic effectiveness and reduce the adverse effects. **Objective:** To study sociodemographic data and drug prescription pattern in patients with skin diseases. **Methodology:** Prospective observational drug evaluation type of study conducted at tertiary care teaching hospital during January to December 2018. Secondary data analysis was conducted of 500 prescriptions of dermatologists which were selected randomly in semi structured proforma. Data was analysed as counts and percentage. **Results:** Total 1551 drugs were prescribed to 500 patients visiting dermatology Outpatient department. Most frequently in 180 prescriptions, 3 drugs were prescribed. Antiallergic are most frequently prescribed drugs (24.3%) followed by Steroids (15.7%). In almost all prescriptions Generic name of drugs, Strength and Duration of treatment were mentioned. Among prescribed steroids topical corticosteroids were prescribed in 69.1% of prescriptions and in topical corticosteroids Clobetasol propionate forms more than half part (53.3%) in prescriptions. **Conclusion:** Repetitive periodic prescription monitoring can become an important tool for betterment of steroid prescription practices.

**INTRODUCTION:** Most of the skin diseases are chronic and require treatment for a prolonged period, which holds the risk of adverse effects. Among the drugs used in dermatology are antibiotics, antifungals, scabicides, vitamins, antiallergics, keratolytics, emollients, and topical corticosteroids <sup>1</sup>.

Of all these, corticosteroids constitute the mainstay of treatment for many skin conditions. 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.

Skin conditions that are characterized by hyper-proliferation, inflammation and immunologic involvement can be effectively treated by topical corticosteroids. Moreover, they are widely used to treat the pain and inflammation associated with oral mucosal vesiculo-erosive diseases.

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Topical corticosteroids relieve burning and pruritic lesions. This practice has led to quite often over-prescribing of these drugs and thereby, increasing adverse drug reactions. This requires essential care in the selection of corticosteroid drugs for use and their dosage regimen<sup>2,3</sup>.

Prolonged, inappropriate, or excessive use of topical steroids can lead to various cutaneous as well as systemic adverse effects. Some of them includes skin atrophy, contact dermatitis, tachyphylaxis, striae, telangiectasia, acne in the form of dermatitis and Certain systemic reactions can also occur in the form of hypothalamic-pituitary-adrenal suppression, Cushing's disease and femoral head osteonecrosis. Factors such as potency of the corticosteroid, the amount applied, age of the patient, use of occlusive dressings and duration of use can also play a part in occurrence of systemic adverse reactions. Excessive use of more potent agents can lead to more frequent side effects in comparison with use of low-potency steroids<sup>4,5</sup>.

To decrease adverse cutaneous and systemic reactions, especially with prolonged use, the rational use of topical steroids should be done which include careful consideration of the patient's age, total area of application, frequency of application, quantity to be applied and efficacy of the selected corticosteroid<sup>6</sup>.

Periodic audit of prescription is one of the important methods to enhance the therapeutic effectiveness, reduce the adverse effects and provide criticism to prescribers. Hence, at all level of health care facilities, these audits should be performed to analyse the execution of medical treatment standards. There is a high economic burden of the skin disease treatment in community that is why it is of important to study the drug prescribing patterns of skin diseases and evaluate data pertaining to usage patterns of topical corticosteroids<sup>7</sup>.

Drug utilization studies are the valid and organized quality enhancement processes. These type of 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. This type of studies not only improve standards of medical treatment at all levels in the health-care system, but also help in the identification of problems related to drug use such as polypharmacy, drug interactions and adverse drug reactions<sup>8</sup>.

### Aim and Objectives:

1. To know socio-demographic profile of study participants
2. To know pharmaceutical parameters not mentioned in prescription
3. To study the drug utilization of topical corticosteroids.

**METHODOLOGY:** It was observational study with secondary data analysis. Ethical permission was obtained from the institutional ethics committee (PDUMCR/IEC/2686/2017). Five hundred prescriptions written by dermatologist were randomly collected from dermatology department and analyzed during time frame of January 2018 to December 2018. The details such as demographic parameters of the patients, disease, drugs prescribed for the treatment, its dose & route of administration were obtained from the case record of the patient. A pretested semi structured questions was used for filling questions. Data entered in Microsoft Excel and analysis was done by Epi info software version 7.2. Qualitative data were represented as number and percentage<sup>9</sup>.

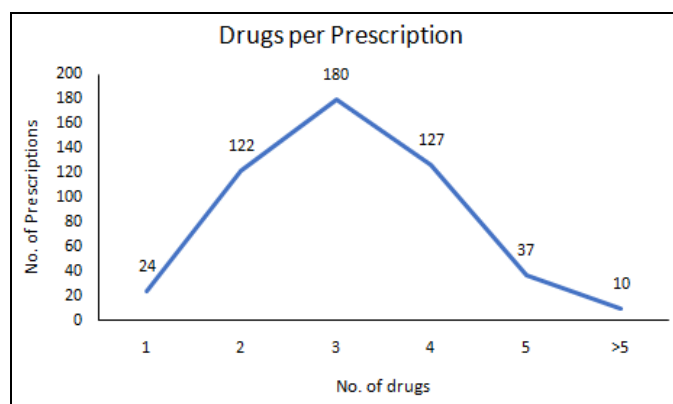
**RESULT:** Total 500 prescriptions were taken for secondary data analysis and following results were obtained. **Table 1** represents the socio-demographic and educational patterns of study participants. It was observed that approximately two thirds (63.6%) patients were male in compared to around one third (36.4%) were female. Regarding age group, 31-40 age group had the highest number of patients among all age group (36.8%) and <20 years had least number of patients (3.4%). Urban and rural area have similar kind of proportion with slightly higher number of patients (53.8%) from rural areas. Regarding Educational qualification, around one fourth patients were of Secondary (26.6%) and Higher secondary (19.4%)

education followed by Graduate (19.6%) education degree.

**TABLE 1: SOCIO DEMOGRAPHIC DISTRIBUTION OF STUDY PARTICIPANTS**

Sex	N	%
Male	318	63.6
Female	182	36.4
Total	500	100.0
Age Group	N	%
<20	17	3.4
21-30	156	31.2
31-40	184	36.8
41-50	115	23
>50	28	5.6
Total	500	100.0
Residence pattern	N	%
Urban	231	46.2
Rural	269	53.8
Total	500	100.0
Educational Profile	N	%
Illiterate	36	7.2
Primary	72	14.4
Secondary	133	26.6
Higher Secondary	121	24.2
Graduate	98	19.6
Post Graduate	40	8

Chart no. 1 shows total no. of drugs prescribed to patients and prescription wise number of drugs. Total 1551 drugs were prescribed to 500 patients. More than one third (36%) prescription contains 3 drugs per prescription which is followed by four (25.4%) and two (24.4%) drugs. More than Five drugs were prescribed to 10 (2.2%) of patients.



**FIG. 1: NUMBER OF DRUGS IN PRESCRIPTION**

Regarding category of drugs as mentioned in table no. 2, 24.3% of patients were prescribed with antiallergic drugs, 15.7% patients were provided with steroids followed by Vitamins (12.8%), antacids (11.9%), antibiotics (11.1%) and Antifungals (10.8%). Analgesics (6.6%) and

Scabisides (5.7%) were the least provided drugs followed by other drugs (1.1%).

**TABLE 2: CATEGORY OF DRUGS PRESCRIBED TO STUDY PARTICIPANTS**

	N	%
Antacids	184	11.9
Antiallergic	377	24.3
Antifungals	168	10.8
Vitamins	198	12.8
Antibiotics	173	11.1
Scabisides	88	5.7
Steroids	243	15.7
Analgesics	103	6.6
Others	17	1.1
Total	1551	100

As described in **Table 3**, it contains the information about the details not covered in prescription. Ideally the prescription should contain information like Generic name, Strength of the drugs, Quantity and time when the drugs should be used, its frequency of application with the appropriate sites and total duration of treatment. In present study only 2.2% of prescription doesn't contain generic names so almost all prescriptions were prescribed by generic names of the drug. Most of the prescriptions had not properly mentioned about site of the application (80.6%) for topical drugs and exact quantity to be used (79.6%) otherwise all other information like Strength of the drugs, Duration of treatment were properly mentioned in almost all prescriptions.

**TABLE 3: DETAILS OF INFORMATION NOT INCLUDED IN PRESCRIPTION (N=500)**

	n	%
Generic name	11	2.2
Strength	27	5.4
Quantity to be used	398	79.6
Duration of treatment	22	4.4
Site of application	403	80.6
Frequency of application	124	24.8

In case of types of steroids mentioned in **Table 4** and **5**, out of all 243 patients in whom steroids were prescribed, topical steroids were preferred over systemic steroids. Topical steroids were prescribed to 168, (69.1%) of patients and systemic steroids were prescribed to 75, (30.9%) of patients. In topical steroids there are different drug groups were present like Clobetasol propionate, Mometasone Furoate, Betamethasone, Halobetasol, Hydrocortisone, Fluocinolone and fluticasone.

Among them Clobetasol propionate forms more than half part (53.3%) in prescriptions followed by Mometasone furoate (16.6%) other topical steroids like Hydrocortisone (2.4%), Fluocinolone (2.9%) and Fluticasone (1.2%) were prescribed in very lower amount.

**TABLE 4: TYPE OF STEROID USE AMONG STUDY PARTICIPANTS**

	N	%
Topical	168	69.1
Systemic	75	30.9
Total	243	100.0

**TABLE 5: DISTRIBUTION OF TYPE OF TOPICAL STEROID AMONG STUDY PARTICIPANTS**

	N	%
Clobetasol Propionate	88	53.3
Mometasone Furoate	28	16.6
Betamethasone	22	13.1
Halobetasol	19	11.3
Hydrocortisone	04	2.4
Fluocinolone	05	2.9
Fluticasone	02	1.2
Total	168	100.0

**DISCUSSION:** Many studies have observed excessive and inappropriate use of potent topical corticosteroids. In present study the prescription of topical corticosteroids was studied in 500 patients attending a dermatology outpatient department at tertiary care hospital. In present study 31-40 age group had the highest number of patients among all age group (36.8%) and <20 years patients had least number of patients (3.4%) and 63.6% male were affected and almost similar urban and rural proportion is observed. In study done by Bylappa BK *et al.*,<sup>10</sup> 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. In a study done by Madarkar M *et al.*,<sup>11</sup> Majority of age group were 31-40 years and males were having higher prescription rates in compare to females.

In a study done by Bylappa BK *et al.*,<sup>10</sup> maximum no. of drugs prescribed are 3 in number (38%) similar in the line of present study where 180 (36%) prescription contains 3 drugs. Which is also similar in study done by Padma L *et al.*<sup>12</sup> In study done by Rathod SS *et al.*,<sup>1</sup> J sheth H *et al.*,<sup>13</sup> and Sangeetha Laxmi GNS L *et al.*,<sup>14</sup> number of drugs was most commonly found in prescriptions. About 66% of the prescriptions contained four to

five drugs. This reflects a trend towards poly pharmacy. Average number of drugs prescribed must be kept as less as possible, because as the numbers will increase, there will be increase in risk of drug interactions, adverse drug reactions, reduced medication observance and raised cost of prescription.

In present study most frequently prescribed drug was Anti allergic followed by Steroids and antacids. Antiallergic was also the most commonly prescribed drug in study done by Rathod SS <sup>1</sup> *et al.* but second most common drugs group were antacids followed by antifungals.

In a study done by Bylappa BK *et al.*,<sup>10</sup> parameters like quantity and strength of the drugs were not mentioned in all the prescription even the generic names were not mentioned in 43% of prescriptions these results are in similar lines with study done by Rathod SS *et al.*,<sup>1</sup> Madarkar M *et al.*,<sup>11</sup> but in opposite line of findings from the present study where generic name mentioned in 97.8% pf prescriptions and strength also mentioned in 94.6 % of prescriptions. In study done by Gambre R. *et al.*,<sup>15</sup> 77.3% drugs were prescribed by their generic name. In another study done by Pragya N *et al.*, in all prescriptions (100%) generic names were mentioned<sup>16</sup>.

In present study topical steroids were used in 69.1% of cases (Overall 33.6% of all prescriptions) and systemic steroid were used in 30.9% of cases. Different result were found in comparison with different studies. In a study done by Madarkar *et al.*,<sup>11</sup> topical corticosteroids were used in 15.4% of all prescriptions. In study done by Rathod SS *et al.*,<sup>1</sup> topical steroids were prescribed in 28.4% of prescriptions. So in present study topical steroid prescription rate is higher in compare with other studies. There may be a possibility of prescribing these drugs for the conditions where they are not indicated which suggests irrational use.

In present study Clobetasone Propionate (53.3%) is the most commonly used corticosteroid followed by mometasone furoate (16.6%). similar kind of results found by Bylappa BK *et al.*<sup>10</sup> in which the most common topical corticosteroid prescribed were Clobetasol Propionate (60%), Mometasone Furoate (16%), Betamethasone Dipropionate

(10%). In contrast to it, the study done by Javsén *et al.*<sup>17</sup> showed Betamethasone as the commonly used one. These findings show even potent steroids like Clobetasone and Fluocinolones were prescribed very commonly. The prescription of very potent steroids should be limited as and when possible. Long and excessive use may carry the risk local adverse reactions and sometimes of suppression of the hypothalamic-pituitary-adrenal axis. Availability of drugs in hospital pharmacy and choice of dermatologist also plays important role in prescriptions. The hospital authorities should make necessary actions for making low-potency steroids available in the hospital pharmacy taking into consideration the adverse effects of potent steroids.

**CONCLUSION:** Data collected by such studies can become the baseline factor which can be used to improve prescribing practice. Certain important measures like standard treatment guidelines, essential drug lists, accessibility availability and affordability of drugs of a good standard, establishing drug and therapeutic committee, drug use evaluation, targeted continuing education, drug information centers and drug bulletins can be proven useful and efficient in enhancing rational drug use and should be suggested for general use.

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