

## DRUG PRESCRIBING PATTERN IN DERMATOLOGY UNIT OF AYDER REFERRAL HOSPITAL

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### ABSTRACT

**Introduction:** Studying drug use patterns in hospital settings are vital to analyze the rationality and to provide feedback and/or suggestions to drug prescribers. Corticosteroids are one of the groups of drugs most commonly used in dermatology and Topical corticosteroids constitute the lion share. **Objective:** To evaluate drug prescribing pattern in dermatology unit of Ayder Referral Hospital. **Methodology:** Retrospective study was carried out in the dermatology unit of Ayder Referral Hospital using crosssectional study design. Data was collected from 210 patient's charts and all the necessary information was recorded. Data was analysed using SPSS version 16 statistical package. The results were depicted in the form of percentages and tables. **Result:** Our study showed that the average number of drugs per

prescription was four. Topical corticosteroids (29.94%) were the most commonly prescribed drugs in the dermatology unit followed by antifungals (21.79%) and antibiotics (15.27%). The number of corticosteroids prescribed by their generic name was only 19.38%. **Conclusion:** Topical corticosteroids were the most commonly prescribed drug and Tinea capitis was the most prevalent disease condition in the dermatology unit. The average number of drugs per prescription was high and prescribers Should give emphasis to keep the average number of drugs per prescription as low as possible.

**KEYWORD:** Corticosteroid, Topical, Prescribing pattern, Dermatology.

## INTRODUCTION

Irrational and inappropriate use of medicines is a major concern in both developed and developing countries. The cost of irrational use of drug is huge in terms of scarce resources and the adverse clinical consequences of therapies that may have real risks.<sup>[1]</sup> However, in developing countries, irrational use of drugs leads to scarcity of drug resources as well as increasing the expenditure and burden to the government and the patient for treating the adverse clinical consequences of the drug.<sup>[2]</sup> Studying drug use patterns in hospital settings are vital to analyze the rationality and to provide feedback and/or suggestions to drug prescribers. This enables in undertaking appropriate modifications in prescribing pattern to increase the therapeutic benefits and trim down adverse effects.<sup>[3]</sup>

Collection of data on utilization of drugs at hospital out-patient level has been shown to be an effective tool to constitute guidelines for improving drug utilization pattern, Enable suitable modifications in prescription of drugs to increase the therapeutic benefit and decrease the adverse effects, Identify problems related to drug use such as polypharmacy and drug-drug interaction, Implement economic aspects at all stages in the chain of drug use, assist the prescribing physician to achieve rational and cost effective medical care and Implement standards of medical treatment at all levels in the health care system.<sup>[2, 4-6]</sup>

Principles of good prescribing are based on sound knowledge, understanding of the pathophysiology. Appropriate drug use by patients and adherence to instructions given by the prescriber is an integral part of successful rational drug use program. Rational prescribing can be achieved by practicing evidence-based medicine. Better interaction between pharmacists and the patient can lead to better patient knowledge about drug use and compliance to therapy as pharmacist is a vital link between prescribed medication and the patient.<sup>[2]</sup>

Dermatology is one of the disciplines in which therapy is applied directly to the target site. Dermatological conditions account for up to 2% cases in general practice worldwide.<sup>[4]</sup> The ultimate goal in dermatological therapy is to use the safest and least number of drugs in order to obtain the best possible effect in the shortest period at reasonable cost. The drug concentration, the duration, the vehicle and the frequency of application can all be altered according to the response, which can easily be monitored. The categories of drugs that are primary used in dermatology are vitamins, minerals, antibiotics, antiseptics, antifungal, antiviral, antihistamines, emollients, local anesthetics, keratolytics, and topical corticosteroids.<sup>[4]</sup>

Corticosteroids are the most widely used drugs in dermatology and one has to view their usage in the light of their limitations and adverse effects. A study done in India showed that topical corticosteroids of very potent and potent groups were commonly prescribed and prescribing information was adequate in majority of cases. [3]

Another study done in Nepal showed that the most commonly prescribed topical agents were topical steroids and its combinations. [7]

To the best of the investigators knowledge, there are no systematically analyzed data available on the drug use pattern in dermatology of Ayder referral hospital. Hence, the present study was undertaken to assess the drug prescribing pattern in patients attending dermatology unit of Ayder referral hospital to generate baseline data and analyze various aspects of dermatological drug prescribing practices.

## METHODOLOGY

The present study was conducted for a period of one year in the Out Patient Department of Dermatology unit of Ayder referral Hospital after approval from research and community service council of Mekelle University. A retrospective crosssectional study design was employed. The prescriptions of all the patients attending the Dermatology unit during the period of study were analyzed.

The prescription data was taken from the patient chart and analyzed for trends in drug use, rationality of prescription. Percentage of drugs prescribed by generic name and brand name, route of administration was noted. To analyze trends and rationality in prescribing patterns, total number of drugs prescribed, average number of drugs per prescription, percentage of drugs prescribed from National Drug List of Ethiopia was considered. The data was further analyzed for the most commonly prescribed drug group(s), percentage of: oral drugs, topical preparations, injectables and prescriptions with combination of topical and antibiotics. The prescriptions were also assessed for dose strength, dosage schedule, and duration of therapy and use of any banned drug formulations. The data is presented in mean and percentages.

## RESULT

The study included a total of 210 patients and the overall numbers of male patients were 122 while numbers of females were 98. The maximum numbers of patients were in male between the age group of 11-20 years (32.14%) and in female 11-20 years (31.63%).The

minimum numbers of patients were in male between the age group of 41-50(2.68%) and in female 41-50(5.10%). (Table 1)

**Table 1: Age- wise sex distribution of patients in dermatology unit of Ayder Referral Hospital, 2013.**

<i>Age group</i>	<i>Male, n (%)</i>	<i>Female, n (%)</i>
0-10	23 (20.54)	23 (23.47)
11-20	36 (32.14)	31 (31.63)
21-30	30 (26.79)	26 (26.53)
31-40	11 (9.82)	7 (7.14)
41-50	3 (2.68)	5 (5.10)
51-60	4 (3.57)	6 (6.12)
>60	5 (4.46)	-
Total	112 (100)	98 (100)

Out of 210 patients, prevalence of Tinea capitis was higher with (17.10%, 12.63%) in both male and female respectively followed by Acne vulgaris in male with 11.84% and Atopic dermatitis (11.58%) in females.

**Table 2: Disease pattern in dermatology unit of Ayder Referral Hospital, 2013.**

<i>Disease</i>	<i>Male, n (%)</i>	<i>Female, n (%)</i>
Allergic contact dermatitis(ACD)	3 (2.68)	2 (2.04)
Acne vulgaris	9 (8.04)	5 (5.10)
Atopic dermatitis	6 (5.36)	11 (11.22)
Atopic diathesis	1 (0.89)	4 (4.08)
Bacterial super infection	5 (4.46)	4 (4.08)
Irritant contact dermatitis	1 (0.89)	4 (4.08)
Melasma	4 (3.57)	5 (5.10)
Nummular eczema	4 (3.57)	3 (3.06)
Onychomycosis	3 (2.68)	10 (10.20)
Pityriasis alba	6 (5.36)	9 (9.18)
Pityriasis versicolor	3 (2.68)	4 (4.08)
Seborrheic dermatitis	7 (6.25)	9 (9.18)
Tinea capitis	13 (11.61)	12 (12.24)
Tinea manuum	2 (1.79)	2 (2.04)
Vitiligo	6 (5.34)	6 (6.12)

Among the drugs prescribed, topical steroids were the most commonly used (29.94%), followed by Anti fungal(21.79%) and Antibiotics (15.27%). Out of total of 491 drugs 147(29.94%) were topical steroids. Bethamethasone cream was the most common prescribed drug. This analysis showed that topical steroids were the most commonly prescribed drugs. Anti fungals (107) were the second mostly prescribed drugs in the

dermatology unit, was the commonly prescribed drug was Griseofulvein (27.10%) from the antifungal and doxycycline (25.33%) from antibiotics.

**Table 3: distribution of drug by drug group in patients in dermatology unit of Ayder Referral, 2013.**

<i>Drug category</i>	<i>Number of drugs, n (%)</i>
Analgesic	2 (0.41)
Antiviral	2 (0.41)
Antibiotics	75 (15.27)
Antifungal	107 (21.79)
Antihistamine	17 (3.46)
Emollient	59 (12.02)
Systemic steroids	5 (1.02)
Topical steroids	147 (29.94)
Vitamins	15 (3.05)
Miscellaneous	62 (12.63)
Total	491 (100)

Total number of drugs in 210 patients was found to be 491. Number of drugs per prescription varied from 1 to 7 with average of 4.0. Most of the prescriptions consists of minimum of 2 drugs (86 prescriptions, 40.95%). And the others with 24.29%, 20.95% contain a single drug and 3 drugs respectively. Table IV shows Incidence of polypharmacy.

**Table 4: Incidence of polypharmacy in dermatology unit of Ayder Referral, 2013.**

<i>No of drugs per prescription</i>	<i>No of prescription, n (%)</i>
1	51 (24.29)
2	86 (40.95)
3	44 (20.95)
4	16 (7.62)
5	8 (3.81)
6	3 (1.42)
7	2 (0.95)
Total	210 (100)

Most of topical steroids were prescribed by brand name. The number of drugs prescribed by generic name was only 19.38% but 94.57% of the prescribed drug was by brand. Distribution of prescription item in Generic/Brand name is explained in Table 5.

**Table 5: Distribution of prescription item in Generic/Brand name in dermatology unit of Ayder Referral Hospital, 2013.**

<i>Prescription item</i>	<i>Generic</i>	<i>Brand</i>	<i>Total</i>
Single drug	25	85	110
Combination drug	0	37	37

Out 147 topical corticosteroids prescribed 72.87% frequency of application, 24.03% duration of treatment and 8.53% site of applications are specified. Consideration of various parameters while prescribing topical corticosteroids (Table 6).

**Table 6: Consideration of various parameters while prescribing Topical corticosteroids in dermatology unit of Ayder Referral Hospital, 2013.**

<i>Parameters</i>	<i>No of prescriptions on which specified</i>
Frequency of application	94(72.87%)
Duration of treatment	31(24.03%)
Site of application	11(8.53%)

Mild Topical corticosteroids were mostly prescribed alone (29.25%) followed by very potent corticosteroids alone (25.85%).topical corticosteroid with antimicrobial combination was rarely prescribed.

**Table 7: Topical corticosteroids availability and their prescribing pattern in dermatology unit of Ayder Referral Hospital, 2013.**

<i>Potency</i>	<i>Alone</i>	<i>Combination with anti bacterial</i>
	Number, n (%)	Number, n (%)
Mild	43 (29.25)	6 (4.08)
Moderate	22 (14.97)	3 (2.04)
Potent	20 (13.61)	7 (4.76)
Very potent	38 (25.85)	8 (5.44)
Total	123 (83.68)	24 (16.32)

## DISCUSSION

In the present study, the maximum numbers of patients were in male between the age group of 11-20 years (32.14%) and in female 11-20 years (31.63%). This distribution results were similar with other studies where majority of patients attending the dermatology unit was youngsters.<sup>[8]</sup>

Our finding showed that Tinea capitis (17.10%) was the most common dermatological condition in the unit in both male and female followed by Acne vulgaris (11.84%) in male

and Atopic dermatitis (11.58%) in female. Similar findings were also reported from study carried out in India by M Ashok Kumar.<sup>[3]</sup>

Our study showed that Topical corticosteroids were the commonly prescribed drug categories which accounts for 147(29.94%) out of the 491 drugs prescribed followed by anti fungals (21.79%) and antibiotics (15.27%). This finding was different from a study done by Bijoy KP et al and M Ashok kumar et al where Anti fungals were the most commonly prescribed.<sup>[2]</sup>

<sup>3]</sup> Topical corticosteroids and antifungals were commonly prescribed since most of patients attending dermatology unit had inflammatory skin condition and fungal infections.

Average number of drugs per prescription reported in this study was four. This result was similar with the study done by Saravanakumar RT et al.<sup>[9]</sup> But the finding of the current study is higher that reports from other studies.<sup>[7]</sup>

Frequency of application was specified only in 72.87% of prescriptions and duration of treatment and site of application was specified in 24.03% and 8.53% of prescriptions respectively. This finding of the present study is differs from other study done by M Ashok kumar et al and W.M Sweileh.<sup>[3, 4]</sup> Our finding showed that prescribing information was inadequate in the majority of cases. This may result in under-utilization of the preparation and subsequent sub-therapeutic outcome.

It is important that drugs should be prescribed in their generic names to avoid confusion and minimize the costs. But the result of the current study showed was that a great majority (94.57%) of the topical corticosteroids were prescribed in brand names and only 19.38% of topical corticosteroids were prescribed by their generic name. This result was consistent with other study done by M Ashok Kumar et al but not aligned with a study by Sarkar C *et al.*<sup>[3, 7]</sup> The higher percentage of proprietary prescriptions in outpatients invokes the problem of the vast expenditure on such drugs and their availability in the hospital pharmacy. Many patients attending a hospital as out-patients belong to the lower socio-economic status and would have to buy proprietary drugs from downtown and other relevant pharmacy outlets. Lack of trust in the quality of generic drugs could be the reason why brand names were highly prescribed.

Our study showed that the maximum number of corticosteroids prescribed was of mild potency (29.25%) while potent corticosteroids (13.61%) were least prescribed. This result was different from study done by Mohamed saleem L.K *et al* where high potent steroidal



agents were mostly prescribed.<sup>[10]</sup> As a general rule, low potency steroids are the safest agents for long-term use, on large surface areas, on the face, or on areas with thinner skin and for children.<sup>[11]</sup> This finding showed that the weakest corticosteroids are mostly used and this is beneficial to the patient.

## CONCLUSION

The current study reveals that topical corticosteroids with mild potency were commonly prescribed drugs in the dermatology unit. The average number of drugs per prescription was high. This finding also showed that Tinea capitis was the most prevalent disease condition. Majority of the topical corticosteroids were prescribed by brand and prescribing information was inadequate.

## RECOMMENDATION

Topical corticosteroids of mild potency were used and this is encouraging. Prescribers should keep the average number of drugs per prescription as low as possible. There is a need to encourage physicians to prescribe by generic name and to include full information of frequency of application, duration of treatment and application site adequately and to implement standard of medical treatment for drug used in the dermatology.

## COMPETING INTERESTS

The authors declare that they have no competing interests.

## AUTHORS' CONTRIBUTIONS

All authors have the same contributions and they have read and approved the final manuscript.

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