

A PROSPECTIVE, OBSERVATIONAL DRUG UTILIZATION STUDY IN THE DERMATOLOGY OUT-PATIENT DEPARTMENT OF A GOVERNMENT HOSPITAL, NANDYAL, ANDHRA PRADESH

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ABSTRACT

Objective: The data regarding drug utilization in dermatology departments of southern parts of India is limited. Recent studies on drug utilization in dermatology across India, reported high prescription of branded drugs, low adoption of essential drugs and polypharmacy. Hence, this study was conducted to analyze the drug utilization pattern for common skin diseases as per WHO prescribing indicators.

Methods: This study was done in the Out-patient department (OPD) of dermatology at Government General Hospital (GGH), Nandyal, in collaboration with department of Pharmacology for a period of 4 mo and Institutional ethical committee (IEC) permission was taken before conducting the study.

Results: A total number of 344 prescriptions were analyzed. Average number of drugs per prescription was 2.5 (including Fixed drug combination (FDC) drugs). Total number of drugs accounted to 860. Majority of prescriptions have 3 drugs per prescription (57.1%) and only 8.7% of prescriptions have more than 3 drugs per prescription. Analyzed data as per World Health Organization (WHO) prescribing indicators indicate 74% of prescribed drugs were from National List of Essential Medicines (NLEM), 2.5% were FDC drugs and 13.14% of the drugs prescribed were antibiotics. Polypharmacy was noted to be only 0.7% in the study.

Conclusion: A periodic audit of prescriptions will reduce errors and motivate the health care professionals for rational drug use. Special consideration is to be given to extended public health initiatives to prevent skin infections because they account for about 70% of diseases in daily life.

Keywords: Dermatology, Drug utilization, Polypharmacy

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INTRODUCTION

Skin constitutes the largest organ of the human body. Thus, it is exposed to injury by various extrinsic factors such as environmental, chemical, infectious agents and intrinsic factors such as metabolic, genetic, and immunological. Collectively, skin disease was the fourth leading cause of non-fatal health burden in 2017 globally. Skin disorders are seldom fatal but constitute 2% of Out-Patient Department (OPD) consultations worldwide. In India prevalent skin conditions includes but is not limited to dermatitis, urticaria, fungal skin infection, acne, alopecia and conditions such as Psoriasis, skin cancer and adverse drug reaction on the skin are less prevalent [1-3]. Drugs play crucial role in improving human health and promoting the well-being of individuals. However, to produce desired effect, they must be safe efficacious and must be prescribed in a rational manner [4]. Drug utilization studies was defined in 1977 by WHO as the marketing, distribution, prescription and use of drugs in a society, with a special concern on medical, social and economic consequences. Clinical trials provide evidence of efficacy and safety, while drug utilization study is necessary to know extent of drug use, to identify variability in drug use among different regions or within a region, identify problems concerning rational use of drugs, plan targeted interventions to improve drug use and to measure impact of interventions [5, 6].

The data regarding pattern of drug utilization, particularly in dermatology departments of southern parts of India is very much limited. Recent studies on drug utilization in dermatology across India have reported issues regarding high prescription of branded drugs, low adoption of essential drug and polypharmacy, thus creating concern regarding the rational prescription of drugs in dermatology. Keeping these facts in consideration, the current study is planned to analyze pattern of drug use for common skin diseases in Dermatology OPD at GGH, Nandyal, which helps in

improving the overall efficacy and safety of drug therapy for skin diseases.

MATERIALS AND METHODS

This study was done in OPD of dermatology at GGH, Nandyal, in collaboration with department of Pharmacology. This is a single-centric, prospective, observational, cross-sectional and descriptive study. Duration of study was February 2024 to May 2024, for a period of 4 mo and IEC permission (No. 48625) was taken before conducting the study.

Inclusion criteria

1. Patients of any age and gender visiting department of dermatology
2. Patients prescribed with atleast one drug
3. Patients who gave informed consent

Exclusion criteria

1. Patients with burns, leprosy, tuberculosis, terminal illness
2. Pregnant/lactating females
3. Patients enrolled in other clinical trials
4. Patients who were not prescribed drugs related to dermatology
5. Patients who did not consent to the study

Written Informed consent was taken from all the patients who were involved in this study. Data collected in this study includes name, dose, dosage form of the respective prescribed generic/brand drugs, Fixed drug dose combination (FDC) drugs and drugs included in National list of essential Medicines (NLEM). Descriptive analysis of data was done using Statistical package for Social Sciences (SPSS)

software and Microsoft Office. A total number of 344 prescriptions were analyzed for characteristics in demography, drug utilization pattern, disease incidence and WHO core drug prescribing Indicators.

RESULTS

Prescriptions in the collected data was distributed in the ratio of 1.91 as per gender (table 1, fig. 1).

Table 1: Gender distribution

Sex	Frequency	Percentage
Female	118	34.30%
Male	226	65.69%
Ratio	1.91	
Total	344	100%

Among the collected data, it was found that majority of the population with dermatological diseases belong to age group (21-30) y (table 2).

Table 2: Age group distribution

Age group (in years)	Males	Females	Total	Percentage
≤ 12	40	31	71	21%
13-20	43	18	61	18%
21-30	54	33	87	25%
31-40	39	17	56	16%
41-50	20	12	32	9%
51-60	20	5	25	7%
>61	10	2	12	3%
Total	226	118	344	100%

Average number of drugs per prescription was 2.5 (including FDC drugs). Out of 344 prescriptions, total number of drugs accounted to 860 (after decoding FDC drugs). Majority of prescriptions have 3 drugs per prescription (57.1%) and only 8.7% of prescriptions have more than 3 drugs per prescription (table 3, fig. 2).

Table 3: Number of drugs per prescription

Number of drugs per prescription	Number of prescriptions	Number of drugs	Percentage
1	51	54	6.27%
2	111	232	26.93%
3	163	491	57.10%
4	16	67	7.80%
5	2	10	1.20%
6	1	6	0.70%
Total	344	860	100%

Majority of the drugs were prescribed via Oral route (57.5%) (fig. 3).

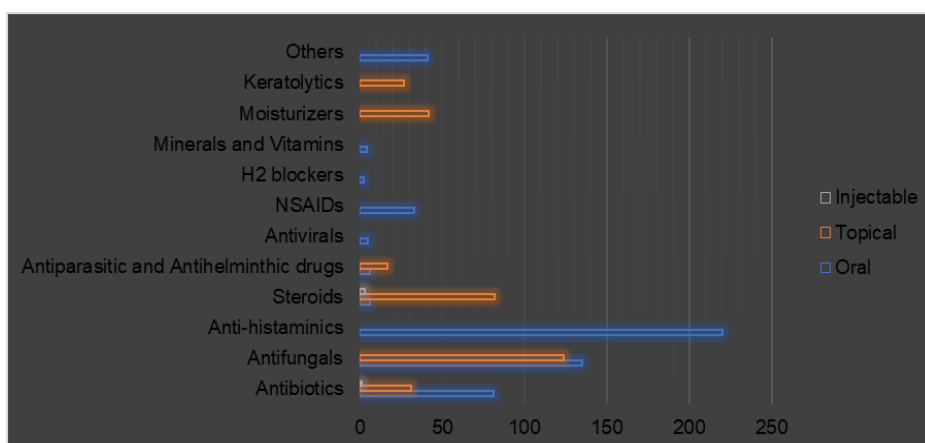


Fig. 3: Various classes of drugs prescribed via different routes

Antifungals were the most prescribed drugs (31.6%) followed by antihistaminics (27.1%), Antibiotics (13.4%), Steroids (11.5%), NSAIDs (4.77%) and Moisturisers (4%). Flucanazole was commonly prescribed antifungal via topical route. Among antihistaminics Levocetirizine, Cetirizine, Chlorpheniramine were most commonly

prescribed via oral route. Some of the topical antibiotics prescribed were Fusidic acid and Clindamycin. 93.2% of prescribed steroids were via topical route. A total of 35 moisturisers 22 keratolytics were prescribed via topical route only. A total of 5 antiviral agents and 39 NSAIDs were prescribed via oral route (table 4, 5).

Table 4: Various classes of drugs prescribed via different routes

Class of drug	Oral	Topical	Injectable	Total number of drugs
Antibiotics	81	31	1	113
Antifungals	135	124	-	259
Anti-histaminics	220	-	-	220
Steroids	6	82	3	91
Antiparasitic and Antihelminthic drugs	6	17	-	23
Antivirals	5	-	-	5
NSAIDs	33	-	-	33
H2 blockers	2	-	-	2
Minerals and Vitamins	4	-	-	4
Moisturizers	-	42	-	42
Keratolytics	-	27	-	27
Others	41	-	-	41

Table 5: Various drugs prescribed among different classes via different routes

Class of drug	Drug name	Total number of drugs prescribed	%	Total number of drugs prescribed in the class	% of total drugs prescribed
Antihistaminics	Chlorpheniramine	28	12.93%	220	26.83%
	Cetirizine	22	10.08%		
	Levocetirizine	170	76.97%		
Steroids	Dexamethasone	1	1.03%	91	11.10%
	Mometasone	84	92.26%		
	Prednisolone	3	3.09%		
	Triamcinolone	3	3.60%		
Antifungals	Clotrimazole	134	51.60%	259	31.59%
	Fluconazole	124	48.02%		
	Ketoconazole	1	0.38%		
Antibacterials	Amoxicillin	46	40.70%	113	13.14%
	Azithromycin	1	1.76%		
	Cefadroxil	3	2.21%		
	Cefixime	3	3.09%		
	Ceftriaxone	1	0.44%		
	Ciprofloxacin	1	0.44%		
	Clindamycin	1	0.88%		
	Dapsone	1	0.44%		
	Doxycycline	12	10.61%		
	Fusidic acid	44	39.38%		
	Antiparasitic and antihelminthics	Albendazole	4		
Hydroxychloroquine		1	1.85%		
Permethrin		17	77.77%		
Diethylcabamazine		1	1.85%		
Antivirals	Acyclovir	5	100%	5	0.61%

Table 6 indicates summary of the analyzed data and according to it, as per WHO prescribing indicators which include (74%) from NLEM, 2.5% were FDC drugs and 13.14% of the drugs prescribed were antibiotics. Polypharmacy was noted to be only 0.7% among collected prescriptions.

Table 6: Summary of the current study

Observations	Results
Total number of prescriptions	344
Total number of prescribed drugs	860
Average number of drugs per prescription	2.5
Total number of drugs from NLEM	606 (74%)
Percentage of FDCs	2.50%
Total number of drugs prescribed by generic name	808 (98.6%)
Drugs prescribed by brand name	12 (1.4%)
Encounters with Antibiotic	113 (13.14%)
Encounters with Injection	4 (0.47%)
Percentage of Polypharmacy in prescription	0.57%

The current study suggested that Tinea (33.2%) is the common dermatological disease, especially Tinea cruris followed by corporis and is commonly seen in males of age group 20-40 y. Second most common dermatological disease in the collected data is Pyoderma (11.9%) in male children of age less than 12 y. Urticaria (6.6%) is common dermatological disease seen in females of age group 10-20 y in the collected data. Acne vulgaris (3.6%) was seen in patients of the age group 18-23 y.

DISCUSSION

To improve drug utilization, especially in developing countries, international agencies like International Network for Rational Use of drugs (INRUD) and World Health Organization (WHO) have given standard indicators for drug use that can describe the drug use

situation in a country, region or individual health facility [7]. Skin conditions are usually misdiagnosed all over the world and hence, continuous monitoring of drug use is required to detect any change from contemporary practices or available guidelines [8]. Demographic data in the current study involving gender correlates with studies done by Vineeta D *et al.* [9], Surabhi Gupta *et al.* [10],

whereas data involving age group correlated with studies done by Jaiswal MK *et al.* [11] and Manjusha Sajith *et al.* [12]. The average number of drugs per prescription is close to recommended limit of 2.0 as per WHO. Polypharmacy (≥ 5 drugs per prescription) in the current study was only 0.57%. 2.5% of total prescribed drugs were FDCs. Although there are benefits of prescribing FDCs, it is preferable to keep the FDCs and polypharmacy use as low as possible because it may lead to an increased risk of undesirable drug interactions, poor compliance and eventually, high expense for the patient. In the present study, 70.5% drugs are prescribed from NLEM, which is in contradiction to WHO standards (100%). 98.6% of drugs were prescribed with generic names in current study, which is near to the WHO standards (100%) [13]. The main advantage of using generic names is easier drug identification, which help for better exchange of information between healthcare providers [14]. In the current study, the usage of antifungal drugs correlates with a study by Khorbragade *et al.* [15], Yuwante *et al.* [16]. Drugs prescribed in the current study are mostly via oral route and least were prescribed via parenteral route, which is in line with a study by Jaiswal MK *et al.* [12]. Tinea followed by Pyoderma, were the common dermatological diseases among the collected data which is in correlation with studies by Khobragade *et al.* [15] and S. P. Narwane *et al.* [17]. Eczema was found to be 4.5% among the dermatological conditions of the collected data but in a study by S. P. Narwane *et al.*, Eczema is the third common dermatological condition. Scabies is found in 5.9% of the collected data in current study, whereas it was commonly reported in a study by Chakrawarty *et al.* [18]. This is probably due to differences in the geographical distribution of dermatological diseases. Amoxicillin followed by Fusidic acid, were the most prescribed antibiotics in the current study, which contrasts with a study by Manjusha Singh *et al.* [11] where clindamycin, azithromycin and minocycline were the most prescribed antibiotics. Most prescribed oral steroid was Mometasone and oral steroid was prednisolone in the current study, whereas in a study by Kumar *et al.* [19], Clobetasol propionate was most commonly prescribed topical steroid. This might be due to variations in drug availability, dermatological conditions and preferences by physician in prescription.

CONCLUSION

With an objective to record drug utilization pattern among common skin diseases, the present study was conducted, which revealed that WHO prescribing indicators were followed in the prescriptions of this study. A periodic audit of prescriptions will reduce errors and motivate policymakers and healthcare professionals for rational use of drugs to improve quality of healthcare. Special consideration is to be given to extended public health initiatives to prevent skin infections because they account for about 70% of diseases in daily life.

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Nil

AUTHORS CONTRIBUTIONS

All the authors have contributed equally

CONFLICT OF INTERESTS

Declared none

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