e-ISSN: 0975-5160, p-ISSN: 2820-2651

Available online on www.ijtpr.com

International Journal of Toxicological and Pharmacological Research 2025; 15(1); 97-105

Original Research Article

A Study of Pattern of Drug Utilization in the Dermatology Outpatient Department at a Tertiary Care Teaching Hospital

Ruchita J Mer[1], Dimple S Mehta[2]

[1]Assistant Professor, Department of Pharmacology, Banas Medical College and Research Institute, Palanpur – 385001, Gujarat, India

[2]Professor & Head, Department of Pharmacology, Swaminarayan Institute of Medical Sciences and Reserach, Kalol, Gandhinagar – 382725, Gujarat, India

Received: 18-10-2024 / Revised: 21-11-2024 / Accepted: 26-01-2025
Corresponding author: Dr. Ruchita J Mer
Conflict of interest: Nil

Abstract:

Introduction: Dermatological conditions include scabies, pyoderma, dermatitis, urticaria, fungal skin infection, acne, alopecia and etc. Various combination of drugs generally used in the treatment of skin diseases like proactive antimicrobials, steroids etc. Drug utilization study is important to realize that inappropriate use of drugs represent a potential hazard and an unnecessary expense to the patients, and a tool to be a useful for improvements in therapeutic practices.

Aim and Objectives: To establish the pattern of drug usage in patient of dermatology outpatient department of tertiary care teaching hospital. 1. To observe the prescription pattern of dermatology outpatient department. 2. To analyze the drug prescription pattern as per WHO core indicators

Methods: A prospective, observational study was carried out between January 2021 to December 2021 after written approval from Institutional Ethics Committee, total 126 patients who met the inclusion and exclusion criteria were included. Data analyzed using WHO core indicators. Statistical analysis done using MS EXCEL 2019 by using descriptive statistics.

Results: Total 126 prescription analyzed and 460 total drugs prescribed. Average number of drugs per prescription were 3.68. Antimicrobials prescribed in 39.69% prescriptions. Only 2% drugs were prescribed by their generic name. 15.43% drugs were prescribed from WHO essential drug list.

Conclusion: The present study shows that average number of drugs prescribed were comparable with WHO standard guideline. Antimicrobials prescribed in higher numbers so for the rational prescribing is necessary to formulate guideline. Prescription from essential medicine list should be encouraged.

Keywords: Drug utilization study, Dermatology, WHO Core indicator.

Introduction

Drug utilization is defined as the marketing, distribution, prescription and use of drugs in a society with special emphasis on the resulting medical and social consequences. Drug utilization study is important to realize that inappropriate use of drugs represent a potential hazard and an unnecessary expense to the patients contributing to the economic burden of health care management.

This necessitates a periodic review of pattern of drug utilization to ensure safe and effective treatment. These studies have a favourable impact on improving the standards of treatment, identifying drug related problems and providing useful feedback to the clinicians.[1] Drug utilization is an important component of many research initiatives that examine the clinical and economic effectiveness of pharmacotherapy. Monitoring the medications use and knowledge of prescription habits are some of the strategies recommended for containing and controlling medication cost and its effect on national budget. So, application of drug utilization monitoring likewise provides further input into utilization correlation with medication effectiveness, prescribing habits, and time dependence.[2] Drug utilization studies are useful for obtaining information about drug use patterns and for identifying high cost drugs.[3]

Skin is considered as the largest organ of human body and thus it is exposed to injury by various extrinsic factors such as environmental, chemical, infectious agents as well as intrinsic factors such as metabolic, genetic and immunological. Metaphorically skin acts as a mirror to various internal diseases, which help in identifying several systemic diseases based on the dermatological manifestations.[4] In India patients in the second and third decades of age group (3.7% to 51.17%) form the largest part of population suffering from various skin diseases.[5] The most prevalent dermatological conditions include scabies, pyoderma, dermatitis, urticaria, fungal skin infection, acne, alopecia and less common are eczematous disorder like psoriasis, skin cancer and cutaneous adverse drug reaction.[6]

The management of skin conditions most often depends on prescribers choice with several preparation available which are generally use in the treatment of skin diseases which include proactive antibiotic, antifungal, benzoyl peroxide, steroids, salicylic acid, antihistaminic, vitamins and minerals, analgesics usually depends upon prescriber's choice. [7] The drug utilization study is a tool to be a useful for improvements in therapeutic practices. So in the present study we have made effort to observe for prescription pattern and further analyzed them as per WHO core indicators [1] in Dermatology Outpatient Department of tertiary care teaching hospital.

Materials and Methods:

A prospective, observational study was carried out in the Department of Pharmacology in collaboration with Department of Dermatology of tertiary care teaching hospital, Gujarat, India after obtaining permission from Institutional Ethics Committee.

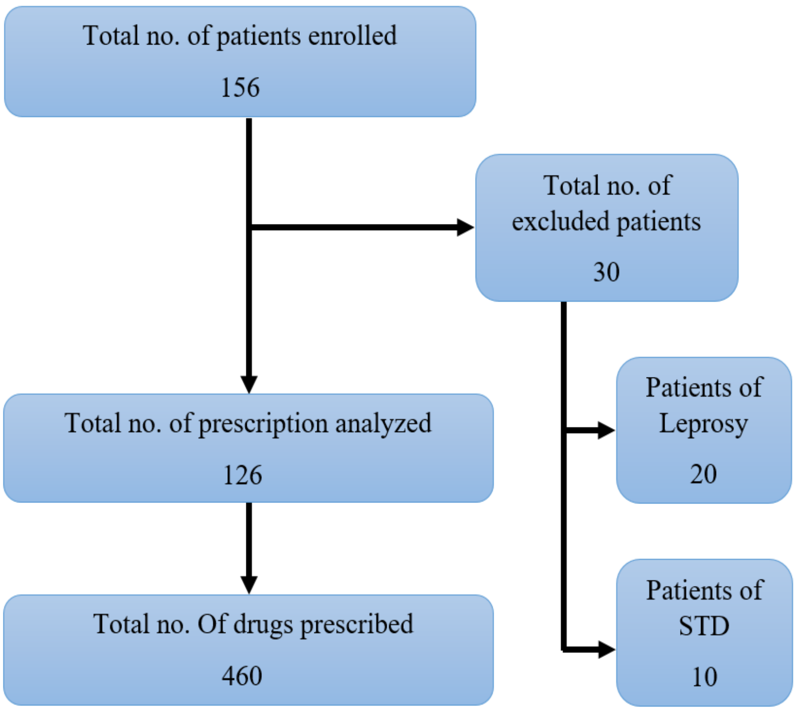
The study was conducted between January 2021 to December 2021. A total of 126 patients, who fulfilled the inclusion criteria while those who could not met inclusion criteria were excluded from study, among them 8 patients had prescribed medication as well as some procedure was also done that were also included in the study.

- Inclusion criteria: Patients attending Dermatology OPD.
- Exclusion criteria: Patients of leprosy, STD and admitted in Dermatology ward.

During the study period the investigator visited the Dermatology OPD daily. Case records of OPD patients that met the inclusion criteria were recorded in the Case Record Form (CRF) consisted of demographic profile (Name initials, Age, Gender), record information (OPD number), the chief complaints for which the patient was visited OPD, the diagnosis and data regarding prescribing pattern of drugs such as Name of the drug (Generic/Brand), Dose, Dose frequency, Route of administration. Collected data were analyzed using WHO core indicators. On completion of data collection for the study period all necessary information was entered in MS EXCEL 2019 and analysis was done by using descriptive statistics.

Results

In a period of 1 year study we enrolled 126 patients with different dermatological conditions, the data collected has been analyzed and presented below in flow chart 1.



Flow chart 1:

Socio demographic classification of data was done according to gender, age and patient status (new or follow-up). Figure 1 illustrate the gender wise distribution, where male comprised 56% (71 out of 126 patients), while females accounted for 44% (55 out of 126 patients).

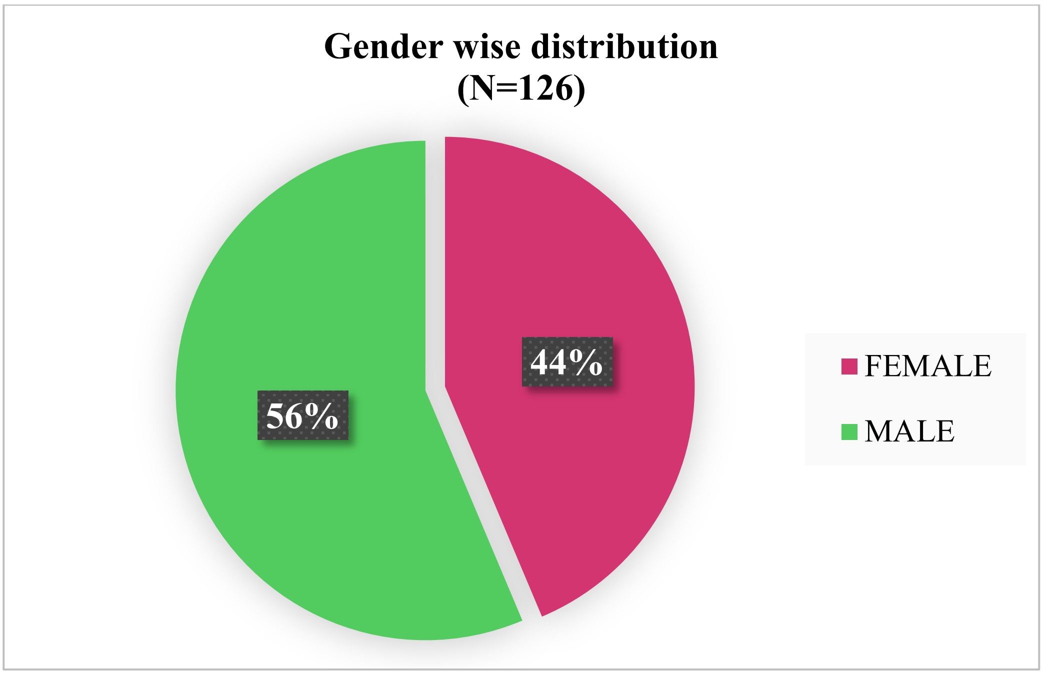


Figure 1: Gender wise distribution (N=126)

Patients were of different age starting from 5 months to 75 years. Age wise distribution shown in Figure 2. Maximum patients were of the age group 11 to 20, 21 to 30 years (22%), followed by age group 31 to 40 (17%).

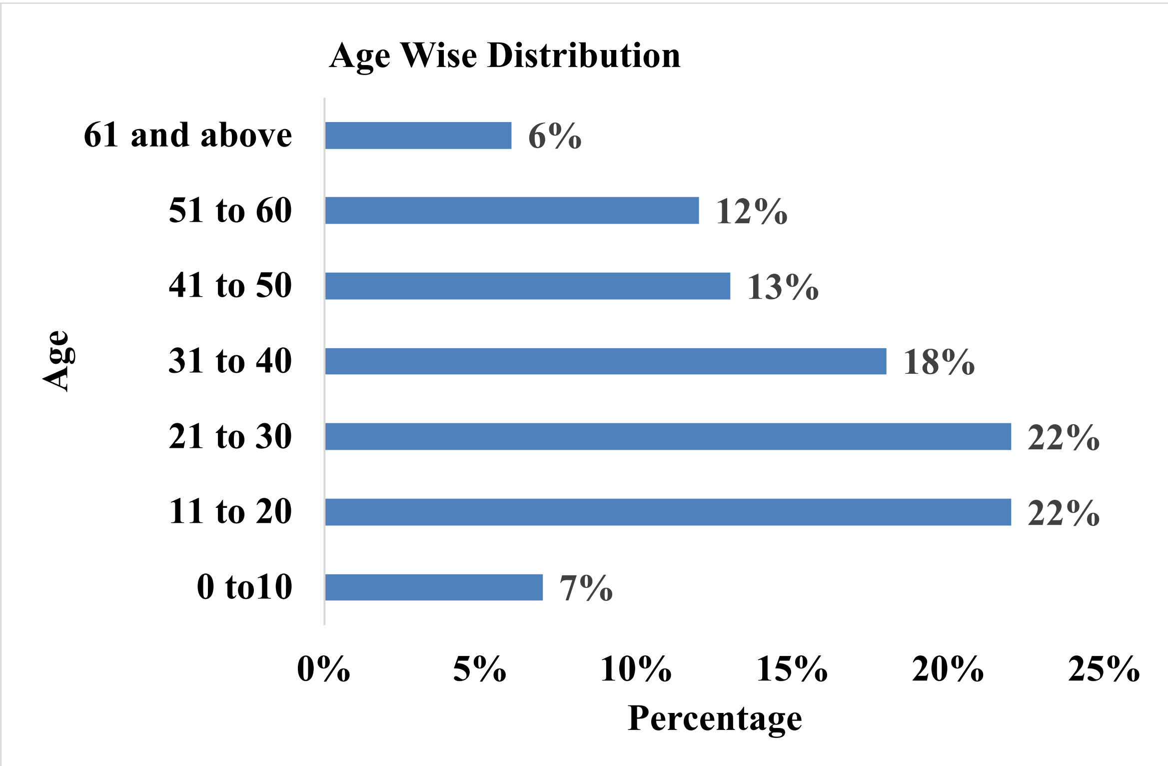


Figure 2: Age Wise Distribution

Out of 126 patients, Majority of the patients were visited dermatology OPD as new patients 71 (56%) and 55 (44%) were follow-up patients. Of the enrolled patients who visited the dermatology

OPD, we have observed that 30(23.81%) presented with tinea corporis and tinea cruris followed by Eczema 16(12.70%), acne vulgaris 13(10.32%) and different clinical conditions like tinea corporis 6(4.8%), vitiligo vulgaris 6(4.8%), alopecia areata 4(3.2%), pityriasis versicolor 4(3.2%), seborrheic dermatitis 4(3.2%), and urticaria 4 (3.2%), bacterial infection 3(2.4%), scabies 3(2.4%), and xerosis 3(2.4%), exanthema, impetigo 2(1.6%), keloid 2(1.6%), moles 2(1.6%), and warts 2(1.6%) androgenic alopecia, Furthermore, different 23 clinical presentation including androgenic alopecia, skintag, lichen planus and others, were each diagnosed in 1 patient (0.79%). According to WHO core indicators, average number of drugs found per prescription were 3.68. also antimicrobials prescribed in 39.69% prescriptions. Only 2% drugs were prescribed by their generic name. 15.43% drugs were prescribed from WHO essential drug list; 2021. Table 1 shows the analysis of drugs prescribed in Dermatology OPD according to WHO core indicators.

Table 1: Assessment of WHO core prescribing indicators

Parameters assessed	N = 126
Average number of drugs per encounter	3.68
Number of drugs prescribed by generic name [n%]	07(02%)
Number of drugs prescribed by brand name [n%]	453(98%)
Number of encounters resulting in the prescription of an antimicrobial [n%]	181(39.69%)
Number of encounters resulting in the prescription of an injection [n%]	03(0.65%)
Number drugs prescribed from WHO essential drug list (2021) [n%]	71(15.43%)

A total of 460 drugs were prescribed to the patients (126), were screened for analysis and it was observed that 56(44.44%) were received 3 drugs per prescription. It was observed that different class of drugs prescribed of which most commonly prescribed included antimicrobial agents 181(39.69%) followed by anti-histaminic 95(20.83%) as indicated in figure 3.

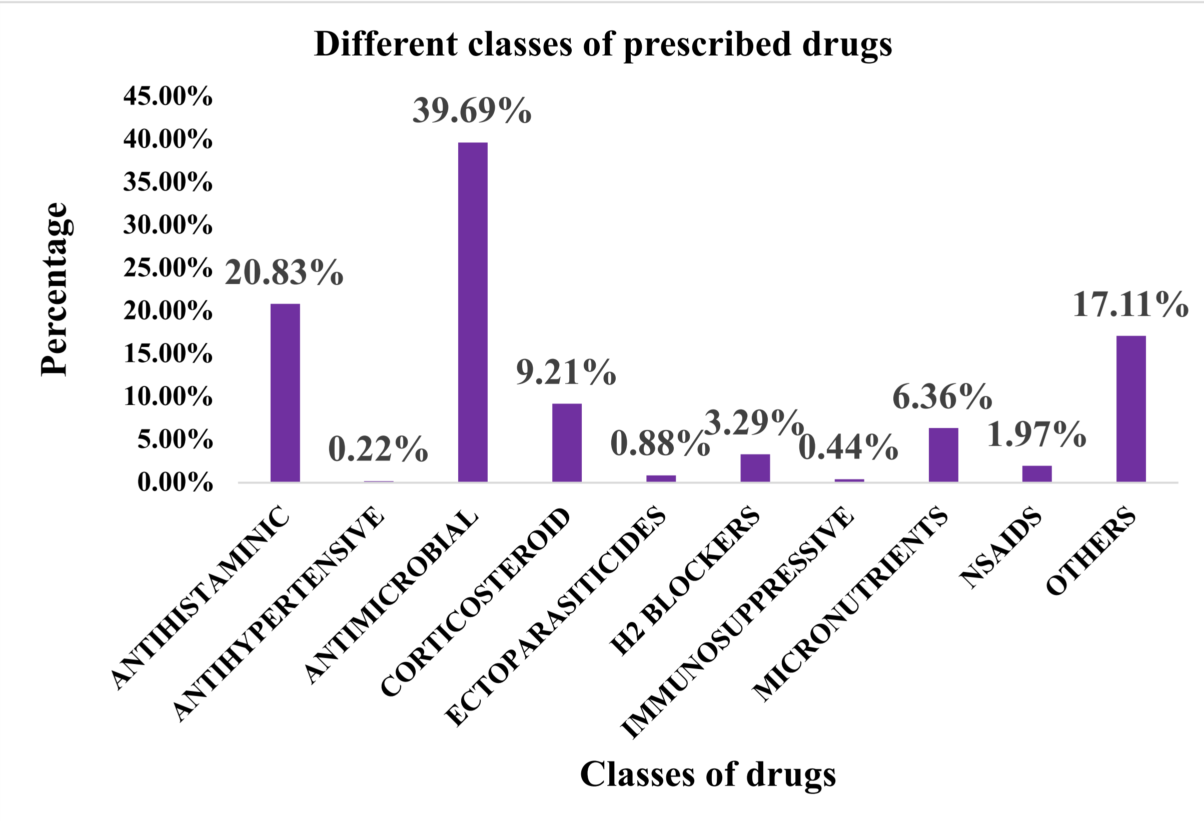


Figure 3: Different classes of prescribed drugs

Of the 181 antimicrobials the most commonly prescribed were antifungal agents 112(61.88%) as indicated in figure 4.

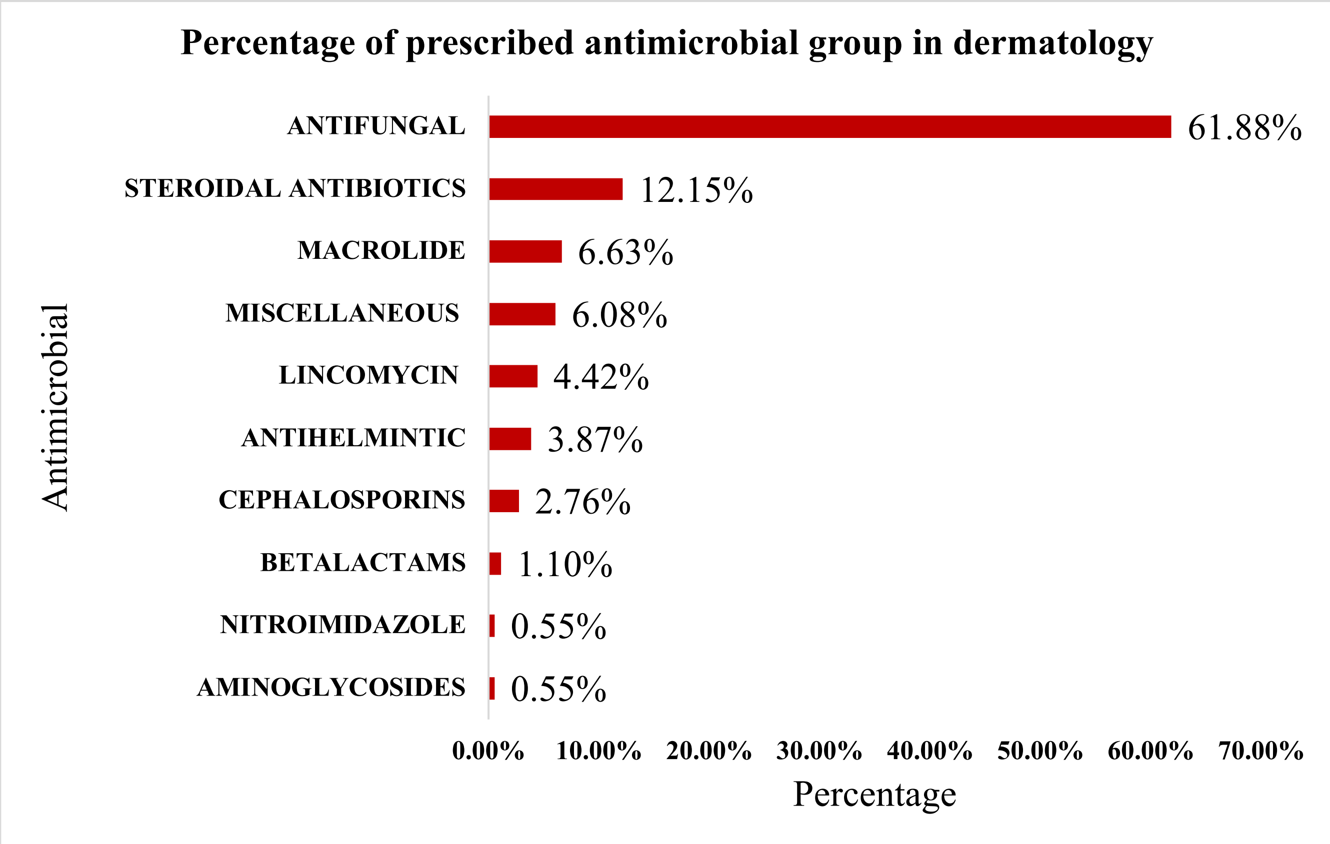


Figure 4: Percentage of prescribed antimicrobial group in dermatology

Azoles preparations were the preferred antifungal agents which included a number of 108(96%) of prescribed drugs as indicated in figure 5. Among them itraconazole was most frequently prescribed 34(31.48%)

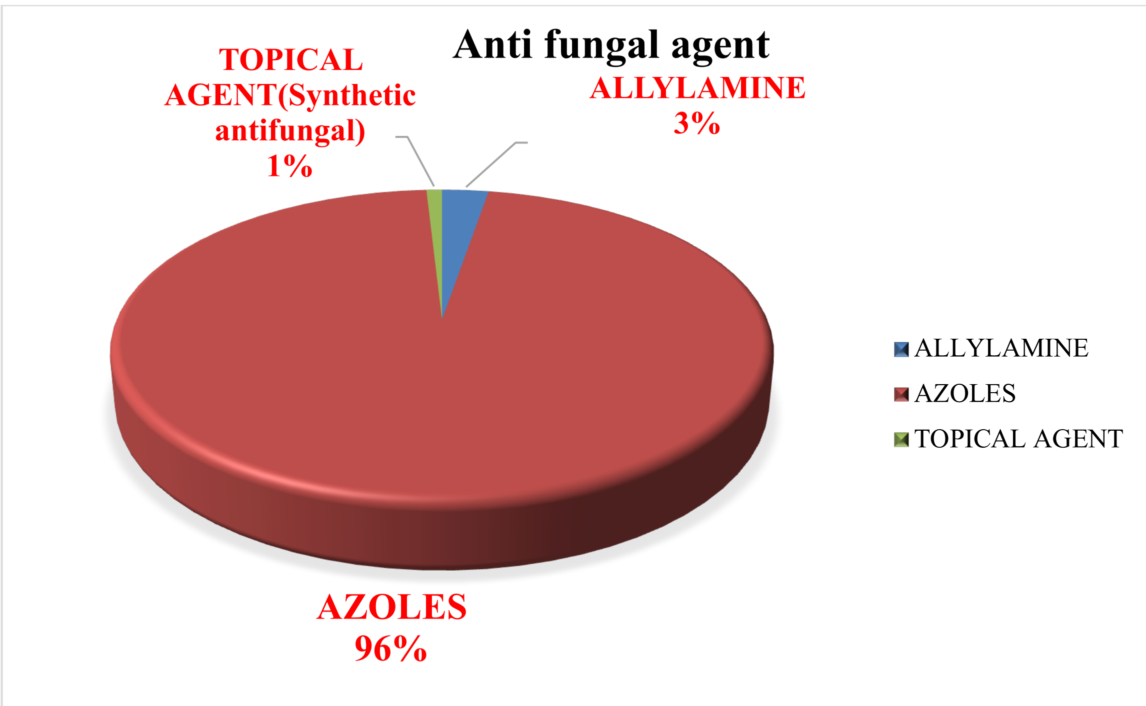


Figure 5: : Anti-fungal agent

The others groups of drugs prescribed for several dermatological conditions included emollient, facewash, sunscreen etc. of which most prescribed was emollient 47(59.49%), as shown in figure 6.

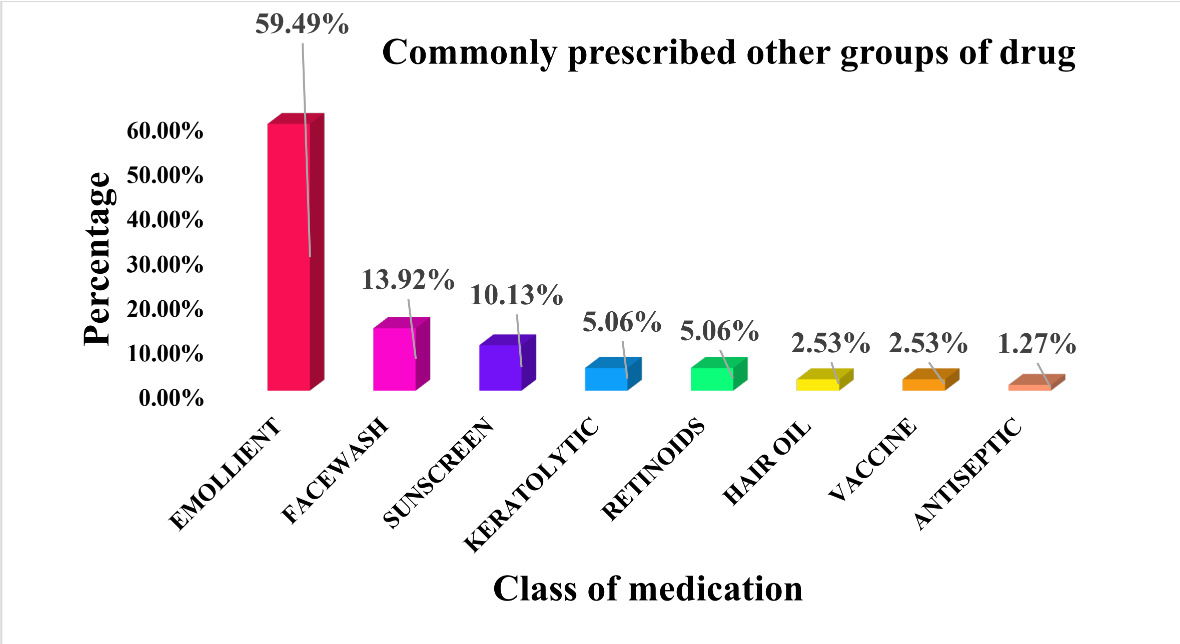


Figure 6: Commonly prescribed other groups of drug

We have observed that topical preparations 230 (50%) were more preferred than oral medications to 227(49.35%) as indicated in figure 7, least opt was parentral 3(0.65%).

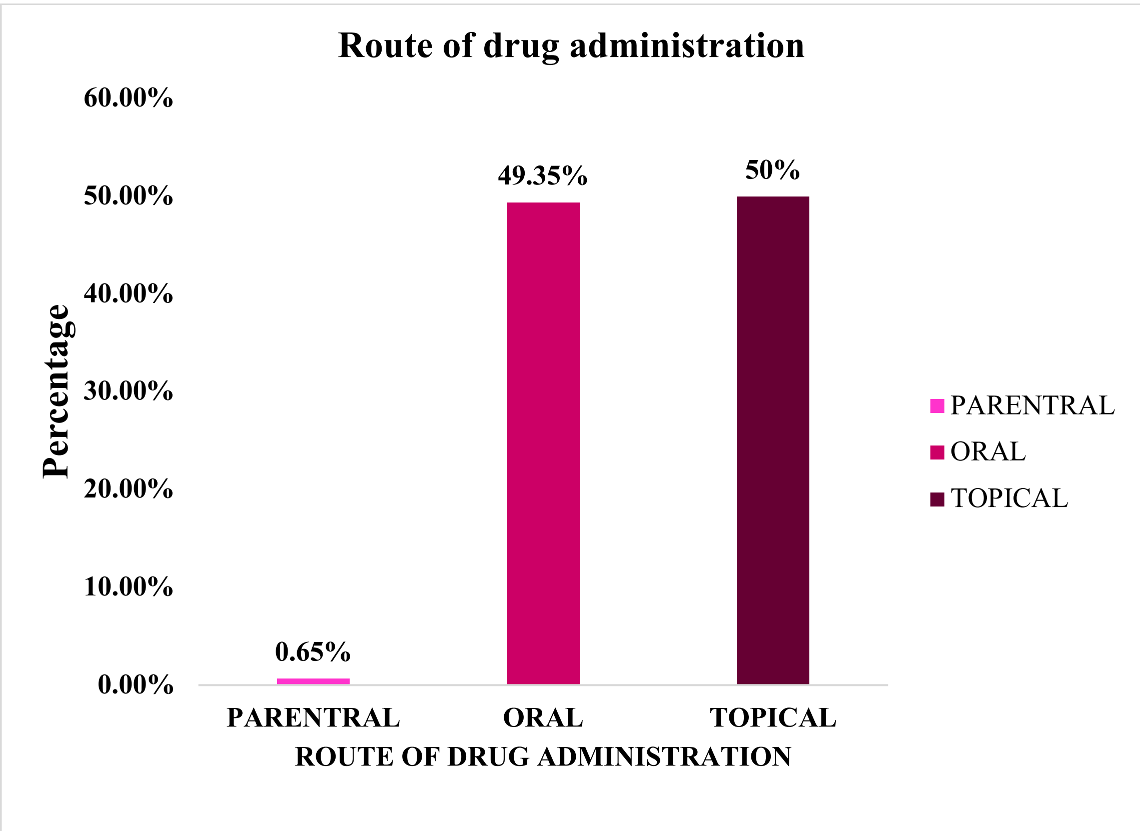


Figure 7: Route of drug administration

During the study period it was observed that of the enrolled 126 patients 8 of them were also subjected to procedures for their dermatological conditions along with the medications such as NBUVB (Narrow Band Ultraviolet B) for vitiligo patients and RF (Radio Frequency) cautery for moles and skin tags patients as indicated in table 2.

Table 2: Percentage of encounter with drug therapy and day care procedure

Clinical presentation	Name of procedure	No. of patients	Percentage (%)
Vitiligo	NBUVB (Narrow – Band Ultraviolet B)	5	3.96
Moles	RF (Radio Frequency) cautery	2	1.58
Skin tags	RF (Radio Frequency) cautery	1	0.79

It was also observed that 62(13.47%) fixed dose combinations were prescribed in some of the conditions among these 1.61% were found to be essential as shown in Figure 8. The most commonly prescribed combination included Clindamycin + Nicotinamide and Fusidic Acid + Betamethasone about 8(12.90%) patients. Percentage of prescriptions with FDC is shows in Figure 9.

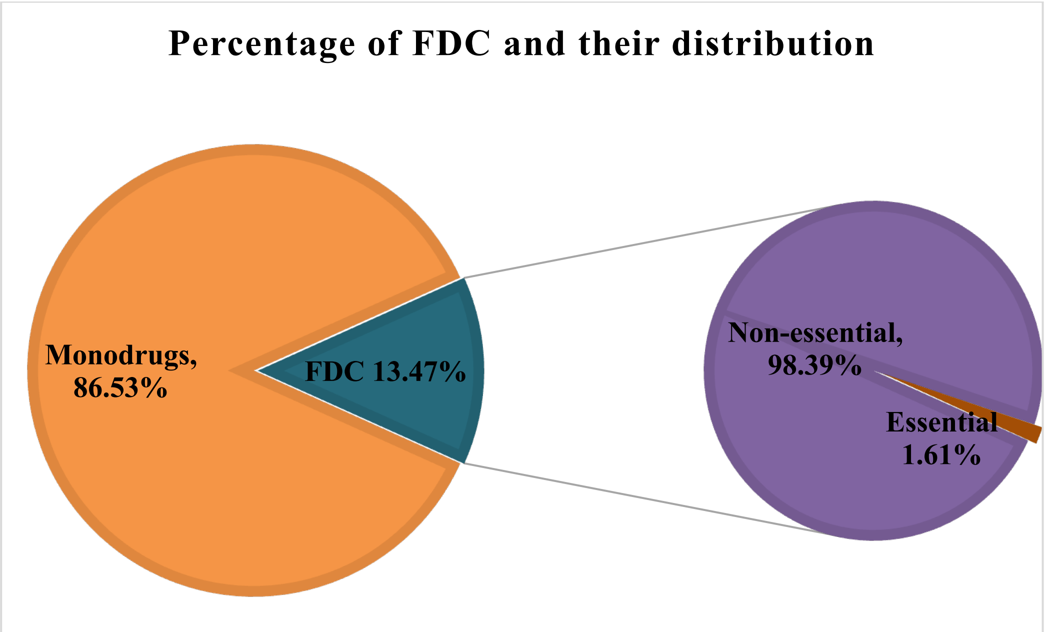


Figure 8: Percentage of FDC and their distribution

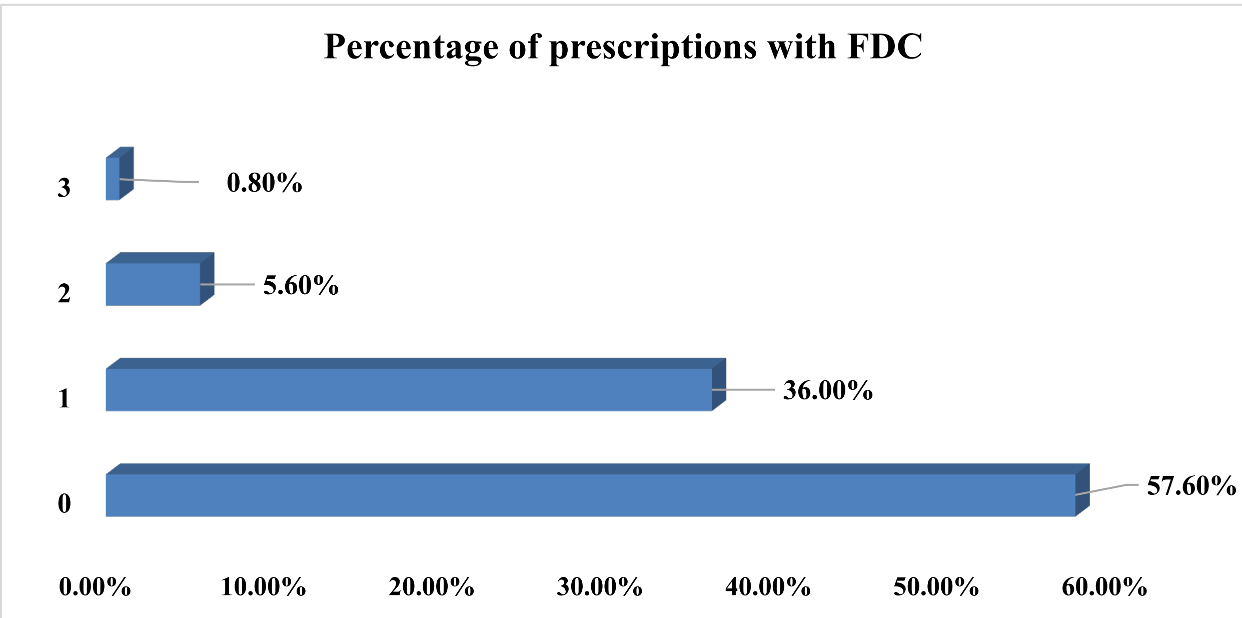


Figure 9: Percentage of prescriptions with FDC

Discussion

Drug utilization studies helps in the understanding of prescription pattern as well as the quality of prescription in terms of rationality, drug interactions and financial burden of disease. These studies have a favourable impact on improving the standards of treatment, identifying drug related problems and providing useful feedback to the clinicians.[1,8-10] Absence of essential drug prescription policy, irrational drug utilization and the prevalence of self-medication, all these contribute to health care related problems and would increase the impact the health care economy.[11]

In India, primary and secondary cutaneous complaints are common. Allergy and itches problems are most widely observed in patients. Various combined preparations are generally prescribed for the skin conditions includes this drugs like proactive antibiotic, antifungal, benzoyl peroxide, steroids, salicylic acid, anti-histaminic, vitamins and minerals, analgesics usually depends upon prescriber's choice.[12] Therefore, we carried out the drug utilization study in dermatological conditions at our setup so as to encourage the practice of rational drug therapy.

It was observed that the patients enrolled in the study were encountered with varied skin condition were similar to the study shown by Bhagawati D et al.[13] The demographic profile showing a male preponderance 56% which was similar to study carried out by Patil A et al.(56.86 %).[14] similarly such higher male preponderance was also found in several studies.[7,15] which could be suggesting that the male population have more and comfortable access to medical facilities as compared to females. The age wise distribution of varied dermatological conditions was consistent with study carried out by Sripada R et al.[16]

During the study period several different clinical conditions were recorded and it was observed that most common clinical presentation was Tinea corporis and Tinea cruris (23.81%) which was in accordance with study conducted by Bhagawati D et al.(21.21%).[13] followed by Eczema(12.70%) the results of which were similar to observation made by Divyashanthi CM et al.(12.24%).[15] An average number of drugs/medications per encounter is a main parameter for educational intervention in prescribing practices.[17] In the present study, the average number of drug prescribed per encounter was 3.68.

This higher than WHO recommendation (i.e.2).[17] It shows that polypharmacy was practiced. It was quite similar to studies conducted by Herakal K et al.(3.412).[17] which was also similar with several studies.[13,14] In the present study, prescription of drugs by generic name was only 2% while on contrarily several studies have shown higher percentage of generic drug prescribing pattern, as seen in the study conducted by Sangeetha Lakshmi GNS et al.(84.18%).[18] and Patil A et al.(31.1%).[14] which made us realize with our study that prescribing pattern of generic medicine is essential to be encouraged.

Our study has shown that 39.69% of patient's prescriptions included the anti-microbial preparation which were similar to data published in several other studies, which indicated 29.01% and 23.15%. Use of antimicrobial preparations. [7,17]

We have observed that among the antimicrobials, antifungal agents 61.88% were most frequently prescribed in contrast to study observation by Sangeetha Lakshmi GNS et al.[18] where anti-histaminics were most frequently prescribed, however the anti-histaminics 20.83% were found to be the second most commonly prescribed medications in our setup. Among the antifungal agents most prescribed preparations was itraconazole 31.48% the use of which is similar to observation mentioned in the study done by Vakade KP et al.[19] (51.17%)

Further, the topical preparations (50%) were more preferred route of drug administration followed by oral and parenteral route it was in accordance with studies conducted by Tikoo D et al.[20] and Bhagawati D et al.[13] Of the prescribed medications 15.43% were from the WHO list of Essential medicines (2021) which was in accordance to the observations of Tikoo D et al.[20] (15.4%.)

In the present study, there were 8 procedures done including NVUVB (3.96%) and RF cautery (2.37%) which was in contrast with study carried out by Tikoo D et al.[20] where 16.8% radiofrequency ablation procedures(16.8%) and chemical cautery (16.8%) were done. The fixed dose combinations 13.47% were prescribed to manage the different types of skin conditions this observation of our study similar to with study done by Bhagawati D et al. (15.15%).[13]

However the experience of limitation in present study was sample size, probably a large sample size with more data generation can give a good impact in the information regarding drug utilization.

Conclusion:

In conclusion the prescription of average number of drugs is comparable with WHO standard guideline, the practice of the prescribing the generic medicine was found to be less adapted which was needs to be encouraged. Although we had found that there has been the practice of prescribing the medicine from essential drug list use of more preparation from this essential drug list along with preference for generic medicine in treating the routine common conditions would definitely contribute in reducing the economic burden during management of dermatological conditions. So more awareness can be generated among the health care professional on the use of essential and generic medicine through educational forum such as workshops, CMEs, conferences etc. So that economic burden in health care management can be taken while satisfactorily managing patients. Use higher number of antimicrobials agents was observed which indicates necessity for formulation of guideline on rational antimicrobial agents prescribing.

Acknowledgement :-

Authors are thankful to Dean and Ethics committee for allowing us to carry out this study at our institute. We are also thankful to patients, whole pharmacology and dermatology departments for their support to accomplish this study.

References:

1. World Health Organization. Introduction to Drug Utilization Research. Oslo, Norway: WHO; 2003. Available from: http://apps.who.int/medicinedocs/en/d/Js4876e/
2. Kumar A, Sattigeri BM, Chauhan S. Drug utilization in clinical conditions: an update on its essentials. Int J Res Med Sci 2013; 1:320-5
3. Lamichhane DC, Giri BR, Pathak OK, Panta OB, Shankar PR. Morbidity profile and prescribing patterns among outpatients in a teaching hospital in Western Nepal. MJM. 2006; 9(2):126.
4. Pathak AK, Kumar S, Kumar M, Mohan L, Dikshit H. Drug utilisation pattern for skin diseases in Indian tertiary care hospital -A prescription survey. J of Clin and Diagn Res 2016;10(2):1-5
5. Gupta S, Khan W, Krishna A. A Pattern of skin diseases and common drugs prescribed in dermatology OPD of an Indian tertiary care hospital. Int J Basic ClinPharmacol 2017; 6:203-7.
6. Motaghare VM, Bajait CS, Turnakar A, Sontakke SD, Chavan S. Prescription pattern and adverse drug reaction profile of drugs prescribed in dermatology out-patient department at a tertiary care teaching hospital. Ind J Pharm and Pharmacol 2016; 3(4):173-177.
7. Vineeta D, Sharad P, Ganachari MS, Geetanjali S, Santosh S. Assessment of drug prescribing pattern and cost analysis for skin disease in dermatological department of tertiary care hospital: An interventional study . J Pharmacovigil 2016; 4(3):211.
8. World Health Organization (WHO) and International Network for Rational Use of Drugs. How to Investigate Drug Use in Health Facilities: Selected Drug Use indicators. Geneva, Switzerland: WHO; 1993.
9. Dukes MNG. Drug utilization studies: methods and uses. World Health Organization Regional Publications. European series; 45. Copenhagen, Denmark. Available from: http://apps.who.int/medicinedocs/documents/s21868e n/s21868en.pdf.
10. Lee D, Bergman U. Studies of drug utilization. In: Storm LB, editor. Pharmacoepidemiology. Chichester, UK: John Wiley and Sons; 2005:401- 417.
11. WHO model list of essential medicines - 22nd list, 2021 Available on https://www.who.int/publications/i/item/WHO-MHP-HPS-EML-2021.02
12. Bijoy KP, Vidyadhar RS, Palak P, Chintan SP, Atmaram PP (2012) Drug Prescribing and Economic Analysis for Skin Diseases in Dermatology OPD of an Indian Tertiary Care Teaching Hospital: A Periodic Audit. Indian J of Pharmacy Practice 5: 28-33.
13. Bhagawati D, Pathak D. A Study on Drug Utilization Pattern in Dermatology Outpatient Department in a Tertiary Care Teaching Hospital Of Northeast India. JMSCR August 2016;04(08): 11857-11861
14. Patil A, Dighe D, Kolte S, Jadhav PR, Deshmukh YA. Drug utilization pattern in dermatology outpatient department at a tertiary care hospital in Navi Mumbai. Int J Basic Clin Pharmacol 2017; 6:559-62.
15. Divyashanthi CM, Nandhini A, Kumar SA. Study on drug utilisation pattern of antibiotics among dermatology in-patients of a tertiary care teaching hospital, Karaikal, Puducherry. Int J Basic Clin Pharmacol 2014; 3:1072-7
16. Sripada R, P Mounika, G Vineesha et al. Drug Utilization Evaluation in Dermatology Department: A Study in the Ambulatory Care Settings, Int. J. Res. Pharm. Sci. 2020; 11(3):3911-3915
17. Herakal K, Sabbu R, Pavani G, Hiremath D, Mahendraker A G. Study on Drug Prescribing Pattern in Dermatology Outpatient Department in a Tertiary Care Teaching Hospital. MJPS 2020; 6(1): 3-7.
18. Sangeetha Lakshmi GNS, Chilkuri P, Vineela M. Drug utilisation pattern in dermatology outpatient department at a tertiary care hospital. Int J Basic Clin Pharmacol 2018; 7:1-6
19. Vakade KP, Indurkar VA, Chordia AH. Drug Utilization Pattern for Skin Diseases In Dermatology Opd At Tertiary Care Hospital Of Western Maharashtra. IJCBR [Internet]. 2019Aug.5 [cited 2022Jul.9]; 5(3):20-3. Available from: https://www.sumathipublications.com/index.php/ijcbr/article/view/298
20. Tikoo D, Chopra SC, Kaushal S, Dogra A. Evaluation of Drug Use Pattern in Dermatology as a Tool to Promote Rational Prescribing. JK science. 2011; 13(3):128-31.