Original Research Paper

Pharmacology

ANALYSIS OF PRESCRIPTION PATTERN IN DERMATOLOGY OPD OF A TERTIARY CARE HOSPITAL - A CROSS SECTIONAL STUDY

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ABSTRACT **Introduction -** Skin is the largest organ and represents about 8% of body weight. The skin disorders are mostly ignored by the patients till it increases in severity and have serious detrimental effect on the quality of life. Prescription pattern analysis helps to improve the quality of prescription, reduces adverse drug effects and promote rational use of drugs. **Methodology –** a cross sectional observational study was conducted at dermatology OPD of MYH hospital, Indore, Madhya Pradesh, India after receiving permission from Institutional ethics committee. The study was conducted from November 2021 till January 2022 over a period of 3 months. **Results –** in this study a total of 206 prescriptions were analyzed and the number of female patients were 115(55.8%) and male patients were 91(44.17%). The most common dermatological disorder found were tinea infections (21.35%) followed by acne vulgaris (14%) and scabies (11.65%).The total number of drugs prescribed in 206 prescriptions were 640. Out of 640 drugs, 365 (57%) drugs were topical and 275(43%) were oral drugs. Most commonly prescribed drugs were antimicrobials. Among antimicrobials, antifungal drugs were maximally prescribed. **Conclusion –** We found that antifungal drugs were most commonly prescribed owing to high prevalence of tinea infections. Polypharmacy and antimicrobial prescribing were found to be more in our study. Antimicrobials should be prescribed according to the sensitivity pattern to avoid emergence of resistance. There is a scope of improvement and need to encourage dermatologists to promote more prescribing from NLEM.

INTRODUCTION

Skin is the largest body organ and represents about 8% of body weight. It acts as a protective barrier to external noxious stimuli like microbes, toxic substances, pollutants etc as well as a reflection of our internal health. Skin disorders constitute 2% of total OPD consultations worldwide and 18th leading cause of disease burden globally.[1,2] Many of the allergic, metabolic as well as autoimmune diseases manifest themselves as skin disorders.[3,4] It is often the face of many serious infectious illnesses[5]including scabies, leprosy, filariasis and sexually transmitted disease (STDs) like HIV, syphilis etc. The high burden of infectious and non infectious skin diseases has increased over the past few decades and demands due attention in the national programmes and health policy of India.[6] Most of the adverse drug reactions also manifest themselves on skin, ranging from maculopapular rash to fatal Steven Johnson's syndrome.[7]

Skin disorders usually follow an insidious course and are therefore mostly ignored by the patients till it increases in severity and starts affecting their quality of life. This increases the chances of irrational prescribing and adverse drug interactions. It also results in polypharmacy and increased duration of treatment that leads to greater economic burden on the patients.

Considering the high prevalence and economic burden of skin diseases and also lack of adequate data, it is of interest to study prescription pattern analysisof dermatology in order to promote rational use of medicines.

Prescription pattern analysis helps to improve the quality of prescription, reduces adverse drug effects and promote rational use of drugs. Also such studies provide data about most commonly used drugs for treatment of common skin disorders that are needed to be included in the essential medicine list.

Methodology-

This was a cross sectional observational study conducted at Dermatology OPD of MYH Hospital, Indore, Madhya Pradesh, India after receiving permission from Institutional ethics committee. All OPD patients who visited dermatology OPD for the first time between November 2021 to January 2022 and willing to participate in the study, were included. Permission to access prescription data was taken from the clinician in charge of Skin Clinic. The drug prescription pattern was analysed. No follow up of prescription was included. Data compilation and Statistical analysis were done in Department of Pharmacology, MGM Medical College & MYH Hospital, Indore, M.P.

The parameters for analysis included demographic characteristics like age and gender distribution and provisional diagnosis of their illness. Prescription pattern was analysed by using WHO core indicators which includes

average number of drugs per prescription, percentage of medicines prescribed by generic name,percentage of encounters with an antibiotic prescribed, percentage of encounters with an injection prescribed, percentage of medicines prescribed from NLEM (national list of essential medicines) and data regarding formulations prescribed. The data of total 206 prescriptions were entered in MS excel sheet and analyzed by using descriptive statistics.

Results

In this study, a total of 206 prescriptions were analysed. The number of female patients were 115(55.8) and male patients were 91(44.17%). The most common dermatological disorder found were Tinea infections(21.35%) followed by acne vulgaris(14%) and scabies (11.65%)(Table 1).The total number of drugs prescribed in 206 prescriptions were 640. Out of 640 drugs, 365(57%) drugs were topical and 275 (43%) were oral drugs(Figure 1). This includes topical antifungal(19.1%), comedolytics(13.6%),sunscreen lotion(10.3%) and scabicidal drugs(10%).As shown in figure 2,the most commonly prescribed drugs were antimicrobials(207,37.3%).Among antimicrobials, antifungal drugs were maximally prescribed(48%). Topical Clotrimazole(64.3%)and oral fluconazole(30%) were among the most common anti fungal drugs. Ketoconazole was commonly used in shampoos. Anti bacterial(30%),antiviral(15%),antiamoebic(6%) and antileprotic(1%) drugs were other classes of antimicrobials prescribed. The next most common drug prescribed were comedolytics (13.9%) followed by moisturizers(13.6%).

Prescriptions pattern was also analysed in terms of WHO core indicators. Table no.2 shows study findings and deviation from WHO reference value.

Discussion

Prescription pattern analysis reflects the knowledge, attitude and prescribing skills of the physicians and drug usage pattern in a particular OPD. Periodic analysis of prescriptions provide a detailed feedback to the clinicians, thereby increasing therapeutic efficacy[8] and promoting rational prescribing by them. It also helps in identification of issues related to drug use such as poly-pharmacy, drug drug interactions and adverse drug reactions.[9,10,11]

Skin is a usual victim of manifestations of various systemic and infectious diseases as well as adverse drug reactions. Most of the skin disorders are chronic and demand long term treatment. The burden of infectious as well as non infectious skin disorders have increased by 53.7% in all age groups in India from 1990 to 2017.Dermatitis ranks first among dermatological disorders followed by urticaria with percentage increases of 48.9% and 45.7% respectively.[6] Owing to high prevalence and chronic nature of skin disorders, they impose considerable economic burden on the patients. Moreover there is lack of local data regarding prevalence of skin disorders and drug usage pattern of dermatology in India. Therefore, it is prudent to assess the prescription pattern of dermatology OPD in order to promote rational prescribing of medicines.

Of the total 206 prescriptions collected, females outnumbered males in our study. Our study suggested that Tinea infections (like Tinea (T) cruris, T. corporis, T.mannum ,T.faciae)were the most common skin diseases in our institute during the study period. The next two common disorders that we found were Acne followed by Scabies. Some similar Indian studies done previously, also found these three as among the commonest skin diseases in their areas.[12,13]

The cause for high prevalence of Tinea infections and scabies might be due to high humidity, overcrowding and poor personal hygiene. Moreover co morbid conditions like Diabetes, and use of steroids and immunosuppressants also predispose to various fungal infections.

Acne was found high among adolescents which is due to high androgen levels in this age group.Acute contact dermatitis, Psoriasis and male/female pattern hair loss were other common ailments encountered.

In our study, out of 640 drugs, topical formulations were greater than the oral drugs. This includes topical antifungal, comedolytics, sunscreen lotion andscabicidal drugs. Our study findings arein linewitha previous study done by Pathak et al[12]who also found more topical drug prescriptions in their study. This may be due to lesser systemic side effects of topical therapy.

Antimicrobials came out to be the most commonly prescribed drug in our study. Among them, antifungals were prescribed in maximum percent of prescriptions (48%). The most commonly prescribed oral antifungal was fluconazole and topical was clotrimazole.Topical clotrimazole was prescribed in the form of creams. Many previous studies also showed antimicrobials and antifungals being prescribed most commonly.[14,15]Higher prescribing of antibiotics increases the risk ofemergence of resistant strains. Appropriate antimicrobial should be prescribed only after confirming the diagnosis based on drug susceptibility testing.

In our study, many of the adjuvants prescribed like moisturizers, sunscreens etc, although necessary, significantly increased the cost of treatment.

WHO core indicators for prescription pattern analysis revealed that the average number of drugs per prescription were 3.1 which was almost double to that of standard reference value. This suggests the practice of polypharmacy which is similar to earlier studies.[16,17,18] Polypharmacy should be minimized in order to reduce the chances of drug interactions, irrational prescribing and poor compliance. Our study documented good generic prescribing reflecting awareness towards economical and cost effective utilization of drugs.

In our study the percent of encounters with antibiotics was greater than previous similar studies.[12] This indicates greater chances of development of antibiotic resistance.

Approximately half of the drugs in the prescriptions were prescribed from national list of essential medicines which was better than previous studies[17]

Conclusion

Prescription pattern analysis indicates drug usage pattern of a particular area. We found that antifungal drugs were most commonly prescribed owing to high prevalence of Tinea infections. Also polypharmacy and antimicrobial prescribing was found to be more in our study. Antimicrobials should be prescribed according to the sensitivity pattern of a particular microbe in that area, to avoid emergence of resistance. Polypharmacy should be kept in check to reduce adverse drug interactions and financial burden on the patient.

There is scope of improvement and need to encourage dermatologists to promote more prescribing from NLEM because the medicines are selected for this list with due regard to disease prevalence and evidence of safety, efficacy and cost. A hospital based formulary can be prepared and updated from time to time on the basis of findings of such studies. In this way, rational and cost effective use of medicines can contribute to raised standard of medical treatment at all level of health system.

**Table 1:Indications of drug use in male and female patients.**

Indications	Male	Female
Acne vulgaris	14(15.38%)	14(12.17%)
Melasma	1 (1.09)	3(2.60%)
Lichen planus	2(2.19%)	1(0.86%)
Herpes zoster	3 (3.3%)	5(4.34%)
Hansen's disease	2(2.19%)	0
Tinea infection	18(19.78%)	26(22.60%)
Scabies	16(17.58%)	8 (6.95%)
Pruritis	2(2.19%)	0
Chronic urticaria	1 (1.09%)	3(2.60%)
Topical steroid toxicity	1 (1.09%)	10(8.69%)
Polymorphous light eruptions	3 (3.3%)	4(3.47%)
Vitiligo	1 (1.09%)	2(1.73%)
Molluscum contagiosum	2(2.19%)	1(0.86%)
SJ syndrome	1 (1.09%)	0
Candidiasis balonitis	1 (1.09%)	1(0.86%)
Verruca plana	2(2.19%)	0
FPHL	0	2(1.73%)
Acute contact dermatitis	3 (3.3%)	12(10.43%)
Pemphigus vulgaris	1 (1.09%)	1(0.86%)
Eczema	1(1.09%)	4(3.47%)
Pityriasis versicolor	1 (1.09%)	1(0.86%)
Exfoliative dermatitis	1 (1.09%)	0
Trophic ulcer	0	1(0.86%)
Dermatosis Papula Nigra	0	1(0.86%)
Striae distensiae	0	1(0.86%)
Pfolliculitis	1 (1.09%)	0
Milia	0	1(0.86%)
Psoriasis	4(4.4%)	4(3.47%)
Furuncle	2(2.19%)	0
Alopecia areata	0	1(0.86%)
Pyoderma gangrenosum	1 (1.09%)	0
Seborrheic dermatitis	1 (1.09%)	1(0.86%)
Gardens diamond syndrome	0	1(0.86%)
Erythema nodosum	1 (1.09%)	0
Acute urticaria	1 (1.09%)	1(0.86%)
Telogen effluvium	0	1(0.86%)
MPHL	1 (1.09%)	0
Xanthalesma	0	2(1.73%)
Pitted keratolysis	0	1(0.86%)
Acanthosis nigricans	1(1.09%)	2(1.73%)
DLE	1(1.09%)	0

Table 2: Comparison of study findings with WHO core indicators

WHO core indicators	Dermatology OPD (n=206)	WHO standard value
average number of drugs per encounter	3.1	1.6-1.8
% of medicines prescribed by generic name	91.8%	100%
% of encounters with an antibiotic prescribed	32.3%	20.0-26.8
% of encounters with an injection prescribed,	00	13.4-24.1
% of medicines prescribed from NLEM (national list of essential medicines).	52.7%	100%
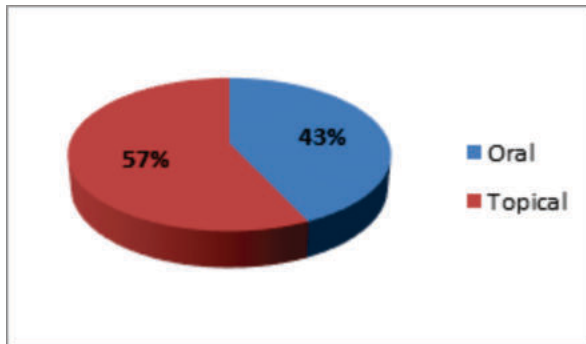
Figure 1:Percent of prescribed Topical vs Oral drugs
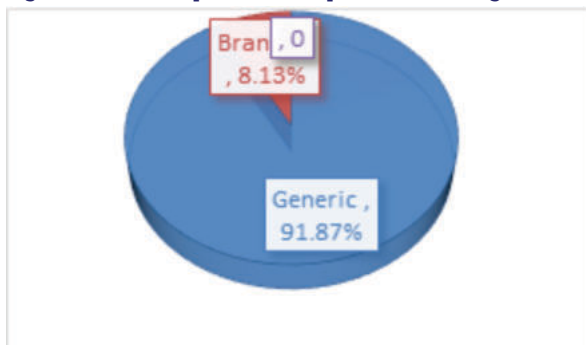
Figure 2:Percentage of prescribed Generic vs Branded drugs

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