

## CLINICAL PHARMACOLOGICAL STUDY OF PRESCRIBING PATTERN OF DERMATOLOGICAL DRUGS FROM A TERTIARY CARE TEACHING HOSPITAL

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### ABSTRACT

The present study was planned with the aim of evaluating the format, prescribing pattern and rationality of prescriptions of the patients attending Dermatology Out Patient Department of a tertiary care hospital of western Uttar Pradesh. We audited 4728 prescriptions of dermatology OPD during Feb 2013- Jan 2014. A trained person conducted the interviews just after the patients came out of the OPD room. Data was captured on predesigned proforma. The prescription data was extracted from the OPD cards and analyzed for trends in drug use, rationality of prescription. Study subjects were prescribed 15834 drugs against 4728 prescriptions, with an average of 3.35 drugs per prescription. Complete address of patients were mentioned in only 45% of prescriptions. Only 12% drugs were from the National Essential Drug List of India. 10.9% drugs were prescribed under their respective generic names while trade names were used for 89.1% drugs. The most commonly prescribed drug group in the current study was antihistamines followed by corticosteroids and antibacterials

**KEYWORDS :** Medical audit, Dermatology, Prescription, Drug dispensing

Drugs play an important role in improving human health and promoting well-being. However, to produce the desired effect, they have to be safe, efficacious and have to be used rationally. Prescription order is an important document between the physician and the patient. Prescribing of drugs is an important skill, which needs to be continuously assessed and refined suitably and it reflects the physician's skill in diagnosis and attitude towards selecting the most appropriate cost effective treatment (Kanakambal, 2001). There is growing concern regarding the irrational production, prescription and the use of drugs in India.

Drug utilization is the defined marketing, distribution, prescription and the use of drugs in society, with special emphasis on the resultant medical, social and economic consequences (WHO, 1997). Drug utilization studies are powerful exploratory tools to ascertain the role of drugs in the society. To improve the overall drug use, especially in developing countries, international agencies like the World Health organization (WHO) and the International Network for the rational use of drugs (INRUD) have applied themselves to evolve standard drug use indicators (Biswas, 2001). These indicators help us to improve our performance from time to time.

WHO-India programme on the rational use of drugs aims at promoting rational prescribing through a multi-pronged strategy, which includes intervention to correct drug use problems, adoption of essential drug list, development of standard treatment guidelines, determining and restricting irrational prescribing (Mathur, 2004; Hasnani, 2010). Therefore the present study was planned to evaluate the format, prescribing pattern and rationality of prescriptions of the patients attending Dermatology Out Patient Department of a tertiary care hospital of western Uttar Pradesh.

### MATERIALS AND METHODS

The current cross-sectional study was planned and executed by the Department of Pharmacology & Microbiology in collaboration with Medical Records Department, MSDS Medical College, Fatehgarh in February 2013. Study period was one year. The prescriptions of the patients attending the Dermatology OPD during the period of study were analyzed. Those patients who paid more than one visit like elderly patients were excluded from the study. Patients referred from Rural training health centre (RTHC), Urban training health centre (UTHC) and those diagnosed with leprosy were excluded

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**Table 1: Finding spertaining To Prescription Format (Contents of Prescription) of Study Subjects**

Contents of Prescription	Details	
	Number	Percentage
Date of prescription	4728	100%
Name of patient	4728	100%
Age of patient	4728	100%
Gender of patient	4728	100%
Complete address of patient	2154	45.56%
Rx	4539	96.0%
Dosage form and name	4728	100%
Instructions to the pharmacist	00	00%
Special instructions to the patient	94	1.98%
<b>Prescriber Identity</b>		
Clear signature of the prescriber	1276	26.98%
Registration number and address of the prescriber	Not Applicable	

from the study as they had separate OPD cards.

The study population consisted of the patients seeking care at Department of Dermatology, MSDS Medical College on outpatient (OPD) basis. MSDS Medical College is a state of the art tertiary care teaching institution established in rural outskirts of Fatehgarh to provide super specialty care to underserved population. The first batch of students commenced its academic session in July 2011. Department of Dermatology, is serving primarily patients mainly from lower socio-economic strata of community not only from western Uttar Pradesh but also from neighboring states. On an average 70-80 patients seek care at Department of Dermatology, MSDS Medical College on outpatient (OPD) basis per day. So this growing institution provided us a perfect base to plan and execute this study.

Data was collected one a week for a period of one year. The day of data collection was chosen randomly. A trained person conducted the interviews just after the patients came out of the OPD room. Data was captured on predesigned proforma. The prescription data was extracted from the OPD cards and analyzed for trends in drug use, rationality of prescription.

Total number of drugs prescribed, average number of drugs per prescription, percentage of drugs prescribed from National Essential Drug List; percentage of drugs prescribed by generic name, brand name, route of administration and physical methods used (if any) were noted on the proforma (Tripathi, 2003; Minocha, 2002). The

data was also analyzed for the most commonly prescribed drug groups, percentage of: oral drugs, topical preparations (combination/ single preparations), injectables, prescriptions with combination of topical and oral agents. The prescriptions were also evaluated for dose strength, dosage schedule, duration of therapy and use of any banned drug formulations. The format of prescription was analyzed for patient identification parameters (name, age, gender, address of patient), superscription (Rx), inscription (drug name, dose and dosage frequency), subscription (directions to pharmacist about instructions & use of drugs), instructions to patient about drug use, prescriber's identity (name, registration, address of prescriber) and date of prescription (Sharma, 2003).

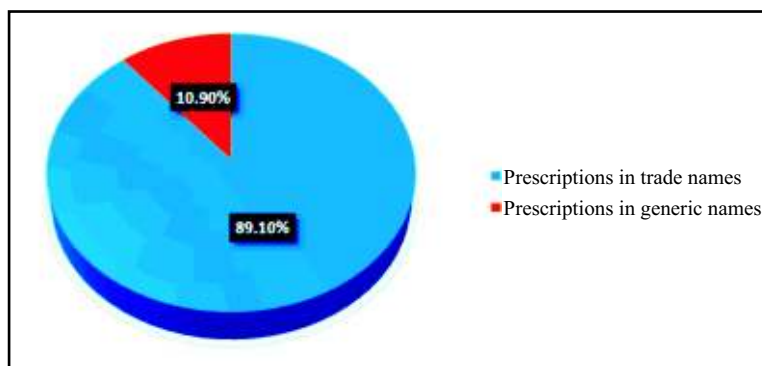
Permission of Institutional ethics committee (IEC) was sought before the commencement of the study. Informed consent was obtained from the study participants. All the questionnaires were manually checked and edited for completeness and consistency and were then coded for computer entry. After compilation of collected data, analysis was done using Statistical Package for Social Sciences (SPSS), version 20 (IBM, Chicago, USA). The results were expressed using appropriate statistical methods.

## RESULTS

We audited 4728 prescriptions during the study period. The mean age of the patients was  $35.4 \pm 9.1$  years

**Table 2 : Analysis of Prescriptions As Per Drug Use Indicators**

Observations	N (%)
Total number of prescriptions	4728
Total number of drugs prescribed	15,834
Average number of drugs per prescription	3.35
Total number of drugs from EDL *	1902 (12.01%)
Total number of drugs prescribed by generic name	1733 (10.9%)
<i>Essential drug list*</i>	

**Figure 1 : Bar Chart Showing Prescription of Drugs in Trade/Genaric Nam**

(range 18-58 years). Males 2890 (61.12%) outnumbered female patients 1838 (38.88%). Average number of drugs per encounter was  $3.35 \pm 0.76$ .

All the prescriptions mentioned the date, name, age and gender of the patients as they are already printed on the hospital OPD cards but complete address of patients were mentioned in only 45% of prescriptions. The superscription Rx was written in 96% prescriptions while dosage form and name was mentioned for all the drugs. Not even a single prescription carried instructions to the pharmacist while special instructions to the patient were mentioned in 1.98% of prescriptions. Prescriber's identity was legible in only 27% prescriptions. (Table 1).

Study subjects were prescribed 15834 drugs against 4728 prescriptions, with an average of 3.35 drugs per prescription. Out of all the drugs only 12% drugs were from the National Essential Drug List of India. Only 10.9% drugs were prescribed under their respective generic names while tradenames were used for 89.1% drugs. (Table 2) (Figure 1)

The most commonly prescribed drug group in the current study was antihistamines followed by corticosteroids and antibacterials. Out of total, 2505

prescribed antihistaminics, 98% were prescribed by oral route and remaining 2% by injectable route. Among the total 2269 of corticosteroids prescribed, majority (87.9%) were prescribed for topical use. A total of 2127 antibacterials were prescribed, out of which 50% and 49.9% by topical and oral routes respectively. Vitamins, minerals and antioxidants comprised about 1560 drugs and majority (70.9%) of them was prescribed for oral route. Emollients/creams and antiseptics/ectoparasiticides were prescribed for topical route only. (Table 3).

## DISCUSSION

The current study assessed to evaluate the format, prescribing pattern and rationality of prescriptions of the patients attending Dermatology Out Patient Department of a tertiary care hospital of western Uttar Pradesh. Valid conclusions were drawn on the basis of data collected by scrutinizing 4728 prescriptions written by dermatology OPD doctors.

To assess the scope for improvement in rational drug use in outpatient practice, the World Health Organization (WHO) has formulated a set of "core drug use indicators" (WHO, 1997). The core prescribing indicators

**Table 3 : Distribution of Various Drugs Prescribed Into Their Drug Group and Route of Administration**

Drug groups	Route of Administration						Total number
	Oral		Topical		Injectable		
	N	%	N	%	N	%	
Antihistamines	2455	98.0	-	-	50	2.0	2505
Corticosteroids	124	5.5	1995	87.9	150	6.6	2269
Antibacterials	1063	49.9	1061	50	3	0.1	2127
Vitamins/ Minerals/ Antioxidants	1107	70.9	453	29.1	-	-	1560
Antifungals	464	40.9	669	59.1	1	0.09	1134
Emollients/ creams	-	-	803	100	-	-	803
Antiseptics/ Ectoparasitocides	-	-	709	100	-	-	709
Antivirals	61	71.8	24	28.2	-	-	85
Miscellaneous	704	20.1	2782	79.6	12	0.3	3498

measure the performance of prescribers, the patient care indicators measure what patients experience at health facilities, and the facility indicators measure whether the health personnel can function effectively.

Average number of drugs/injections per encounter is an important index of the scope for intervention in prescribing practices. Our figure of 3.35 drugs per encounter is higher than the recommended limit of 2 (WHO, 1993). Our findings were in conformity with some of the other hospital studies done in IGMC which showed 2-3 drugs per prescription (Badar, 2002). Not surprisingly our study shows that three or more drugs were prescribed in more than 60% of prescriptions. More number of medications increases the risk of drug interactions, of dispensing errors and of the parent not knowing the dosage schedules. It can be minimized by rational prescribing.

The most commonly prescribed drug group in the current study was antihistamines followed by corticosteroids and antibacterials. A similar finding was recorded by Maini et al. in his drug utilization study in dermatology from Delhi (Maini, 2002). Possible reason for high proportion of topical drugs being prescribed is that topical route has minimum side effects hence is the favorite route of administration especially in dermatology.

Regarding prescribing drugs by generic names or trade names, we observed that prescriptions in trade names dominated prescriptions in generic names. Another study by Shankar et al (32.6% generic & 67.4% brand drugs) is also in concordance with our observations (Shankar, 2002). Prescribing under a generic name is considered

economical but poor prescribing of generic drugs could be due to concern about their quality.

In the current study only 12% drugs were prescribed from the National Essential Drug List. This is in contrast to the studies from Madurai and Delhi where it was reported as 50% and 95.78% respectively (Georgekutty, 2002; Biswas, 2000). Such a low prescription from National Essential Drug List can be explained on the basis of 2 facts. First, being a private institution there is no compulsion to prescribe from the EDL. Second, because of availability of advanced treatment as it is state of the art super specialty hospital, the newer drugs have been used which are not yet included in the EDL.

This study has several strengths. We have identified scope of improvement in rational drug use in outpatient practice in dermatology in a growing medical college. In-depth analysis of this aspect has not been closely investigated by many experts in the field. This study becomes very important as long lasting impact can be achieved if rectifications of deficiencies are identified well in time and corrected at the earliest. All the investigations were conducted by authors of the study only, which creates a sense of uniformity.

The study has some limitations as well. Some may argue that the results obtained may not be applicable to all the medical colleges. I agree because these findings are based on a single centre study. Results may vary with different geographical terrain. More multicentric studies need to be carried out. Second, we have not taken certain indicators related to quality of treatment such as quality of

patient examination, quality of diagnosis and quality of treatment. Improvement after rectifications of deficiencies identified should have been measured.

## CONCLUSION

The findings of this study can be utilized in strategic planning to ensure better patient care services in dermatology department. Targeted efforts are needed to improve rational drug use in our facility. Baseline data generated from the current study can be utilized for comparison when in future any dermatological drug utilization study is carried out.

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