

# Drug Utilization Study in Outpatient Ophthalmology Department of Government Medical College Jammu

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## Abstract

The present study was undertaken to assess the patterns of prescription and drug utilization by measuring WHO delineated drug use indicators. This study was conducted in the Postgraduate Department of Pharmacology and Therapeutics in collaboration with the Postgraduate Department of Ophthalmology Govt. Medical College Hospital, Jammu. Total number of prescriptions analyzed were 440, in which total of 822 drugs were prescribed. Analysis of the prescriptions showed that average number of drugs per prescription was 1.87. The maximum number of drugs prescribed were in the form of eye drops (66.18%), followed by ointments (16%), capsules (9.5%), tablet (6.57%), syrup (0.73%), injection (0.73%) and lotion (0.24%). The dosage form was indicated for 94%, frequency of drug administration for 98% drugs and duration of treatment for only 75% of the drugs prescribed. The number of antibiotics prescribed was 266 (32.26%), out of these 160 (60.15%) antibiotics prescribed in the form of drops, 100 (37.59%) as ointment and 6 (2.26%) orally. Number of encounters with anti-inflammatory and antiallergic drugs was 92 (11.2%), mydriatics and cycloplegics 64 (7.9%), miotics 20 (2.4%), multivitamins 58 (7.05%) and others used were lubricant and miscellaneous eye drops 322 (40%). Common prescription writing errors were minimum and there was no evidence of polypharmacy. However, duration of treatment and prescribing by generic name was very low.

## Key Words

Prescription, Polypharmacy, Generic

## Introduction

Drug utilization has been defined as the marketing, distribution, prescription and use of drugs in a society with special emphasis on the resultant medical and social consequences (1). It is important to realize that inappropriate use of drugs represent a potential hazard to the patients and an unnecessary expense (2). This necessitates a periodic review of pattern of drug utilization to ensure safe and effective treatment. To improve the overall drug use, especially in developing countries, international agencies like World Health Organization (WHO) and International Network for Rational Use of Drugs (INRUD) have applied themselves to evolve standard drug use indicators (3). These indicators help us to know the shortcomings in our prescription writing

and allow us to improve our performance from time to time. A study has been conducted in the apex institution of our country highlighting the rationale of drug use (4). There was a need to conduct a similar study in our hospital. Moreover we are also highlighting the incidence of various drugs used. Hence, the present study was undertaken to investigate the drug utilization pattern in the Out Patient (OPD) Department of Ophthalmology.

## Material and Methods

The present study was conducted at the Postgraduate Department of Pharmacology and Therapeutics in collaboration with the Postgraduate Department of

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Ophthalmology of Govt. Medical College Jammu. Data was collected prospectively from the out patients visiting the OPD from 8AM to 12 noon, once a week i.e. every tuesday during a period from April 2003 to July 2003. Prescriptions of 440 patients treated during the course of the study were audited prospectively using a specially designed form to record the required information from the OPD drug prescription cards of each patient. All the drugs prescribed were recorded including its dosage form, route of administration, frequency of administration, indications for which prescribed and duration of therapy.

These forms were then used to analyze the average number of drugs per prescription, number of encounters with antibiotics, anti-inflammatory drugs and other agents, dosage form of drugs, the frequency of drug administration and the duration of therapy (recorded or not) and whether the drugs were prescribed in generic or proprietary names.

### Results

Total number of prescriptions analysed for study were 440 and the total number of drugs in 440 prescriptions were 822. Number of drugs per prescription varied from one to six with average of 1.87 (Table 1). Drugs were prescribed in seven different dosage forms. Eye drops were most commonly prescribed 544(66.18%), followed by ointment 132(16.05%), capsules 78(9.5%), tablets 54(6.57%), syrups 6(0.73%), injection 6(0.73%)and lotion 2(0.24%).The dosage form of drugs was recorded for 94% of drugs. The frequency of drug administration was recorded in 98% and the duration of treatment was mentioned in 75% of the drugs prescribed. Analysis of the prescriptions showed that 99% of drugs were written in the form of various trade names and the generic name of the drugs was mentioned in 1% only.

Antimicrobials were 266(32.36%) given in various dosage forms (Table -2). Anti- inflammatory and anti-allergic drugs were 92 (11.2%), mydriatics and cycloplegics were 64(7.9%), miotics were 20 (2.4%) and multivitamins were 58 (7.05%) of the total drugs prescribed. Maximum number of these drugs were given for topical use in the form of drops and eye ointment. Mostly fluoroquinolones were used of which ciprofloxacin has been

prescribed widely and for fungal infection in the eye acyclovir has been given topically as well as for oral use. Ketorolac tromethamine, sodium cromoglycate and fluometholone are commonly used anti-inflammatory drugs. Rest used were lubricant and miscellaneous eye drops 322(40%).

Table 1. Number of drugs prescribed per prescription.

Number of drugs per prescription	Number of prescriptions n (%)
One	212 (48.18)
Two	136 (30.90)
Three	50 (11.36)
Four	24 (5.45)
Five	16 (3.64)
Six	02 (0.45)
Total	440 (100)

Table 2. Major therapeutic agents and dosage forms of antimicrobials.

Dosage form	Major therapeutic agent	Number of prescriptions n (%)
Drops 160 (60.15)	Ciprofloxacin	100 (62.5)
	Chlorempenicol	20 (12.5)
	Norfloxacin	16 (10)
	Tobramycin	8 (5)
	Sparfloxacin	8 (5)
	Sulfacetamide	8 (5)
Ointment 100 (37.59)	Neomycin	66 (66)
	Ciprofloxacin	12 (12)
	Acyclovir	5 (5)
	Combination of antibiotic with steroid	17 (17)
Oral 6 (2.26)	Ciprofloxacin	3 (50)
	Acyclovir	3 (50)

### Discussion

Drug prescriptions form a very important point of contact between the health care provider and the user. It also provides an insight into the nature of health care delivery system Average number of drugs per prescription is an important index of prescription audit. In our study the average number of drugs per prescription was 1.87%. Other hospital based studies in India reported 3-5 drugs per prescription (3,5,6), higher than our study. It is preferable to keep the number of drugs per prescription as low as possible since higher figures lead to increased risk of drug interactions, adverse effects, development

of bacterial resistance and increased cost to the patient (7). Hence, our study showed a remarkable restraint on prescribing and an awareness to avoid polypharmacy and irrational drug combinations. Also most of the drugs have been prescribed topically, 544 (66.18%) in form of drops and 132 (16.05%) in the form of ointment. Thus by giving the drugs topically for eye diseases has minimized their adverse effects.

Empirical antibacterial therapy in eye conditions is based on the likely pathogen, the available drugs and the severity of the condition. Ongoing treatment is modified by clinical response as there is large degree of variation in organism type and their resistance pattern (8). Antimicrobials have been prescribed in 32.36% prescriptions, in the form of eye drops, eye ointment as well as orally. The high use of antimicrobials reflect the condition of poor sanitation, nutrition and prevalence of various infections in our region. In our study 97.74% of antimicrobials were given topically as drops and ointment and only 2.26% were given orally, thus minimizing adverse effects. The frequency of drug use and dosage form has been noted for 98% and 94% of the drugs respectively. The duration of therapy has been recorded in 75% of the drugs prescribed. This can result in indiscriminate use of drugs by the patient and an unnecessary expense. In a similar study (4) the duration of therapy was not recorded for 73.26% of the drugs prescribed. Another study show results similar to our study (9). In our study writing of prescriptions in generic name was nearly absent. We know that trade names of many pharmacologically different drugs sound alike and spell similar. This can result in error in writing as well as reading of the prescription. Earlier studies (10,11) have reported 29.3% and 19% of drugs respectively, prescribed in generic name. Multivitamins were prescribed in 7% of prescriptions. It is always preferred to have complete prescription. It should include name, age, sex, diagnosis, rational drug treatment with

less number of drugs, proper dosage form, frequency of administration and duration of therapy. Thus, it will give relief to patient from disease in a short span and with less cost. Our hospital-based prescriptions were almost complete in 75% cases. There is a need to conduct many such studies in other departments as well, to audit large number of prescriptions and educate the prescribers on rational drug therapy for benefits and safety to the patient.

#### References

1. WHO, The selection of essential drugs. WHO technical report, 1977; 615: 36.
2. Hawkey C J, Hodgson S, Norman A, Daneshmend TK, Garner ST. Effect of reactive pharmacy intervention on quality of hospital prescribing. *BMJ* 1990; 300: 986-90.
3. Maini Rajiv, Verma KK, Biswas NR et al. Drug utilization study in Dermatology in a tertiary hospital in Delhi. *Ind J Physiol Pharmacol* 2002; 46: 107-10.
4. Biswas NR, Jindal S, Siddiquei MM et al. Patterns of prescription and drug use in ophthalmology in a tertiary hospital in Delhi. *Br J Clin Pharmacol* 2001; 51: 267-69.
5. Kutty KVG, Sambasivam N, Nagarajan M. A study on drug prescribing pattern in Madurai city. *Ind J Pharmacol* 2002; 34: 361-62.
6. Sharma SC, Uppal R, Sharma PL et al. Rational use of topical corticosteroids in dermatology. *Ind J Pharmacol* 1990; 22: 141-44.
7. Sharma D, Reeta KH, Badyal DK et al. Antimicrobial prescribing pattern in an Indian territory hospital. *Ind J Physiol Pharmacol* 1998; 42: 533-37.
8. Daniell M. Overview Initial antimicrobial therapy for microbial keratitis. *Br J Ophthalmol* 2003; 0: 1172-74.
9. Mohanty M, Mohapatra S. Drug utilization pattern of topical ocular antimicrobials in a tertiary care hospital. *Ind J Pharmacol* 2003; 35: 339.
10. Rehana HS, Nagarani MA, Rehan MA. Study on drug prescribing pattern and use of antimicrobial agents at a tertiary care teaching hospital in Eastern Nepal. *Ind J Pharmacol* 1998; 30: 175-80.
11. Minocha KB, Bajaj S, Gupta K. A clinico-pharmacological study of out-patient prescribing pattern of dermatological drugs in an Indian tertiary hospital. *Ind J Pharmacol* 2000; 32: 384-85.