Prescribing Pattern and Drug Use in Ophthalmology Out Patient Department of Nepalgunj Medical College, Nepalgunj, Nepal

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**ABSTRACT**

Introduction: Monitoring, evaluation and modification of prescriptions of prescriber can be achieved by the study of prescribing pattern through prescription audit. WHO and INRUD have evolved standard drug use indicators to improve the overall drug use in developing nations like Nepal. Aims and objective: To describe the patterns of prescription and drug use at ophthalmology at out-patient department (OPD). Materials and methods: The study was conducted at Out Patient Department of ophthalmology at Nepalgunj Medical College, Nepalgunj. The data was collected from the patients who visited the OPD during the period from May to November 2017. Total 855 Prescriptions were audited and WHO drug prescribing and use indicators were analyzed. Results: The number of drugs per prescription varied from one to five with an average of 2.6. Majority of drug 97% was prescribed in brand name. The maximum (76%) drugs were prescribed as topical form. Eye drops 64% were the most commonly prescribed followed by ointments (12%), tablets (11%), capsules (9%), syrups (3%) and injections (1%). Sixty percent lubricants were prescribed followed by anti-allergic and Anti-inflammatory (20%) then antimicrobials 17%, Mydriatic and cycloplegic 7%. The dosage forms of the drugs were recorded for 92% and the frequency of administration was recorded for 96% of the prescriptions whereas duration of treatment was mentioned for 66% of the prescription. Conclusion: In the hospital setting drug utilization pattern must be monitored time to time to analyze their rational use, provide feedback and suggestion to the prescriber.

Key words: Generic name, prescribing pattern, WHO drug use indicators

**INTRODUCTION**

Drug utilization is defined as marketing, distribution, prescription and the use of drugs with special emphasis on the resultant medical, social and economic consequences\(^1\). In the hospital setting drug utilization pattern must be monitored time to time to analyze their rational use, provide feedback and suggestion to the prescriber\(^2\). WHO drug use indicator is used to evaluate the prescription pattern to promote rational use of drug\(^3\). WHO and INRUD have evolved standard drug use indicators to improve the overall drug use in developing nations like Nepal\(^4\). Monitoring, evaluation and modification of prescriptions of prescriber can be achieved by the study of prescribing pattern through prescription audit\(^5\). Till date there is no study has been done on prescribing pattern in ophthalmic care in Western Nepal. The periodic auditing of the prescription helps to measure the impact of the prescribing pattern. So, the present study was done with the aim to study the drug use pattern in ophthalmology out-patient department and to evaluate the drug use for rationality.

**RESULTS**

The total 855 prescriptions were analyzed. The number of drugs per prescription varied from one to five, three drug in 32.16% of prescription followed by two i.e.; 27.48% (Table -I) with an average of 2.6 (Table-II).

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Patients suffering from various ocular disorders attended the OPD during the study period (Figure 1). The most common disorders diagnosed were allergic eye diseases 28%, dry eye 25% and Presbyopia 20% followed by viral eye infection, cataract, refractive error, pterygium, trauma and uveitis.

Seven different dosage forms were prescribed (Figure 2). Eye drops 64% were the most commonly prescribed followed by ointments (12%), tablets (11%), capsules (9%), syrups (3%) and injections (1%). Five hundred and thirteen (60%) lubricants were prescribed followed by anti-allergic and Anti-inflammatory (20%) then antimicrobials 17%, Mydriatic and cycloplegic 7%, mitotic 0.5% and others 2% of the total drugs prescribed (Figure-3).
The maximum number 650(76%) drugs were given for topical use in the form of eye drops 547(64%) and ointments 103 (12%) followed by oral 188 (22%) as tablets, capsules and syrup form (Table-II).

| Type of medication | Drops 547(64%) | Ointment 103(12%) | Oral 188 (22%) |
|--------------------|----------------|------------------|----------------|
| Carboxy methylcellulose (Refresh tear, Relub) | Tetracycline (ocucycline) | Ciprofloxacin (Zoxan) |
| Olopatadine (winolap or OPD-1) | Chloramphenicol-dexamethasone (occupol-D) | Ciprofloxacin (Zoxan) |
| Cyclopentolate (cyclopent) | Chloramphenicol (occupol) | Ofloxacin (ZO) |
| Prednisolone (predmet) | Acyclovir (occuvir) | Ranitidine (aciloc) |
| Timolol (glucoment, iotim) | Sodium chromoglycate (allercrom) | Prednisolone (predmet) |
| Olopatadine (winolap or OPD-1) | Pilocarpine (pilocar) | Flurbiprofen (FBN, Eyefen) |
| Cyclopentolate (cyclopent) | Hypromellose NaCl | Acyclovir (occuvir) |
| Prednisolone (predmet) | Fluromethalone (FML) or (floman) | Tetracycline (occucycline) |
| Flurbiprofen (FBN, Eyefen) | Homotropine (homide, aurohom) | Ciprofloxacin (Zoxan) |
| Timolol (glucoment, iotim) | Pilocarpine (pilocar) | Ciprofloxacin (Zoxan) |
| Sodium chromoglycate (allercrom) | Sodium chromoglycate (allercrom) | Flurbiprofen (FBN, Eyefen) |

Table-II: Common therapeutic agents prescribed

The dosage forms of the drugs were recorded for 92% of the drugs and the frequency of administration was recorded for 96% of the prescriptions whereas duration of treatment was mentioned for 66%. The analysis of the prescriptions showed that 97% of the prescriptions were written in the form of various trade names and that the generic names of the drugs were mentioned in 3% only (Table-II).

| Total number of prescription | 855 |
|-------------------------------|-----|
| Average number of drug per prescription | 2.6 |
| Percentage of dosage form recorded | 92% |
| Percentage of frequency of therapy recorded | 96% |
| Percentage of duration of therapy recorded | 66% |
| Percentage of encounters with an antimicrobials prescribed | 60% |
| Percentage of encounters with an injection prescribed | 2% |
| Percentage of drug prescribed by generic name | 3% |
| Percentage of drug prescribed by brand name | 97% |

Table-III Analysis of prescription (WHO core drug prescribing indicators)

DISCUSSION

Drugs play crucial role in improving human health. Drug prescription form a very important point to contact between the doctor and patients. The degree of polypharmacy is measure by the average number of drugs per prescription. According to WHO the average number of drugs should be 1.6 to 1.8 per prescription. In this study the average number of drug per prescription was 2.6 which is very similar with the study done in India by Prajavati V et al(2.23), Biswas et al(3.0), Maniyar Y et al(2.0), and Nehru M et al(1.8). Number of drugs per prescription should be kept to minimum otherwise prescribing more drugs would increases risk of drug interactions, adverse effects, increase treatment cost and increase prescribing error.

Higher percentages of drug were prescribed as lubricants 60% followed by anti-allergic and Anti-inflammatory 20%, this is due to prevalence of allergic eye disease and dry eye and environmental factors. So, lubricants, with anti-allergic and anti-inflammatory drugs prescribed are appropriate with prevalence of disease pattern.

Majority of drug were prescribed with topical routes 76% in the form of eye drops in 64% and ointments 12%, followed by oral routes 22% in the form of tablets (10%), capsules (9%), syrups (3%) and only 2% as injection. Similar pattern was shown in the study by Pooja Prajawal et al 67.65% eye drops, 11.66% ointment and 15.03% oral, by Nehru M et al17, 75.34% eye drops, which strongly supports that the topical routes with eye drops and ointment has minimal adverse effects than systemic admistration of drug.

In this study drug prescribed by generic name was very low 3% that is due to frequent visit of the medical representatives in hospital setting could be the reason for under prescibing of the drugs by generic name. The percentage of drugs prescribed
by brand name were 97%, which is similar with previous study done by Prajvati V et al 98.8%, Pradeep R et al 97.65%, by Pooja P et al 67.56% of brand name, which suggest popularity of brand names among the ophthalmologist and influence of pharmaceutical companies over prescriber. However, prescribing by brand name could result prescribing error because of similarity of many drugs with their spelling.

The analysis of the prescriptions showed that the dosage forms of the drugs were recorded for 92%, frequency of administration was recorded 96% whereas duration of treatment was mentioned for 66%. Which was very similar with the study by Pooja P et al 91%, 97%, and by Maniyar Y et al 69% and 99.88%, 94% and 57% respectively.

CONCLUSION
Excessive polypharmacy and prescribing in brand name due to high influences of pharmaceutical company over prescriber was quite common in Nepal which is not in WHO standard. In the hospital setting drug utilization pattern must be monitored time to analyze their rational use, provide feedback and suggestion to the prescriber. Concept of generic prescribing and continuous supervision and imparting education to the ophthalmologists about prescribing pattern should be initiated. There is a need to conduct similar studies in other departments and need to audit a large number of prescription on rational drug therapy for the benefits and safety of the patients.

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