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Original Research Article

Drug utilization study in ophthalmology out patients in a tertiary care teaching hospital

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ABSTRACT

Background: The objective of the study was to evaluate the utilization of the drugs in the ophthalmology outpatient department.

Methods: Present study was conducted at ESIC medical college & PGIMSR Ophthalmology Department. Total 700 prescriptions were collected from 700 patients and prescriptions were analysed for total and average number drugs per prescription, duration of treatment, dosage form, drug encounter with antibiotics and other group of drugs also percentage of drugs prescribed by generic names.

Results: After analysing the prescriptions, average number of drugs per prescription was 2.14 and the range of drugs prescribed were varied from 1-5. Total drugs prescribed were 1502 with 7 different dosage forms. Most commonly prescribed were antibiotics (28.14%) followed by antihistamines (14.28%) and vitamins and minerals (14.28%). Thirdly ocular lubricants were frequently prescribed (12.12%). Fluroquinolones (moxifloxacin) were very commonly prescribed in antibiotics. The common prescription writing errors were very minimal.

Conclusions: The present study revealed trend of prescribing practices of the Ophthalmologists of the Institute. This study shows less polypharmacy, use of injection was limited and majority of the drugs prescribed in generic and hospital formulary drug list. Antibiotics were prescribed most frequently.

Keywords: Drug utilisation, Prescribing pattern, Antibiotics, Lubricants

INTRODUCTION

WHO has defined drug utilisation as the marketing, distribution, prescription and use of drugs in a society with special emphasis on the resulting medical, social and economic consequences.¹ Management of ocular diseases has large impact in the prevention of vision loss. Appropriate management of certain diseases will reduce the burden of vision loss. These studies are essential part of pharmacoepidemiology which describes the nature and determinants of drug exposure with ultimate goal of rational use of drugs for the patients.²⁻⁵ The present availability of new therapeutic agents with unaffordable price and varied pattern of prescriptions, concern over adverse drug reactions and increased price of drugs shows the importance of drug utilisation studies.^{6,7} To

improve overall usage of drugs in developing countries, WHO has given standard drug use indicators⁸. Though rational use of drugs is quite a usual practice, monitoring of prescriptions and drug utilization studies can identify the associated problems like drug interactions and provide feedback to prescribers.

Present study will give the insight about the prevalence of various ophthalmic diseases and drug utilisation pattern and current prescribing practice of the ophthalmologist at tertiary care teaching hospital.

Objectives

Objectives were to evaluate the utilization of drugs in the ophthalmology outpatient department.

METHODS

The present study is an observational study which was done in Department of Pharmacology at ESIC Medical College and PGIMSR in collaboration with the Department of Ophthalmology at ESIC Medical College and PGIMSR. The study protocol was approved by Institutional Ethics committee. The out patients visiting OPD were fulfilling our inclusion criteria like cases of red eye, discharge from eyes, itching, redness foreign body sensation, swelling, foreign body, raised intraocular pressure, and eye trauma. Inpatients were excluded from our study. The data were collected prospectively from 10:00hrs to 14:00 hrs. Twice weekly from November 2019 to January 2020. After obtaining verbal consent from the patient and the relatives, Prescriptions of 700 patients who were treated during the course of study were audited prospectively using specially designed Performa. WHO core drug prescribing indicators the drug prescribing pattern, most common group of drugs and percentage of drugs which dosage formulations are determined.

Data of all the patients were analysed by Microsoft Excel version 2010. All parameters were expressed in percentage.

RESULTS

The total number of prescriptions analysed were 700 and total number of drugs in these prescriptions was 1502. The range of drugs per prescription varied from 1 to 5 with an average of 2.14 (Table 1). The total drugs (1502) prescribed were present in 7 different dosage forms. Eye drops were the most commonly prescribed (695), followed by tablets (683), capsules (42), ointment (36), gels (23), syrups (22), lotion (1) of all the dosage forms prescribed.

Table 1: Total number of drugs prescribed per prescription (n=700).

Prescription containing number of drugs	Number of prescriptions (%)
1	211 (30.14)
2	193 (27.57)
3	220 (31.42)
4	71 (10.14)
5	5 (0.71)

The number of encounter with antibiotics was 422 which constituted 28% of the total number of drugs prescribed. Study also revealed that the drugs were prescribed both by generic and brand name, with brand name prescribing clearly dominating generic prescribing. 55.5% vs 44.5% respectively. WHO has suggested five core prescribing indicators to evaluate the rationality of drug use (Table 2).

Table 2: Total number of drugs prescribed per prescription.

WHO core prescribing indicator	Value
Average number of drugs per encounter	2.14
Percentage of drugs prescribed by generic name	44.5%
Percentage of encounters with antibiotics prescribed	28%
Percentage of encounters with an injection prescribed	0%
Percentage of drugs prescribed from National essential drug list (NEDL)	90%

DISCUSSION

Drugs play a major role in promotion of human health and wellbeing. For this desired effect drugs prescribed should be safe, efficacious and should be prescribed rationally. Average number of drugs per prescription is an important index of the scope for review and educational intervention in prescribing practices. In this study the average number prescription was 2.14%, which fell within the range of previous reported studies by, Biswas et al, Benerjee et al, Maniyar et al, Nehru et al. It is preferable to keep the number of drugs per prescription as low as possible. Since higher figures lead to increase the risk of drug interaction, increased cost the patient and errors of prescribing.⁹⁻¹²

Table 3: Different classes of drugs prescribed.

Class of drugs	Total number of drugs 1502, 700 patients	%
Ocular lubricants/artificial tears	202	12.12
Antibiotics and antimicrobials	469	28.14
Antiallergic	27	1.62
NSAIDs	82	4.92
Anti -glaucoma	96	5.76
Steroids	78	4.68
Anti-histamines	238	14.28
Vitamins and minerals	247	14.82
Immunomodulators	9	0.54
Others	54	3.24

In our study most frequently, prescribed drugs were antimicrobials (Table 3) which are prescribed about 28.14%. Other hospital-based studies in ophthalmology in India have reported 14-33% encounters with antibiotics in their study.⁹⁻¹² The high use of antibiotics reflects the prevalence of infections in this region. According to WHO, 15-25% prescription with antibiotics is expectable in most of the countries where infectious disease is more prevalent.¹³ Most of the antibiotics prescribed in the form of eye drops and eye ointments, as well as orally. 94.5% of the antimicrobials were given topically in the form of

eye drops and eye ointments, thus minimising adverse effects (Table 4).

Dosage form	Major therapeutic agent	Number of prescriptions N (%)
Drops	Combination of antibiotic with steroid	331 (47.2)
	Moxifloxacin	49 (7)
	Tobramycin	14 (2)
	Ciprofloxacin	14 (2)
	Ofloxacin	1 (0.14)
Ointment	Moxifloxacin	26 (3.71)
	Acyclovir	1 (0.14)
Oral	Amoxicilline	14 (2)
	Acyclovir	9 (1.2)

The 2nd most common drug prescribed were antihistamines (Table 3) (14.28%). These are prescribed in combination with antiallergics (1.62%) and sometimes steroids (4.68%) and NSAIDs (4.92%) which indicates the prevalence of allergic conditions of the eyes in this region.

Vitamins and minerals (Table 3) (14.28%) are also frequently prescribed equivalent to antihistamines as these specifically vitamin E helps in healing process of ophthalmic disorders.

Following antihistamines and multivitamins ocular lubricants or artificial tears (Table 3) (12.12%) were most frequently prescribed in the patients. This is mainly due to it accelerate the healing process and efficacious in the management of allergic conjunctivitis and dry eye syndrome.¹⁴

The duration of therapy was noticed in only 58% of the prescriptions. This study showed a need for the improvement in prescription writing as the duration of therapy was missing in 42% of the prescriptions.

Limitations

It is a quantitative drug utilisation study with WHO core prescribing indications and thus determining quality of diagnosis and appropriate drug choice was beyond the scope of prescribing indicators

CONCLUSION

Present study revealed the trend of prescribing practices of the ophthalmologists. Antibiotics in addition of antihistamines and lubricating eye drops were prescribed most frequently and polypharmacy was not common in the department. In this study complete details of prescriptions of patients was recorded. Evaluation of the drug use with the help of WHO core drug prescribing indicators showed that our institute polypharmacy is less

and the majority of drugs were prescribed from the hospital formulary drug list. The use of generic name (44.5%) is comparatively high with the other studies by Benerjee et al (19%), Prajapati et al (1.4%), Maniyar et al (1%). so overall finding suggests, our institute drug prescribing habits of ophthalmologists are appropriate. It is always preferred to have a complete prescription which includes Name, age, sex, diagnosis and rational prescription with a smaller number of drugs, with dosage form, frequency of intake and duration of therapy and refilling of prescription if applicable. There is need to conduct similar studies in other departments, as well to audit a large number of prescriptions and to impart education to the prescriber on rational drug therapy for the benefits and for the safety of the patients.

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