

DRUG UTILIZATION PATTERNS OF DRUGS USED IN OPHTHALMOLOGY OUT- PATIENTS DEPARTMENT AT TERTIARY CARE HOSPITAL

Rajesh Kumar Suman^{1*}, Varshav S. Gore², Ipseeta Ray Mohanty¹, Neeraj Israni²,
Y A Deshmukh¹

Department of Pharmacology¹, Department of Ophthalmology², MGM Medical College, Sec-01, Kamothe, Navi Mumbai-410209, India.

Article Received on
18 April 2015,

Revised on 07 May 2015,
Accepted on 30 May 2015

*Correspondence for

Author

Rajesh Kumar Suman

Department of
Pharmacology, MGM
Medical College, Sec-01,
Kamothe, Navi Mumbai-
410209, India.

ABSTRACT

Background: Drug Utilization Provides Prescribing Behaviors of Prescriber. Rational Prescribing plays a crucial role in reducing the Ocular disease burden in Ophthalmology Practices. **Aim:** The Study aim was to analyze the patterns of drugs Prescribed Ophthalmology OPD patients. **Methods:** The study was an observational study completed over a period of 9 months, from March 2014 to Nov 2014. The Study was conducted in Department of Ophthalmology, MGM Medical College & Hospital Navi Mumbai. A questionnaire was specifically designed factoring patients' demographical profile, diagnosis of disease, Drug regimen. **Results:** A total 246 prescriptions of patients were analyzed who visited Ophthalmology OPD Department. The total 495 drugs were prescribed. Average number of drug prescribed was

2.01. Maximum Patients were diagnosed with Cataract (25.03%) followed by Conjunctivitis (10.49%), Meibomitis (7.88%), Glaucoma (10.03%), Allergic eye (15.12%), Blephritis (7.85%), Foreign body in eye (4.91%), Dry Eye (15.09%) and Uveitis diagnosed in 3.60% of Ophthalmology OPD. Among total 495 drugs prescribed, the combination of Antibiotic plus Steroid (23.95%) was prescribed maximum followed by Antibiotic (18.11%), Analgesic (3.64%), Steroid (17.79%), B-blocker (4.87%), Prostaglandin Analogue (3.04%), Mydriatic (5.03%), Antihistamine (7.08%), Artificial Tear (10.10%) and other drugs (4.38). Most commonly prescribed drug was Loteprednol, Moxifloxacin and Prednisolone. Most Common FDC prescribed was Tobramycin + Loteprednol. 64% of drugs were prescribed from essential drug list. Among 246 prescription, One drug prescribed in 10.17% prescription, two drugs,

three drug and Four Drug prescribed in 49.19%, 35.52% and 12.19% respectively. Maximum no of drugs were found in the form eye drops (64%).**Conclusion:** The study found lower incidence of antibiotic prescription but Prescription of drugs were very low in their generic is matter of concern.

KEYWORDS: Drug Utilization, Ophthalmology, Out-Patients.

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 very essential to realize that inappropriate use of drugs represent a potential hazard to the patients and an unnecessary expense^[2] A periodic auditing of drug utilization pattern has become necessary for promoting rational use of drugs by increasing the therapeutic efficacy and the cost-effectiveness while decreasing occurrence of untoward adverse effects. To promote rational use of drugs in developing countries, international agencies like the World Health Organization (WHO) and the International Network for The Rational Use of Drugs have applied themselves to evolve standard drug use indicators.^[3] In ophthalmology practice, rational prescribing plays a crucial role in reducing the ocular disease burden of the country.^[4]

Drug is an important regimen for patient care management in health care settings. Prescribers and consumers are flooded with a vast array of pharmaceutical products with innumerable brand names, available often at an unaffordable cost.^[5] Medicines play an important role in health care delivery and disease prevention. The availability and affordability of good quality drugs along with their rational use is needed for effective health care. However, irrational drug use is prevalent, especially in the developing countries due to irrational prescribing, dispensing, and administration of medications. A study of prescription patterns is an important tool to determine rational drug therapy and maximize utilization of resources.^[6, 7]

There is indiscriminate practices is going on and to improve the drug use practices 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.^[8] These indicators help us to improve the prescribing Practices from time to time. Therefore there was need to conduct similar study to generate new data

which is help the prescribing for rational prescribing^[9] Hence, the present study was designed to evaluate Prescribing Patterns of Ophthalmology OPD Patients of Our Hospital.

OBJECTIVE

To analyze the patterns of drugs Prescribed in Ophthalmology Out-Patients Department (OPD).

MATERIAL AND METHODS

I. Necessary approval from the Institutional Ethics Committee was obtained before initiating the study.

II. Study site

This drug utilization study was conducted at the departments of Ophthalmology and Pharmacology, MGM Medical College & Hospital, Kamothe, Navi Mumbai, India.

III. Study period

The study was an observational study completed over a period of 9 months, from March 2014 to Nov 2014.

IV. Study design

Prospective-open labeled, observational study.

V. Sample size: Total 246 patients were recruited for the study.

VI. Patient selection

- **Inclusion criteria:** Patient attending Ophthalmology OPD and giving consent to participate in the study.
- **Exclusion criteria:** Patient who were seriously sick (emergency) and IPD patients.

VII. Study material

A specially designed data entry format was used to record patients' details like patient name, age, sex, Drug regimen, Drug dose. The following drug utilization indicators were assessed.

WHO Prescribing Indicators

- a. Average number of drug prescribed per patient.
- b. Percentage of encounters with an antibiotic prescribed.

- c. Percentage of encounters Injection.
- e. Percentage of drugs prescribed by generic name.
- f. Percentage of drug from Essential drug list.

IX. Statistical Analysis: Data was entered and analyzed with Microsoft Excel 2007. Value is expressed in Percentage.

RESULTS

The totals of 246 patients were analyzed for the Drugs usage pattern in the Ophthalmology department. Maximum Patients belonged to the age group of 51-60 yrs (34.14%). The proportion of Male (59%) patients was more as compared to female patients (41%).(**Table 1**).

Total 246 prescription of Patients who were visited our Ophthalmology OPD were analyzed. Total drug prescribed was 495. Average drug per prescription was 2.01. No injectable was prescribed in present study. 64% of Drugs Prescribed from Essential Drug List. 18.11 % was antibiotic Prescribed. Most commonly Drug prescribed were Loteprednol, Moxifloxacin, Prednisolone. Most common fixed dose Combination prescribed was Tobramycin plus Loteprednol. Poly pharmacy was seen in 33% cases and 11% Drug Prescribed in their Generic name. (**Table 1**).

Among total 246 Patients, Maximum Patients were diagnosed with Cataract (25.03%) followed by Conjunctivitis (10.49%), Meibomitis (7.88%), Glaucoma (10.03%), Allergic eye (15.12%), Blephritis (7.85%), Foreign body in eye (4.91%), Dry Eye (15.09%) and Uveitis diagnosed in 3.60% of Ophthalmology OPD.(**Fig 1**).

Among total 495 drugs prescribed, The combination of Antibiotic plus Steroid (23.95%) was prescribed maximum followed by Antibiotic (18.11%), Analgesic (3.64%), Steroid (17.79%), B-blocker (4.87%), Prostaglandin Analogue (3.04%), Mydriatic (5.03%), Antihistamine (7.08%), Artificial Tear (10.10%) and Other drugs (4.38%). (**Fig 2**).

Analyzation of 246 Ophthalmology OPD Prescriptions, One drug prescribed in 10.17% prescription, two drugs, three drug and Four Drug prescribed in 49.19%, 35.52% and 12.19% respectively. The maximum prescription showed with two drugs. (**Fig 3**) Various Dosage form were seen in Ophthalmology OPD Prescription. Among 246 prescription and Total 495 drugs, Maximum drugs prescribed in Eye Drops (64%) followed by Eye Ointment (24%) and

Remaining were prescribed in Tablet/ Capsule form (12%). No Injectable was prescribed. (Fig 4).

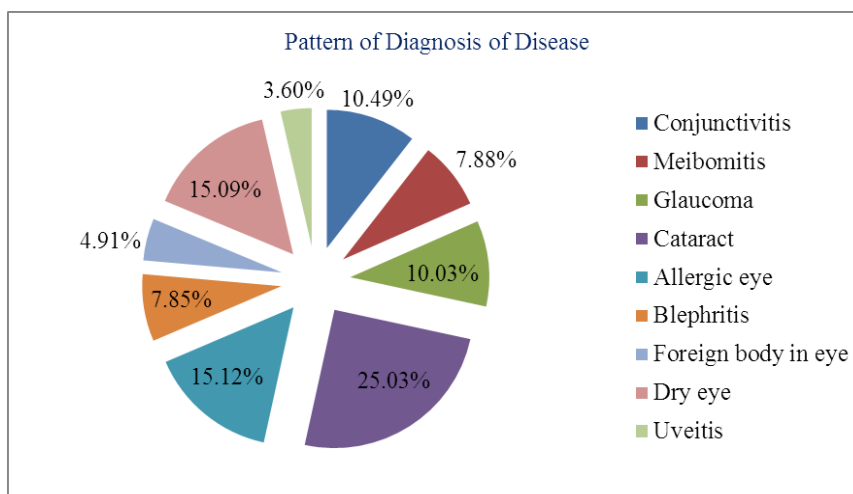


Fig 1 shows: Pattern of diagnosis of Diseases in Eye OPD

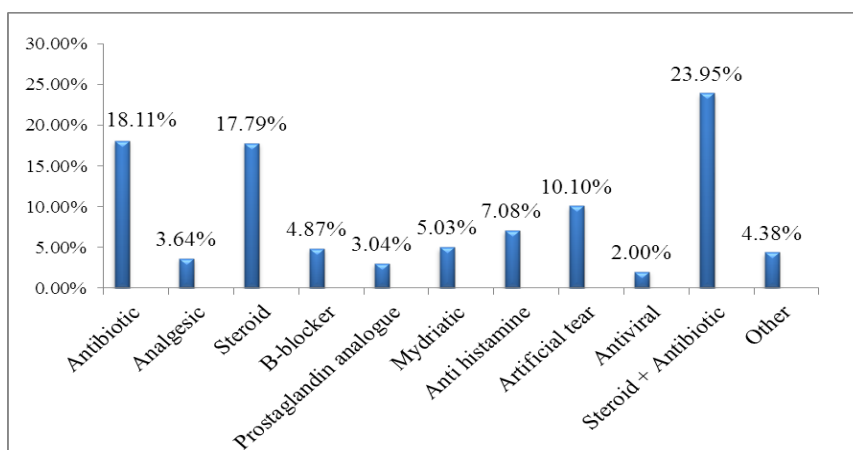


Fig2 shows: Pattern of type of Drug Prescribed in Eye OPD

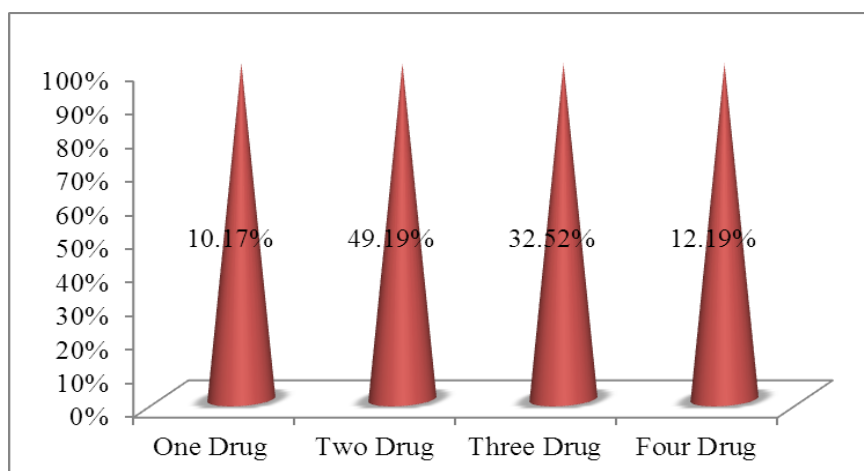


Fig3 shows: Pattern of Drug per prescription in Eye OP

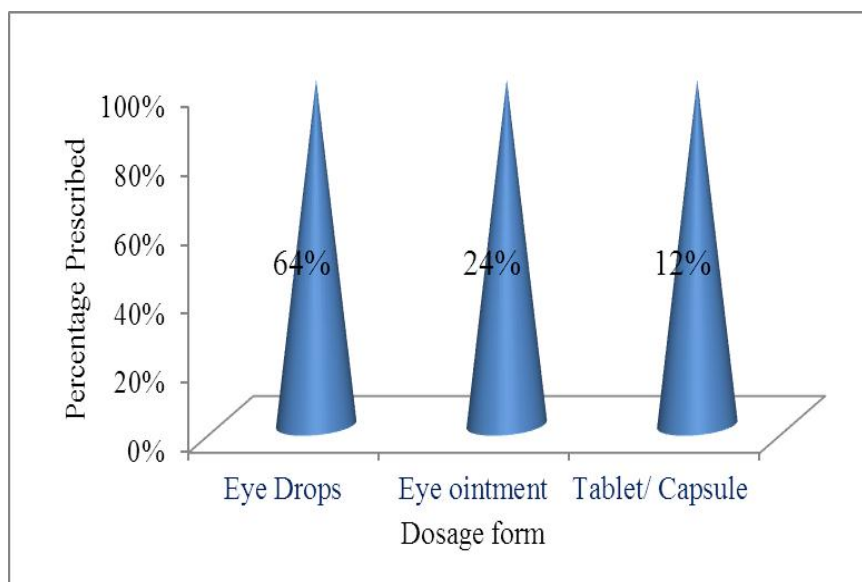


Fig4 Shows: Pattern of dosage form of prescribed drug in ophthalmology OP

Table 1 shows: Pattern of Demographic Data of Eye OPD Patients

S.NO	PARAMETERS	RESULTS
1	Total no. of sample	246
2	OPD Sample	246
3	Age (year)	% of Patients
	10-20	10 (4.06%)
	21-30	35 (14.22%)
	31-40	47(19.1%)
	41-50	48 (19.51%)
	51-60	84 (34.14%)
	61-70	22 (8.94%)
4	Gender	
	Male	59%
	Female	41%
5	Total Drug Prescribed	495
6	Average Drugs/prescription	2.01
7	Poly-pharmacy practice	33%
8	Encounter with Injection	0%
9	Drugs Prescribed from Essential drug List	64%
10	Most commonly prescribed Drugs	Loteprednol, Prednisolone, Moxifloxacin,
11	Most commonly Fixed dose combination drug	Tobramycin+Loteprednol
12	Encounters with Generic Name	11%

DISCUSSION

The Drug prescription by doctor reveals important data regarding rational drug usage. The present study indicates general trends of prescribing Drugs in the OPD of Ophthalmology department. Drugs play a key role in human health and in promoting well-being. The average number of drugs per prescription is an important indicator to measure the degree of polypharmacy. The number of drugs per prescriptions should be as low as possible since higher figures culminate in increased risk of drug interactions, increased hospital cost and errors of prescribing. In the present study, average number of drugs per prescriptions was 2.01, which fell within the range reported in previous studies by Nehru *et al.* (1.8),^[10] Banerjee *et al.* (2.3).^[4] and Santosh *et al.* (2.3).^[11] The percentage of drugs prescribed by generic names in our study was 11%, which is lower than what was reported by Banerjee *et al.* (17%).^[4] and Ashish *et al.* (26.04%). The frequent visit of the medical representatives in health facilities may be the probable cause of the under prescribing of the drugs by generic name. 64% of Drugs Prescribed from Essential Drug List in present study, as the study by Bhavesh *et al.*^[7] found 48.26% drug prescribed from essential drug list which is lower than previous study.

The Present study showed that, Patterns of disease among ophthalmology OPD patients were Maximum Patients were diagnosed with Cataract (25.03%) followed by Conjunctivitis (10.49%), Meibomitis (7.88%), Glaucoma (10.03%), Allergic eye (15.12%), Blephritis (7.85%), Foreign body in eye (4.91%), Dry Eye (15.09%) and Uveitis diagnosed in 3.60% of Ophthalmology OPD. The similar previous study showed different pattern by Bhavesh *et al.*^[7] and Santosh *et al.*^[11] as they showed maximum diagnosed were refractive error but the study by pooja *et al.* showed maximum diagnosed disease in their study was cataract.^[9]

The Study found that, the combination of Antibiotic plus Steroid (23.95%) was prescribed maximum followed by Antibiotic (18.11%), Analgesic (3.64%), Steroid (17.79%), B-blocker (4.87%), Prostaglandin Analogue (3.04%), Mydriatic (5.03%), Antihistamine (7.08%), Artificial Tear (10.10%) and Other drugs (4.38%). Antibiotic Prescription was very lower than previous Study by Baveshe *et al.* (46.17%).^[7] Banerjee *et al.* (36.4%).^[4] and pooja *et al.* (58.43%).^[9] The study also differ than previous study that, None of the study showed Antibiotic plus Steriod prescribed maximum.^[4,7,9,11] Although pattern were similar to previous study.

The Present study also reveals, patterns of Prescription of drug per prescription as we found, One drug prescribed in 10.17% prescription, two drugs, three drug and Four Drug prescribed in 49.19%, 35.52% and 12.19% respectively. The maximum prescription showed with two drugs. None of the study showed exact Number of Drug per Prescription in Ophthalmology OPD.

Various Dosage form were seen in present study and maximum drugs prescribed in Eye Drops (64%) followed by Eye Ointment (24%) and Remaining were prescribed in Tablet/ Capsule form (12%). No Injectable was prescribed. Pattern were different than previous study, they also found Injectable and Syrup dosage form, but they found similar pattern that eye drops was maximum prescribed in their study.^[7,1011,12]

Thus, overall the present study has pointed overall satisfactory prescribing Behavior. but the study pointed toward low generic prescribing. The study suggests a need for proper medical education to clinician for rational prescribing on regular interval. The limitation of this study is its inability to consider the associated co-morbidities of patients.

CONCLUSION

The study found lower incidence of antibiotic prescription but Prescription of drugs were very low in their generic is matter of concern. The Study will give Right feedback to Prescriber and Helps to enhance rational Prescribing Practices.

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. Geneva: World Health Organization: How to Investigate Drug Use in Health Facilities: Selected Drug Use Indicators 1993; 1: 1–87. WHO/DAP
4. I Banerjee, T Bhadury, T Sengupta, D. Ray. Drug Utilization Study in Ophthalmology Out Patient Department of a Medical College in India. Ann Med Health Sci Res, 2014 ; 4(4): 667-670.
5. N. Y. Mirza, S. Desai, and B. Ganguly, “Prescribing pattern in a pediatric out-patient department in Gujarat,” Bangladesh Journal of Pharmacology, 2009; 4(1): 39–42.
6. Ehijie F.O. Enato and Ifeanyi E. Chima, Evaluation of drug utilization patterns and patient care practices. West African Journal of Pharmacy. 2011; 22 (1): 36 – 41.

7. Bhavesh k. Lalan, R. S. Hiray, B. B. Ghongane. Drug Prescription Pattern of Outpatients in a Tertiary Care Teaching Hospital in Maharashtra. *Int J Pharm Bio Sci*, 2012; 3(3): 225 – 229.
8. Maini Rajiv, Verma KK, Bisws NR et al. Drug Utilization Study in Dermatology in a Tertiary Hospital in Delhi. *Int. J. phisol Pharmacol*, 2002; 46: 107-10.
9. Pooja Prajwal, Mohandas Rai, Sharath Kumar K, Srinivas Bhat, Floyd Vernon Dsouza. Drug Utilization Pattern in Ophthalmology Department at a Tertiary Care Hospital. *Int. Res. J.Pharma*, 2013; 4(8): 205-210.
10. Meenakshi Nehru, K. Kohli, B. Kapoor, P.Sadhotra, V.Chopra, R. Sharma. Drug utilization Study in Outpatients Ophthalmology Department of Government Medical College Jammu. *JK Science*, 2005; 7(3): 149-151.
11. Santosh Kumar Banjara, Kavitha Mudavath Devi Bhukiya. Patterns of Prescription and Drug use in Ophthalmology Out patients Department in a teaching Hospital. *Glob J Res Analy*, 2014; 3(9): 92-93.
12. Ashish Gangwar, Reshmi singh, Sujata Singh, B.D Sharma. Pharmacoepidemiology of Drugs Utilized in Ophthalmic Out Patients and Inpatients Department of a tertiary care Hospital. *Journal of applied Pharmaceutical Science*, 2011; 01(09): 135-140.