

Evaluation of Recent Prescription Pattern in Cornea Clinic of a Tertiary Care Hospital: A Developing Country's Perspective

Drug utilization studies offer an excellent platform to ascertain the role of drugs because the periodic monitoring of prescribing pattern helps in advancement of rational use of drugs. The aim of drug utilization research is to encourage the rational use of drugs by analyzing the drug use pattern, generating early signs of irrational drug use, and suggesting intervention to improved drug usage. In recent times, drug utilization research is an essential part of pharmacoepidemiology because it describes the extent, nature, and determinants of drug exposure.^[1] The WHO defined drug utilization research as “the marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences.”^[2] A wide spectrum of diseases come under the term corneal disorders including blepharitis, meibomitis, dryness in eyes, and corneal ulcers, and hence, various therapeutic agents including antibacterial, antifungals, antivirals, steroids, and antiallergic are used in the management of corneal disorders.^[3] Wide variability in the prescribing trends of drugs, variable adverse event profiles among different brands of the same drug, and the ever-increasing prices of drugs are some prime examples of the need for such drug utilization studies. The plethora of literature is available for the utilization patterns of systemically used drugs, while the literature for topical drugs is patchy at best. Since the topical drugs are of prime usage in eye-related diseases, the studies of such importance will help identify the rationale of topical drugs and, hence, helps in promoting better drug usage when minimizing the occurrence of untoward adverse effects.^[4] Therefore, the present study evaluated the prescribing pattern practices in the cornea clinic of a tertiary care hospital.

The study was conducted at Advanced Eye Center of the Institute, a tertiary care government hospital in India. Approval was obtained from the IEC (Institutional Ethics Committee) before initiation of the study. Patients were diagnosed on the basis of various investigations including family history, slit-lamp examination, intraocular pressure, and fundus evaluation of the patient. A total of 246 prescriptions were analyzed from February to November 2016. Adult patients of either sex with active clinical treatment in the cornea clinic were included in the study. All pertinent data including demographic details, drugs prescribed, dose, route of administration, frequency, and duration of treatment were recorded in a predesigned case record form (CRF) after obtaining informed consent from the patient. The study outcomes were number of drugs per prescription, frequently prescribed class of drugs, percentage of patients receiving topical or systemic steroids, percentage of drugs prescribed as combination with steroids, percentage of prescriptions prescribed with generics, percentage of

prescriptions with antibiotics, and percentage of prescriptions consisting medicines as per the National List of Essential Medicines (NLEM-2015). Rationality in prescribing analgesics was assessed using the WHO prescribing indicators.^[5] The data were analyzed and expressed as numbers and/or percentages.

A total of 246 prescriptions were evaluated and the mean (range) drugs per prescription were 3.39 (0-7). Among 135 referred patients, the average number (SD) of drugs per prescription was 6.0 (2.88). The average number of drugs per prescription is an important indicator of prescribing pattern and helps in the assessment of rational prescription.^[6] It is important to note that an average of three–four drugs were used in our center, whereas an average of five–six drugs were used by other clinics. Importantly, if a patient was being administered any unnecessary medication, these were promptly discontinued at our center. Polypharmacy not only increases the risk of adverse drug reactions but also affects adherence and increases the cost of therapy as well.^[6] Therefore, discontinuation of unnecessary drugs is an example of rational drug use and this can be implemented at other centers as well.

This study shows that the practice in our center is in tune with recommendations for the management of corneal disorders.^[7] Lubricants (71.95%) are the most prescribed agents, followed by antibacterial agents (52%), steroids (33.74%), mydriatics/cycloplegics (26.82%), and antifungals (24.39%). The most prescribed antibacterial and antifungal were gatifloxacin (30/101) and voriconazole (40/101), respectively [Table 1]. A total of 18.29% (45/246) and 47.56% (117/246) of prescriptions were completely prescribed with generic drugs and branded drugs, respectively, and 19.1% (47/246) were prescribed as per the NLEM-2015^[8] [Table 2]. In this study, eye drops (77.2%) were the most commonly prescribed formulations, followed by tablets (12.8%), ointments (8.6%), and injections (1.3%), which can be attributed to the well-known fact that local administration will have the least systemic adverse drug reactions. The percentage of encounters with an injection prescribed was only 1.3%, which is far less than the optimal limit (<20%) given by the WHO.^[5]

In developing countries like India, the cost-burden of the treatment is an important consideration for patient compliance. Prescribing with generic medicines not only helps in providing cost-effective health care but also improves the patient compliance.^[9] The percentage of medicines prescribed by generic name should be 100% according to the WHO prescribing indicator's optimal value, but it amounts to only 34% in our study.^[5] This is despite the fact that India is one of the largest exporters of generic medicines worldwide. In India,

Table 1: Various class of drugs used in cornea clinic

Drugs used in cornea clinic	Number of prescriptions of all patients having cornea-related problems containing respective drug (either alone or in combination) (n=246), n (%)	Number of prescriptions of corneal ulcer patients containing respective drug (either alone or in combination) (n=101), n (%)
Lubricants	177 (71.95)	84 (83.17)
Antibacterial	128 (52.0)	68 (67.33)
Steroids	83 (33.74)	51 (50.49)
Mydriatics and cycloplegics	66 (26.82)	59 (58.41)
Antifungal	60 (24.39)	60 (59.40)
Anti-inflammatory and antiallergic	51 (20.73)	25 (24.75)
Antiglaucoma	45 (18.29)	45 (44.55)
Antiviral	30 (12.19)	26 (25.74)
Immunosuppressant	12 (4.87)	8 (7.92)
Multivitamins	8 (3.25)	5 (4.95)
Antigastric	6 (2.44)	6 (5.94)

Table 2: WHO drug use indicators

WHO indicators	Data	Optimal value (%)
Average number of drugs prescribed (range)	3.39 (0-7)	<2
Prescriptions with antibiotics	128 (52.03)	<30
Prescriptions containing medicines from NLEM-2015 only	47 (19.10)	100
Percentage of encounters with an injection prescribed (%)	1.3	<20
Medicines prescribed by generic name (%)	34.29	100

NLEM: National List of Essential Medicines

lack of regulatory control to ensure the implementation of rules is hindrances in the use of generics. The quality control of generics creates a doubt in the mind of prescribers when it comes to generics prescribing.^[9] Therefore, a better regulatory control to ensure the implementation of directives is needed to strengthen the generic practices core.

In conclusion, the present study showed that lubricants are of prime importance in the mainstay treatment of all corneal-related disorders followed by the usage of antibacterial agents. The use of generics is pivotal for rationalizing the current prescription practices. The limitation of the study may be considered as under reporting in some referred cases because of non-availability of older treatment history from patient end. The further studies can be planned with more sample size and monitoring the follow-up schedules for better findings.

Acknowledgments

It was the part of the study for academic purpose and there were no funding sources. We are very grateful to our patient in the Department of Ophthalmology, PGIMER, Chandigarh, without whom this study would not have been possible.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Niraj Niraj, Nusrat Shafiq, Chakrant Mothsara, Gaurav Garg, Amit Gupta¹, Samir Malhotra

Department of Pharmacology, Post Graduate Institute of Medical Education and Research, ¹Advance Eye Centre, Post Graduate Institute of Medical Education and Research, Chandigarh, India

Address for correspondence: Prof. Samir Malhotra, Department of Pharmacology, Post Graduate Institute of Medical Education and Research, Chandigarh - 160 012, India.
E-mail: smal.pgi@gmail.com

REFERENCES

1. Lee D, Bergman U. Studies of drug utilization. In: Strom BL, editor. Pharmacoeconomics. 4th ed. England: Wiley and Sons; 2005. p. 401-17.
2. World Health Organization. Introduction to Drug Utilization Research. Oslo: World Health Organization; 2003.
3. Parmar IP, Gupta NC, Garg N, Ahluwalia BK, Khurana AK. Corneal blindness – A public health problem. Indian J Public Health 1986;30:193-6.
4. Sommer A, Taylor HR, Ravilla TD, West S, Lietman TM, Keenan JD, *et al.* Challenges of ophthalmic care in the developing world. JAMA Ophthalmol 2014;132:640-4.
5. Oforri-Asenso R. A closer look at the World Health Organization's prescribing indicators. J Pharmacol Pharmacother 2016;7:51-4.

6. Rambhade S, Chakarborty A, Shrivastava A, Patil UK, Rambhade A. A survey on polypharmacy and use of inappropriate medications. *Toxicol Int* 2012;19:68-73.
7. World Health Organization, South East Asia Regional Office. Guidelines for the Management of Corneal Ulcer at Primary, Secondary and Tertiary Health Care Facilities. SEARO Publication, New Delhi; 2004.
8. National List of Essential Medicines. 2015 National List of Essential Medicines; November 17, 2020. Available from: <http://cdsco.gov.in>. [Last accessed on 2021 Feb 20].
9. Roy V, Rana P. Prescribing generics: All in a name. *Indian J Med Res* 2018;147:442-4.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
Quick Response Code: 	Website: www.jpharmacol.com
	DOI: 10.4103/jpp.JPP_34_21

How to cite this article: Niraj N, Shafiq N, Mothsara C, Garg G, Gupta A, Malhotra S. Evaluation of recent prescription pattern in cornea clinic of a tertiary care hospital: A developing country's perspective. *J Pharmacol Pharmacother* 2021;12:97-9.

Received: 20-03-2021

Revised: 13-04-2021

Accepted: 22-05-2021

Web Publication: 17-09-2021

© 2021 Journal of Pharmacology and Pharmacotherapeutics | Published by Wolters Kluwer - Medknow