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Patterns of Prescription and Drug Use in Ophthalmology Out-Patient Department in a Teaching Hospital

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ABSTRACT

Background: Drug utilization studies provide a pharmaco-economic basis for making evidence-based health-care decisions. In ophthalmology practice, rational prescribing plays a crucial role in reducing the ocular disease burden. Aim: The aim of the study was to investigate the drug utilization pattern in ophthalmology out-patient department (OPD) in a teaching hospital. Subjects and Methods: A prospective, cross-sectional study was conducted for a period of 6 months. The prescriptions for all consecutive patients attending the OPD for the first time (first time encounter) were included and audited using a pre-designed form to record information from the OPD prescription cards of each patient. Statistical analysis: Data analysis was carried out using the descriptive statistical methods: Frequencies, percentage, mean and standard

deviation. Results: A total of 900 prescriptions were analyzed with the average number of drugs per prescription being 2.4 (0.9). The most common disorders diagnosed were refractive errors (48.3% [435/900]) followed by cataract, glaucoma and others. The frequency of drug administration and duration of treatment was recorded in 92% (828/900) and 81% (729/900) of all prescriptions respectively.

Antimicrobials were most commonly prescribed (39.9% [941/2354]) followed by anti-inflammatory and anti-allergic (26% [612/2354]), anti-glaucoma medications (19.9% [470/2354]), mydriatic and cycloplegics (8.4% [198/2354]), miotics (3% [72/2354]), multivitamins (2.6% [61/2354]). Drugs were predominantly prescribed in brand name 82% (1932/2354) instead of generic name. Conclusion: The present study revealed certain lacunae in the prescribing practices of the Ophthalmologists of the institute as evidenced by low generic prescribing, inadequate information about frequency of administration and duration of therapy in many prescriptions. This can be addressed through proper sensitization of clinicians in the art of rational prescribing.

KEYWORDS : Drug utilization study, Ophthalmology, Out-patient department

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] They provide a sound pharmaco-economic basis for making better health-care decisions. The current variations in the drug prescribing pattern, concerns over adverse drug reactions and escalation in the pricing of drugs have increased the importance of drug utilization studies.[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.

Only few studies have been conducted in India to explore the drug utilization pattern in Ophthalmology Out-patient Department (OPD). [4-6] .Though majority of the earlier studies considered WHO suggested prescribing indicators; they did not provide any information regarding the ocular disorder from which the patients were suffering. In this backdrop, the present study was conducted to investigate the drug utilization pattern of the ophthalmologists at a teaching hospital according to WHO suggested drug use indicators.

Subjects and Methods

A total of 900 prescriptions were analyzed following WHO recommendation that the study of a single health facility should measure facility specific prescribing indicators with a 95% confidence limit plus minus 10%. [4] Accordingly, it has been recommended that at least 600 encounters or more should be included in a cross-sectional survey. The study was conducted after obtaining permission from the Institution's Ethics Committee. The ophthalmology OPD of the institute was considered as the sampling unit while data was collected prospectively from the out-patients on alternate days excluding weekends for a period of 6 months (1st January 2014-30th June'2014). The prescriptions for all consecutive patients attending the OPD for the first time (first time encounter) were included in the study and audited prospectively using the prescribing indicator form designed by WHO. [3] The form has already been validated by WHO. Patients were explained about the study and informed consent was obtained from them. In the present study, each patient was referred to as a prescription and only those medications used for treating ocular disorders were considered. The frequency of administration, indications for prescription and duration of therapy of all prescriptions were noted.

These forms were used to analyze average number of drugs per prescription, number of encounters with antibiotics, percentage of drugs prescribed by generic name and whether frequency of administration and duration of therapy were mentioned or not.

Statistical analysis

The filled in forms were checked for completeness of data and then analyzed using the statistical package for social sciences (SPSS) program version 10 (Chicago, IL, USA).Data analysis was carried out by using descriptive statistics:

Frequency, percentage, mean and standard deviation (SD).

Results

During the study period, a total of 963 patients attended the OPD for the first time (first time encounter). However, as 63 patients refused to provide their prescriptions, only 900 prescriptions were available for analysis.

The mean (SD) age of these patients was 48.3 (8.9) years. The total number of male patients was560 (62.2%), which clearly outnumbered their female counterparts 340 (37.7%) . The total number of drugs

prescribed in these prescriptions amounted to 2354.Average number of drugs per prescription was 2.3 (Mean [SD]:2.4 [0.9]) and the number of drugs per prescription varied from1 to 6 [Table 1].

Patients suffering from various ocular disorders attended the OPD during the study period [Table 2]. The most common disorders diagnosed were refractive errors (48.3% [435/900]) followed by cataract, glaucoma, foreign body in eye and others. The dosage form was mentioned in 98% (882/900) of the prescriptions.

The frequency of drug administration was recorded in 92% (828/900) and the duration of treatment was mentioned in 81% (729/900) of the drugs prescribed.

Amongst the drugs, antimicrobials were the most commonly prescribed (39.9% [941/2354]) followed by anti-inflammatory and anti-allergic (26% [612/2354]), Anti-glaucoma medications (19.9% [470/2354]), mydriatic and cycloplegics (8.4% [198/2354]), miotics (3% [72/2354]), multivitamins (2.6% [61/2354]) [Table 2]. Drugs were predominantly prescribed in brand name 82% (1932/2354) instead of generic name.

Table 1: Distribution of no. of drugs per prescription among all prescriptions (n=900)

Number of drugss per prescription	Number of prescription N=900(100%) (%)
1	230 (25.5)
2	350 (38.8)
3	180 (20)
4	89 (9.8)
5	43 (4.7)
6	8 (0.8)

Table 2: Distribution of ocular diseases among 900 patients

Ocular disease	Number of prescriptions
	N=900 (100%) (%)
Refractive errors	435 (48.3)
Cataract	186(20.6)
Glaucoma	154 (17.1)
Foreign body in eye	92 (10.2)
Corneal ulcer	13 (1.4)
Others	20 (2.2)

Discussion

Drugs play a key role in human health and in promoting well-being. The availability and affordability of drugs along with their rational use is crucial for rendering effective Health-care. However, irrational drug use is prevalent in the developing countries due to irrational prescribing, dispensing and administration of medications. In this perspective, drug utilization study is an important tool in assessing rationality of prescriptions. The average number of drugs per prescription is an important indicator to measure the degree of polypharmacy. It emphasizes the need for periodic review and educational intervention in prescribing practices. 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. [4] In the present study, average number of drugs per prescriptions was 2.3, which fell within the range reported in previous studies by Biswas et al. (3.0),[4] Maniyar et al. (2.0),[5] Nehru et al. (1.8).[6] In resource constrained country like India, generic prescribing is a potential measure for reducing the drug cost thus increasing people's access to medicine. Recently, regulatory authorities of different countries are advocating generic prescribing to cut total health-care cost. Inappropriate sensitization of the clinicians to generic prescribing and 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.

The percentage of prescription of antibiotics in different dosage form was 39.9% and this corroborated the findings of Maniyar et al. (30.1%),[5] and Nehru et al. (32.3%).[6]

According to WHO, 15% to 25% prescription with antibiotics is expectable in most of the countries where infectious disease is more prevalent.[3] However, information about the frequency of drug administration was missing in 8% of the prescriptions in the present study compared to 22.1% in the study conducted by Biswas *et al*.[4] The duration of therapy and frequency of drug administration are the important parameters which is not clearly stated in the prescription, can culminate in indiscriminate and irrational use of drugs.

Thus, overall the present study has pointed toward some lacunae in the prescribing practices of the institute as evidenced by low generic prescribing, lack of information about frequency of administration and duration of therapy in many prescriptions.

The study suggests a need for proper sensitization of clinicians in the art of rational prescribing, which can be achieved by through short-term training sessions, continuing medical education, prescription audits at regular intervals.

Conclusion

The present study revealed certain lacunae in the prescribing practices of the Ophthalmologists at the selected institute and this is evident by the low generic prescribing, inadequate information about frequency of administration and duration of therapy in many prescriptions.

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