Drug Prescription in Ophthalmology

Maram Adnan Rawah [1], **Mohammed Mahmoud Alkhayri** [2], **Mashail Ali Alomari** [2], **Raed Khalid ALmalki** [3], **Fatimah Hassan Alyahya** [4], **Fay Ali F Alotaibi** [4], **Lama Hassan M Meriky** [4], **Sarah Saeed Alawami** [4], **Mohannad Ali S Alomari** [5], **Razan Mohammad Naseem Jan** [6], **Alyaa Mohammedrafie Banjar** [1], **Humoud Mansour H AlKhalaf** [7]

1- Jeddah Eye Hospital , 2- King Khalid University (KKU) , 3- King Abdulaziz Medical City , Riyadh , 4- King Abdulaziz University , Jeddah , 5- GP at Najran University Hospital , 6- Umm Al-Qura university , 7- Royal College of Surgeons in Ireland

ABSTRACT

Background: Drug prescription studies provide a pharmacoeconomic basis for making evidence-based health-care decisions. In ophthalmology practice, rational prescribing shows a vital role in decreasing the ocular disease burden.

Purpose: The purpose of the study was to inspect the drug consumption pattern in ophthalmology department of King Abdulaziz hospital in KSA.

Materials and Methods: A prospective, cross-sectional study was conducted for a period of 3 months. The prescriptions for all consecutive patients attending the ophthalmology outpatient department for the first time (first time encounter) were incorporated and reviewed using a pre-designed form to record information from the ophthalmology outpatient department prescription cards of each patient. Data analysis was carried out using the descriptive statistical methods: frequencies, mean, percentage, and standard deviation.

Results: A total of 500 prescriptions were considered with the average number of drugs per prescription being 2.2 (0.8). The most common disorders diagnosed were eyelid diseases (31.6%) followed by foreign body in the eye (23,2%), conjunctivitis (20,8%), glaucoma, conrneal ulcer, squint, and others. Drugs were prescribed in different dosage forms with eye drops being the most common (62.9%) followed by ointment (20.5%), capsule (8.6%), and tablets (8.0%) of all dosage forms. The frequency of drug management and period of treatment was recorded in 94% and 76% of all prescriptions respectively. Drugs were predominantly prescribed in brand name rather than generic name.

Conclusion: The current study showed certain lacunae in the prescribing practices of the ophthalmologists of the institute as showed by low generic prescribing, insufficient information about frequency of management and period of treatment in many prescriptions. This can be addressed over appropriate sensitization of clinicians in the art of rational prescribing.

Keywords: drug consumption, ophthalmology, outpatient department.

INTRODUCTION

Drug consumption has been defined as the marketing, distribution, prescription and utilization of drugs in a society with superior emphasis on the subsequent medical and social consequences [1-3]. They provide a sound pharmacoeconomic basis for making better health-care decisions. The existing variations in the drug prescribing pattern, concerns over adverse drug reactions and escalation in the pricing of drugs have increased the significance of drug utilization studies [4]. A periodic checking of drug utilization pattern has become essential for supporting rational use of drugs by increasing the therapeutic effectiveness and the cost-effectiveness whereas declining incidence of untoward adverse effects. To promote rational utilization of drugs in developing nations, international organizations like the World Health Organization (WHO) and the International Network for The Rational Use of Drugs have applied themselves to evolve standard drug utilization indicators [2]. In ophthalmology practice, rational prescribing has a crucial role in decreasing the ocular disease burden of the country.

Drug therapy is a major component of patient care administration in health care settings. Prescribers and consumers are submerged with a massive array of pharmaceutical products with innumerable brand names, obtainable regularly at an unaffordable cost [5]. Irrational and inappropriate use of drugs in health care system observed internationally is a main concern [1, 6, 7]. To address the increasing microbial resistance, physicians willingly accept and extensively utilize newly developed expensive and broad spectrum antibiotics which further add to increase rates of antimicrobial resistance and health care costs [8].

Lately in the discipline of ophthalmology, there have been various drug improvements and introduction of new ocular therapeutic agents [9, 10]. Antibiotics are broadly prescribed for numerous ophthalmic diseases. Evidences have revealed trends of resistance to dissimilar class of antibiotics regularly utilized in ocular therapeutics [11, 12].

The undiscriminating utilization of topical antibiotics and nonsteroidal anti-inflammatory drugs cause histological and structural changes in conjunctiva [13, 14]. With the purpose of improving drugs therapeutic efficacy, delay development of resistance, and minimize adverse effects, drug utilization tendencies and patterns must to be assessed periodically [1, 15]. Consequently, the current study was undertaken with the purpose to examine drug utilization and prescribing practices of ophthalmologists with importance on antimicrobial utilization in King Abdulaziz hospital in KSA.

MATERIALS AND METHODS

A total of 500 prescriptions were analyzed following WHO recommendation [16] that the study of a single health facility should measure facility specific prescribing indicators with a 95% confidence limit plus minus 10%. Accordingly, it has been recommended that at least 450 encounters or more should be included in a cross-sectional survey. The study was conducted at the Department of Pharmacology in collaboration with the Department of Ophthalmology. Ophthalmology outpatient department of the institute was measured as the sampling unit while information was collected prospectively from the out-patients unit of the ophthalmology outpatient department, thrice a week in alternate days excluding weekends for a period of 3 months (1st March 2017-1st June 2017). The prescriptions for all consecutive patients attending the outpatient department for the first time (first time encounter) were included in the study and audited prospectively using the prescribing indicator form designed by WHO [2]. The form has previously been validated by WHO. Patients were clarified about the study and informed consent was attained from them. In the current study, each patient was referred to as a prescription and only those medications used for treating ocular disorders were considered. All drugs prescribed were noted comprising dose, frequency of administration, route, dosage form, indications for prescription and duration of therapy.

These forms were used to evaluate average number of drugs per prescription, number of encounters with antibiotics, percentage of drugs prescribed by generic name and whether the dosage form, regularity of management and length of treatment were mentioned or not. Numbers of drugs prescribed from essential drug list were similarly noted. Important medicines as defined by the WHO are those drugs that satisfy the health-care requirements of the majority of the population; they ought to consequently be available at all times in adequate amounts and in suitable dosage forms, at a price the community can afford [17].

The filled-in forms were checked for completeness of data and then examined using the statistical package for social sciences (SPSS) program version 10. Data analysis was carried out by using descriptive statistics: Frequency, percentage, mean and standard deviation (SD). **The study was done according to the ethical board of Umm AlQura university.**

RESULTS

Throughout the study period, a total of 500 patients attended the outpatient department for the first time (first time encounter). Nevertheless, as 30 patients refused to provide their prescriptions to the study team, only 500 prescriptions were presented for examination. The mean (SD) age of these patients was 42.1 (8.4) years. The total number of female patients was 300 (60 %) and male patients were 200 (40%). The total number of drugs prescribed in these prescriptions amounted to 1,182. Average number of drugs per prescription was 2.2 (Mean [SD]: 2.2 [0.8]) and the number of drugs per prescription varied from 1 to 6 [Table 1].

Table 1: Number of drugs prescribed per prescription

Number of drugs per prescription	Number of prescriptions	(%)
1	128	25,6%
2	192	38,4%
3	95	19,0%
4	50	10,0%
5	25	5,0%
6	10	2,0%
total	500	100,0%

Patients suffering from several ocular disorders attended the outpatient department throughout

the study period [Table 2]. The most mutual disorders diagnosed were eyelid diseases (31.6%) followed by foreign body, conjunctivitis, glaucoma, corneal ulcer, squint and others.

Table 2: Distribution of diseases

Morbidity	No. of prescriptions	(%)
Eyelid diseases	158	31,6%
Foreign body	116	23,2%
Conjunctivitis	104	20,8%
Glaucoma	55	11,0%
Conrneal ulcer	39	7,8%
Squint	15	3,0%
Others	13	2,6%

Drugs were prescribed in six different dosage forms with eye drops being the most common (62.9%) followed by ointment (20.5%), capsules (8.6%), tablets (8.0%), of all the dosage forms prescribed. The dosage form was mentioned in 96% (480/500) of the prescriptions.

The frequency of drug management was recorded in 94% (470/500) and the duration of treatment was mentioned in 76% (380/500) of the drugs prescribed.

Table 3: Dosage forms of drugs used

Dosage forms	Number of drugs prescribed	(%)
Drops	743	62.9%
Ointment	242	20.5%
Capsule	103	8.6%
Tablet	94	8.0%

DISCUSSION

By conducting drug utilization studies we obtain data about the patterns and quality of use and the determinants of drug use. The WHO drug use indicators are highly standardized and are recommended for inclusion in drug utilization studies [3]. Our study was a challenge to define the drug prescribing pattern in KSA. The WHO core drug use indicators were used to primarily describe the drug use, mainly the prescribing indicators. The indicators of prescribing practices measure the performance of health care providers in several key dimensions related to the appropriate use of drugs.

Drugs play a key role in human health and in endorsing well-being. The obtainability and affordability of drugs accompanied by their rational utilization is vital for rendering effective health-care. Nevertheless, irrational drug utilization is predominant in the developing nations as a result of irrational prescribing, dispensing and management of medications. In this perspective, drug utilization study is an essential tool in evaluating rationality of prescriptions. The average number of drugs per prescription is a significant indicator to measure the degree of polypharmacy.

It highlights the necessity for periodic review and educational intervention in prescribing practices. The number of drugs per prescriptions ought to be as low as possible as higher figures culminate in increased risk of drug interactions, increased hospital cost and errors of prescribing [16].

Recently, regulatory authorities of different countries are promoting generic prescribing to cut total health-care cost. Similar attempt has also been taken up by local state government. 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 frequency of drug management and drug treatment are the two most important parameters which, if not noticeably recorded, can outcome in indiscriminate and injudicious use of drugs. The current study showed that the information about the frequency of drug administration was present in 96% of the drugs and duration of therapy was recorded in 84.7% of the drugs prescribed. In a small percentage of prescription without frequency or period of therapy recorded commonly pharmacist told the patient dose and frequency. If there was any query by pharmacist patient was sent back to the ophthalmologist.

Dry environment, poor education, less awareness and poor sanitation leads to more infective conditions which is characterized by higher than average number of antibiotic consumption. In our study most of antimicrobials were given topically as drops and ointment thus minimizing adverse effects. According to WHO, 15% to 25% prescription with antibiotics is expectable in most of the countries where infectious disease is more prevalent [2]. However, information about the frequency of drug administration was missing in 6% of the prescriptions in the current study compared to 22.1% in the study conducted by Biswas et al. [16] The period of treatment and frequency of drug management are the essential

parameters which is not evidently stated in the prescription, can conclude in indiscriminate and irrational use of drugs.

Consequently, overall the current study has pointed toward some lacunae in the prescribing practices of the institute as showed by low generic prescribing, lack of information about frequency of management and duration of treatment in many prescriptions.

The study recommends a need for proper sensitization of clinicians in the art of rational prescribing, which can be accomplished through short-term training sessions, updating knowledge on a regular basis, and prescription appraisals at regular intervals.

The short period of 3 months for this study could be a limitation to this study as a sufficiently powered study conducted over a longer time frame would have been more informative. Another major limitation of this study is its inability to consider the associated co-morbidities of patients.

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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