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Pattern of Antimicrobial Use In The Regional Institute of Ophthalmology, Gauhati Medical College Hospital, Assam, India

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ABSTRACT

The aim of the present study was to study the pattern of antimicrobial drug use in the OPD of the Regional Institute of Ophthalmology, Guwahati with reference to the drugs prescribed, dosage forms and routes of administration, average number of drugs per prescription and prescriptions by generic names. This was a prospective cross-sectional observational prescription based study conducted for a period of three months from September, 2015 to December, 2015. Regular visits were made to the OPD and data regarding patient demographics and drugs prescribed were collected in a predetermined format. The data was then recorded in Microsoft Excel and analyzed. A total of 114 prescriptions were analyzed of which 73(64%) were male patients and the rest, female. Most patients belonged to the age group of 51-60 years. Fluoroquinolones were the most commonly prescribed antimicrobial class. Among individual drugs, Moxifloxacin, Ciprofloxacin, Gatifloxacin, Fluconazole, Cefixime, Natamycin, Amoxycillin-Clavulanic acid, Ceftriaxone-Sulbactam and Metronidazole were the antimicrobials prescribed in descending order of frequency. The commonest dosage form prescribed was eye drops followed by tablets, eye ointment and intravenous injection. Most prescriptions contained only two drugs per patient. 19% of the total drugs were prescribed by their generic names. Antimicrobial drugs are one of the commonly used drug classes in most cases attending the Ophthalmology OPD either to treat ocular infections or to prevent them. Steps must be taken to sensitize the prescribers regarding rational use of antimicrobials and emphasis should be laid on strengthening the hospital drug supply chain.

Keywords: Prescription pattern, Antimicrobial, Ophthalmology

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INTRODUCTION

Drug utilization studies are powerful exploratory tools to ascertain the role of drugs in society. They create a sound socio-medical and health economic basis for making healthcare decisions[1]. 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[2]. It is important to realize that inappropriate use of drugs represent potential hazard to the patients and an unnecessary expense[3]. Third world countries spend 30-40% of their total health budget on drugs some of which are useless and expensive and doubles their expenditure on drugs every 4 years while GNP (Gross National Product) doubles every 16 years[4]. The research in this field aims to analyze the developmental trends of drug usage at various levels in the healthcare system. The data which is obtained may give a crude estimate of the disease prevalence and the estimate of drug expenditures[5]. The marketing of new drugs, the variations in the pattern of drug prescribing, concerns about the delayed adverse effects of drugs and increase in the cost of drugs has increased the importance of drug utilization studies[6]. The World Health Organization (WHO) and the International Network for the Rational Use of Drugs (INRUD) have applied themselves to evolve standard drug use indicators[7].

Antimicrobials are widely prescribed for various ophthalmic diseases. Evidences have shown trends of resistance to different classes of antibiotics often used in ocular therapeutics.[8,9,10] Indiscriminate use of topical antibiotics among other drugs causes histological and structural changes in the conjunctiva[11] .In order to improve drug's therapeutic efficacy, minimize adverse effects, and delay development of resistance, drug utilization trends and patterns need to be evaluated periodically[12,13]

There is not much data on the prescription pattern of drugs used in Ophthalmology Department in Northeast India. The present study was therefore undertaken to investigate the drug utilization pattern and current prescribing practices of the ophthalmologists of Regional Institute of Ophthalmology, Gauhati Medical College & Hospital situated in Guwahati, Assam, a state in Northeast India. The aims of the study were to record and analyze the drugs prescribed including the dosage forms, the routes of administration, average number of drugs per prescription and the percentage of drugs prescribed by their generic names.

MATERIALS AND METHOD

The present study was designed as a prospective, cross-sectional, observational study and it was conducted in the Regional Institute of Ophthalmology of Gauhati Medical College and Hospital

from September, 2015 to December, 2015. The ethical clearance was taken from the Institutional Ethics Committee of Gauhati Medical College and Hospital (MC/233/2013/271) before conducting the study.

Patients of all age groups, of all genders treated in the Ophthalmology Department for any condition except refractive errors were included in the study. Patients diagnosed with only refractive errors were excluded from the purview of the study. The informed consent of all the subjects were taken prior to their enrollment in the study.

Data was collected by visiting the outdoor patient department (OPD) of the Regional Institute of Ophthalmology regularly for a period of four months from the prescriptions handed out to the patients at the end of their consultation with the ophthalmologist. The data was collected in a specially designed format and the demographic details of the patients, drugs prescribed, dosage forms, use of generic names during prescription and all the antimicrobials prescribed were recorded. The data thus obtained were then entered into Microsoft Office Excel and analyzed.

RESULTS AND DISCUSSION

A total of 114 prescriptions were analyzed of which 73(64%) were male patients and 41(36%) were female. (Figure 1) Most of the patients of both male and female sex belonged to the age group of 51-60 years and the least number of patients belonged to the age group of 11-20 years. (Figure 2)Fluoroquinolones were the most commonly prescribed antimicrobial class followed by Antifungals, Cephalosporins, Penicillins and Nitroimidazoles. (Figure 3) Among individual drugs, Moxifloxacin, Ciprofloxacin, Gatifloxacin, Fluconazole, Cefixime, Natamycin, Amoxycillin-Clavulanic acid, Ceftriaxone-Sulbactam and Metronidazole were the antimicrobials prescribed in descending order of frequency. (Figure 4) The commonest dosage form prescribed was eye drops followed by tablets, eye ointment and intravenous injection. (Figure 5) Most prescriptions contained only two drugs per patient. (Figure 6) 19% of the total drugs were prescribed by their generic names.

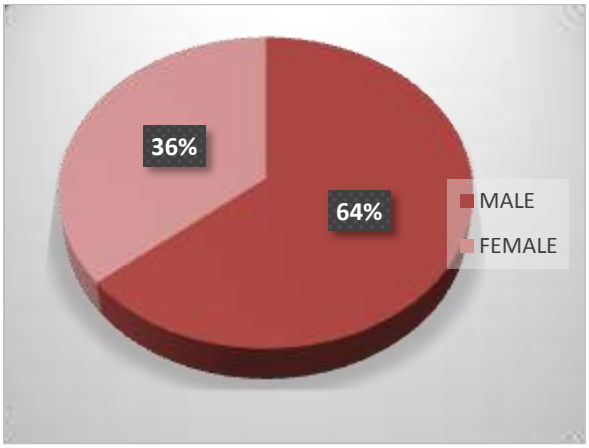

Figure 1: Sex Distribution

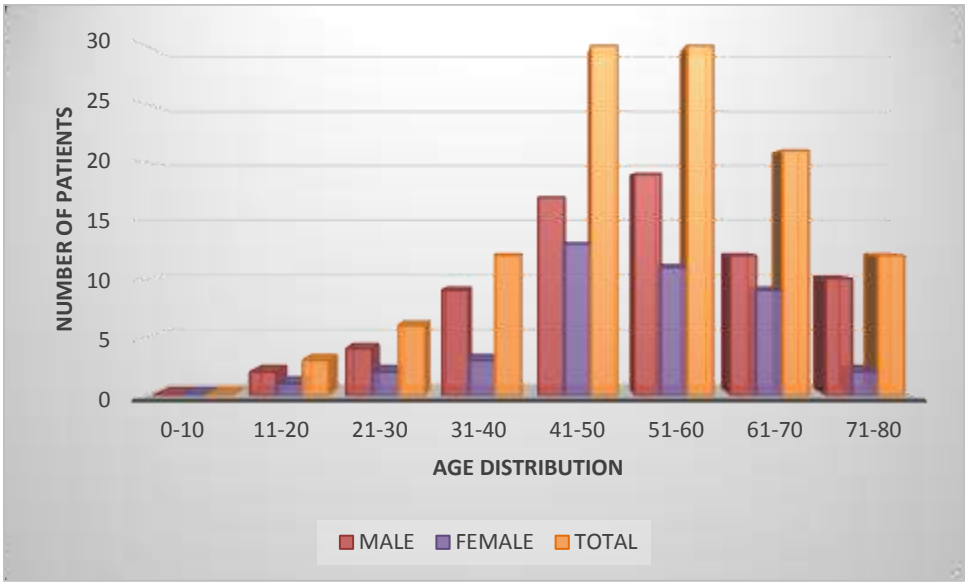

Figure 2: Demographic Characteristics of Patients attending OPD

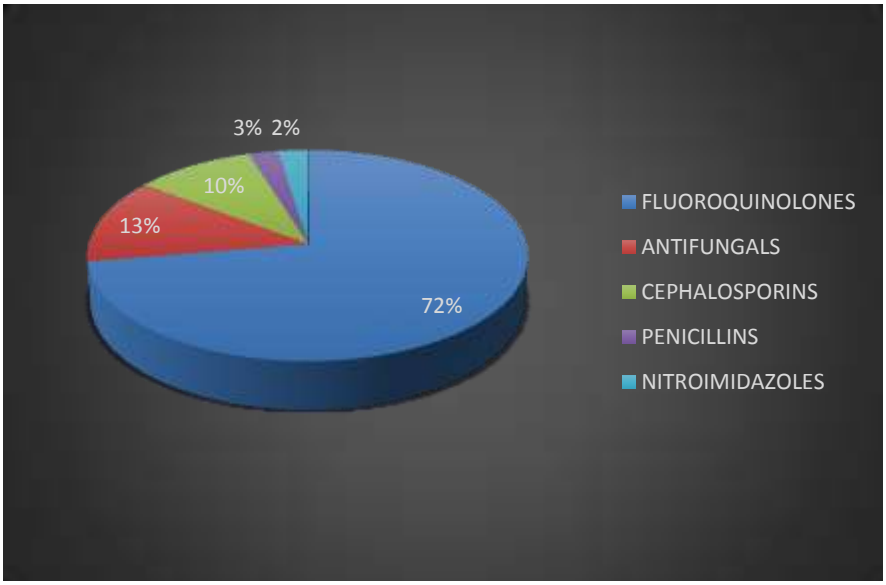

Figure 3: Antimicrobial drug classes commonly prescribed

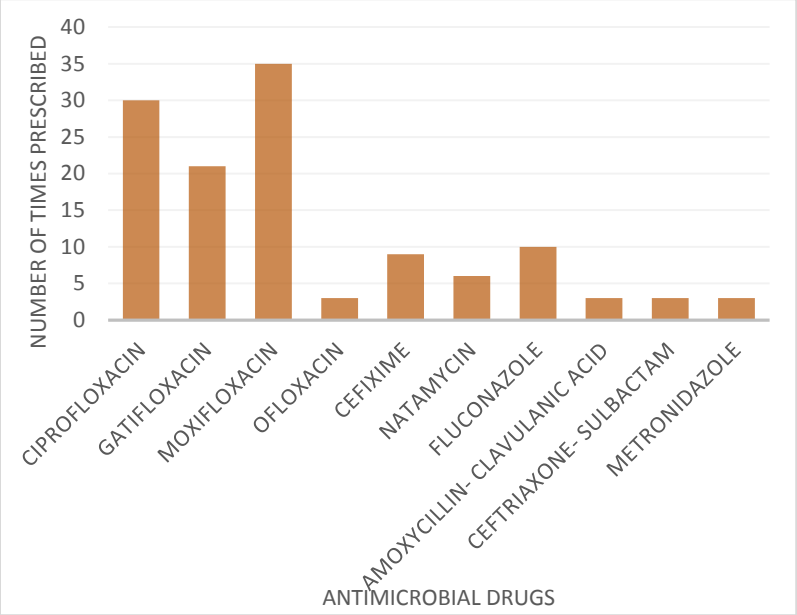

Figure 4: Antimicrobial drug utilization pattern among patients attending OPD

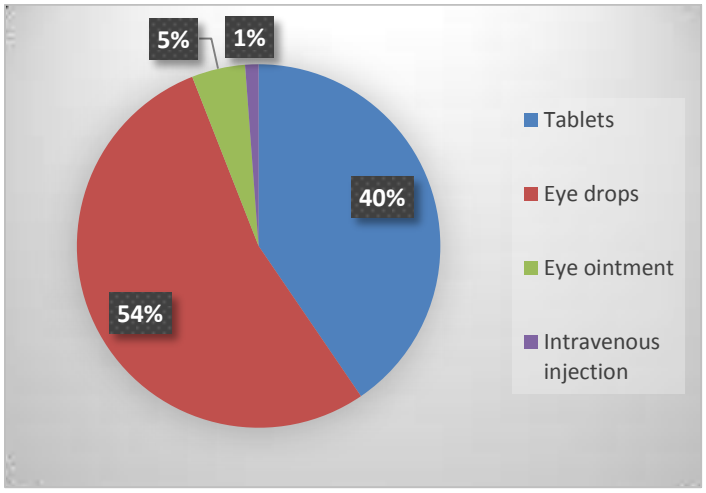

Figure 5: Dosage forms of antimicrobials prescribed

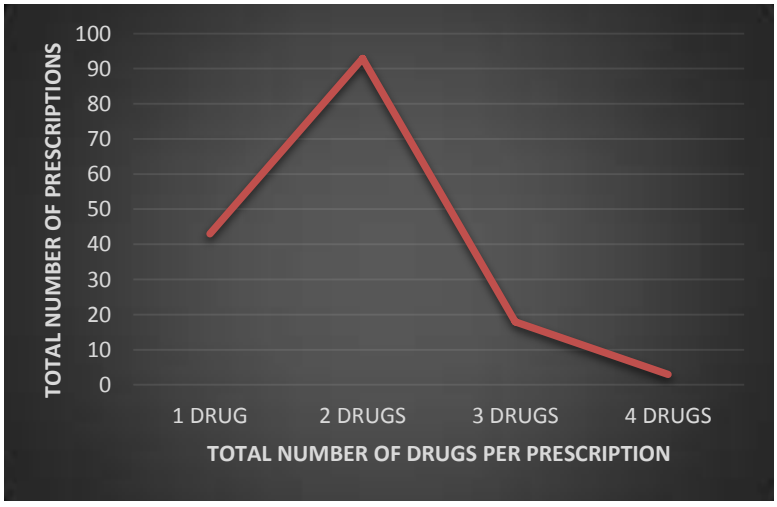

Figure 6: Number of drugs prescribed per prescription

Therefore, our study found that majority of the patients attending the OPD at the Regional Institute of Ophthalmology were male and between 51 to 60 years of age. Anti-bacterials were the most commonly prescribed antimicrobials and Fluoroquinolones were the most preferred antimicrobials among the prescribers and eye drops the preferred dosage form. Among the Fluoroquinolones, Moxifloxacin was most commonly prescribed followed by Ciprofloxacin, Gatifloxacin and Ofloxacin. Only a small percentage of drugs were prescribed by their generic names. This was due to non-availability or unavailability of the appropriate drug in the preferred dosage form. Polypharmacy was found to be negligible among the prescribers in our study.

CONCLUSION

Antimicrobial drugs are one of the commonly used drug classes in most cases attending the Ophthalmology OPD either to treat ocular infections or to prevent them. Though quite a good number of antimicrobials were found to be prescribed in our study, most prescriptions were made empirically. Only a small number of drugs were prescribed by their generic names but polypharmacy was negligible. Therefore, steps must be taken to sensitize the prescribers regarding rational use of antimicrobials and more emphasis should be laid on conducting culture and sensitivity tests in patients who are not critically ill before prescribing antimicrobials. The hospital drug supply chain should also be strengthened so that appropriate drugs in appropriate formulations are available in adequate quantities to meet the needs of the patients.

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