Research Article

STUDY ON UTILIZATION PATTERN OF ANTIBIOTICS AT A PRIVATE CORPORATE HOSPITAL

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ABSTRACT

Antibiotics are critically being used against infectious disease caused by bacteria and other microbes and have saved millions of lives since their first appearance. The emergence of antibiotic resistant bacteria is a major problem throughout the world and rational use of antibiotics are very important. Hence a retrospective study was carried out in patients who received at least one antibiotic in General medicine department and analyzed for rationality. The results revealed that the purpose of antibiotics prescribed was for prophylaxis and empirical use. Among the study population, smokers were found to have an increased risk of infections, where antibiotics were widely used. Antibiotics were mainly prescribed for AGE, COPD, Pneumonia, LRTI, UTI, PUD, URTI, and Viral fever, ALD, Tuberculosis, Acute Bacillary Dysentery, GERD, Rheumatoid Arthritis and Surgery. Majority of the patients were prescribed with cephalosporin category of antibiotics, followed by fluoroquinolones, penicillin and aminoglycosides. In the study for drug interactions, majority of interactions were seen with levofloxacin and minor interactions with other antibiotics. The pharmacist should play an important role by assessing patient health status and adherence to standard of care by educating the patients on administering medication to prevent resistance from non-compliance. Thus pharmacist should play an important role in health care team by providing information on the rational use of antibiotics for a better patient care.

KEY WORDS: Rational drug use, Antibiotics, Sensitivity pattern, Drug utilization.

INTRODUCTION

Antibiotics being the most commonly prescribed group of drug, the problem of its overuse is a global phenomenon. Indiscriminate and in appropriate use of antibiotics not only increase treatment expenditure, but cause adverse drug reaction, emergence of antibiotics resistance and treatment failure[1]. However, disease-causing microbes have become resistant to antibiotic drug therapy and have now become a worldwide public health problem that continues to grow. The prime cause of the rapid increase of resistant bacteria in both developing and developed countries is the abuse and inappropriate use of antibiotics. They therefore have to be used in the right dose and for the right length of time[2]. The problem of irrational use of antibacterial drugs is both complex and many-faceted. Irrational prescribing is a habit which may lead to ineffective treatment, health risks, patient non-compliance, drug wastage, wasting of resources and needless expenditure. Improving the rational use of drugs (RUD) is a difficult task worldwide. Physicians should avoid unnecessary prescribing and

overprescribing of antibiotics for any viral illness and for conditions that do not require them[3]. Inappropriate antibiotic prescribing contributes to the problem of higher bacterial resistance. Prescribing antibacterials is an important skill which needs to be continuously assessed and refined accordingly. The rationality of the prescriptions will help the physician in selecting the most appropriate cost effective treatment[4]. Hence this study was conducted to assess the utilization pattern of antibiotics.

MATERIALS AND METHODS
OBJECTIVES
  ➢ To study the current prescribing pattern of antibiotics.
  ➢ To study the drug interactions of antibiotics
Study design: Retrospective study
Study site: Department of General Medicine
Sample size: 100 patients
Inclusion Criteria: Patients prescribed with antibiotics in their treatment chart were included in the study.
**Exclusion Criteria**: The out patients, intensive care patients and pregnant women were excluded from the study.
METHOD: The data was collected during regular ward round participation in the Department of General medicine. Standard data entry format is used to enter all the patient details such as their social history, laboratory investigations and the drugs prescribed.100 prescriptions were collected and the data was entered in the data entry format designed. The collected data from data entry formats were thoroughly screened to identify the current prescribing pattern and drug interactions of antibiotics.
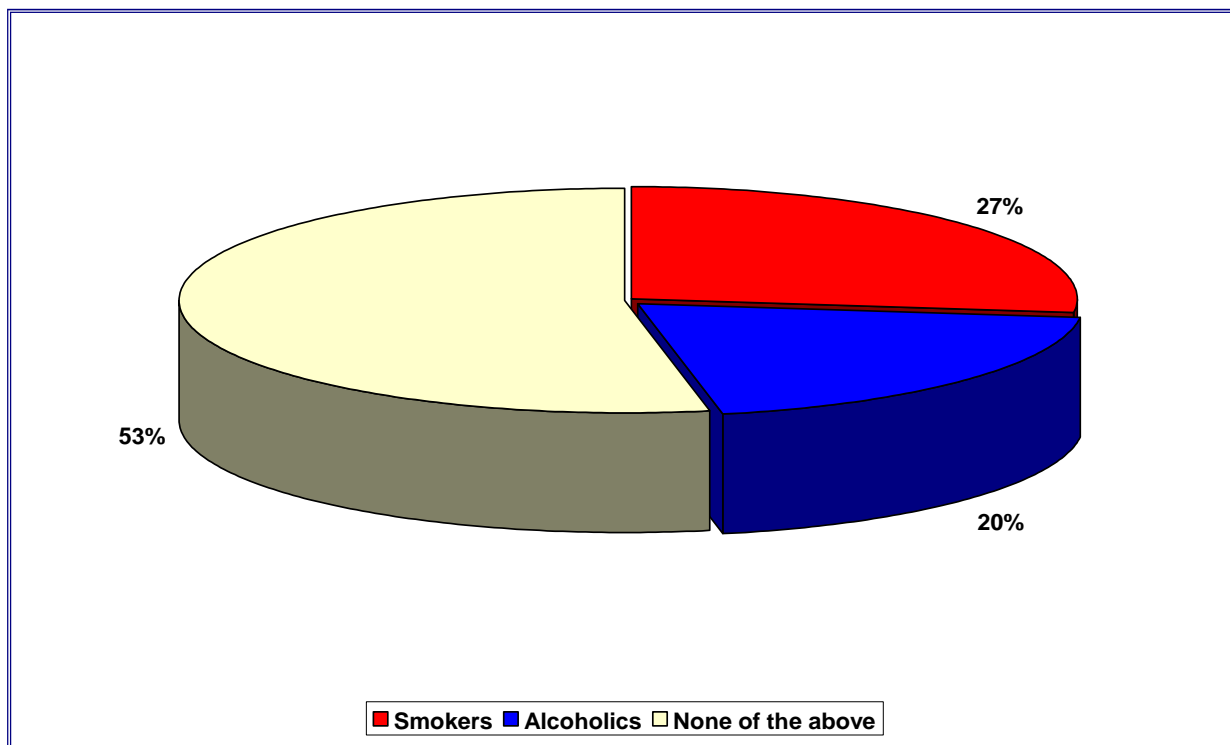
RESULTS
The study reports more number of female patients (59%) compared to male patients 41 % (figure no:1)
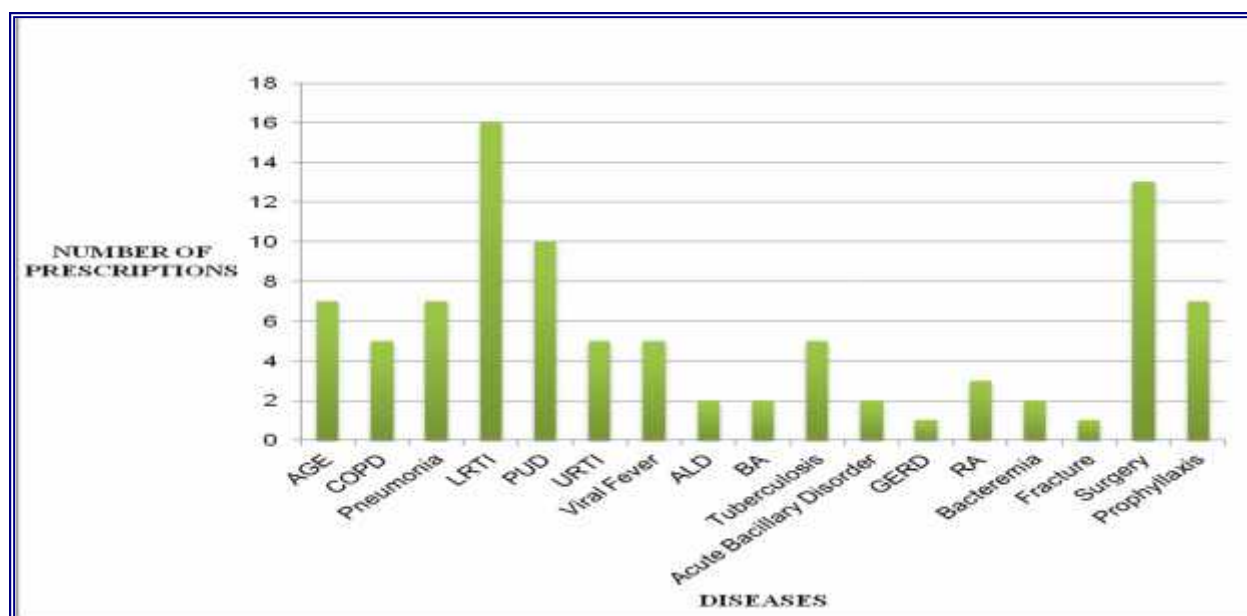**Figure no 1: Gender Categorization**
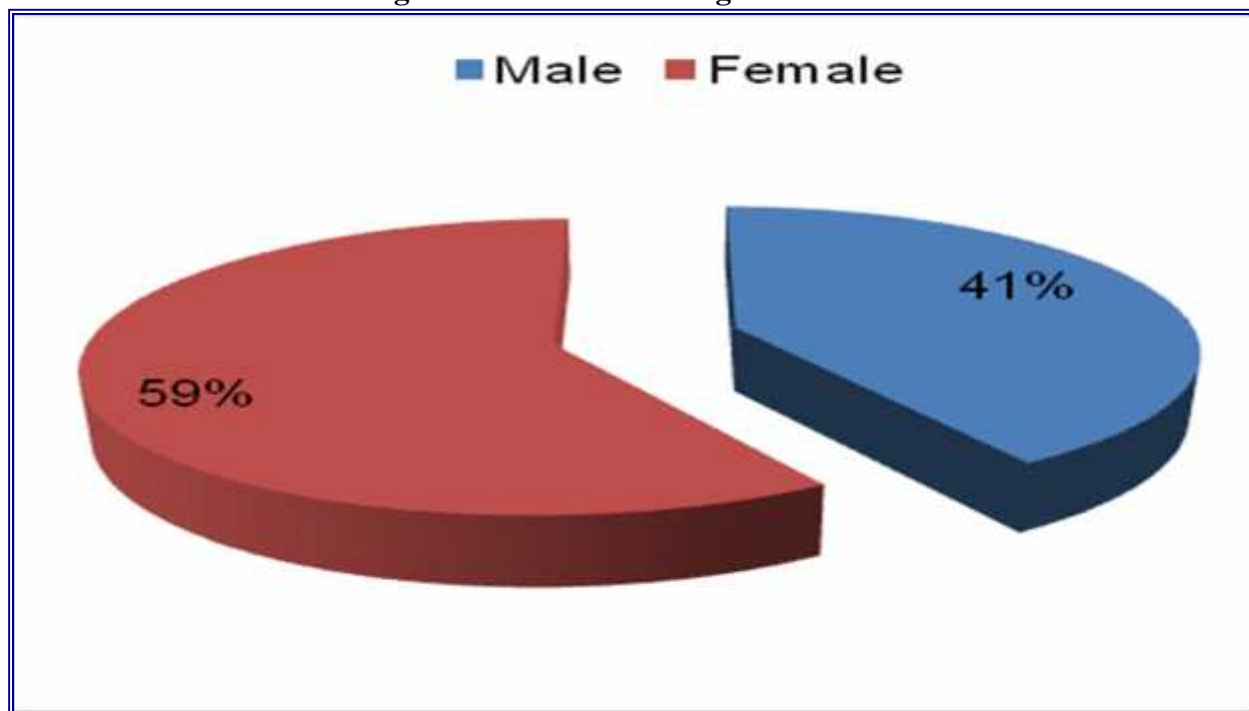
The social status of patients shows that more than 25% of patients were smoker and alcoholic (figure no: 2)

Figure no 2: Social History

 Lower respiratory tract infection was predominantly seen in the study population when compared to other diagnosis (figure no: 3)

Figure no 3: Major Diagnosis

Out of 100 prescriptions, four classes of antibiotics were mainly prescribed, which includes Cephalosporins, Fluoroquinolones, Aminoglycosides and Penicillins (Table no: 1).

Table no 1: Antibiotics prescribed

| Category	Antibiotics	No. of cases
Cephalosporins	Ceftriaxone	25
	Cefuroxime	7
	Cefipime	4
	Cefixime	3
	Cefotaxime	2
Fluoroquinolones	Levofloxacin	19
	Ofloxacin	6
	Ciprofloxacin	2
Penicillin	Amoxicillin	17
	Ampicillin	1
	Piperacillin	6
Aminoglycosides	Clindamycin	1
	Amikacin	6
	Clarithromycin	1

Around 66% of the prescriptions were prescribed with monotherapy, 23 % of the prescriptions with dual therapy, 7% with 3 antibiotics and 3% of the prescriptions were prescribed with 4 antibiotics (figure no:4).

Figure no 4: Number of antibiotics prescribed
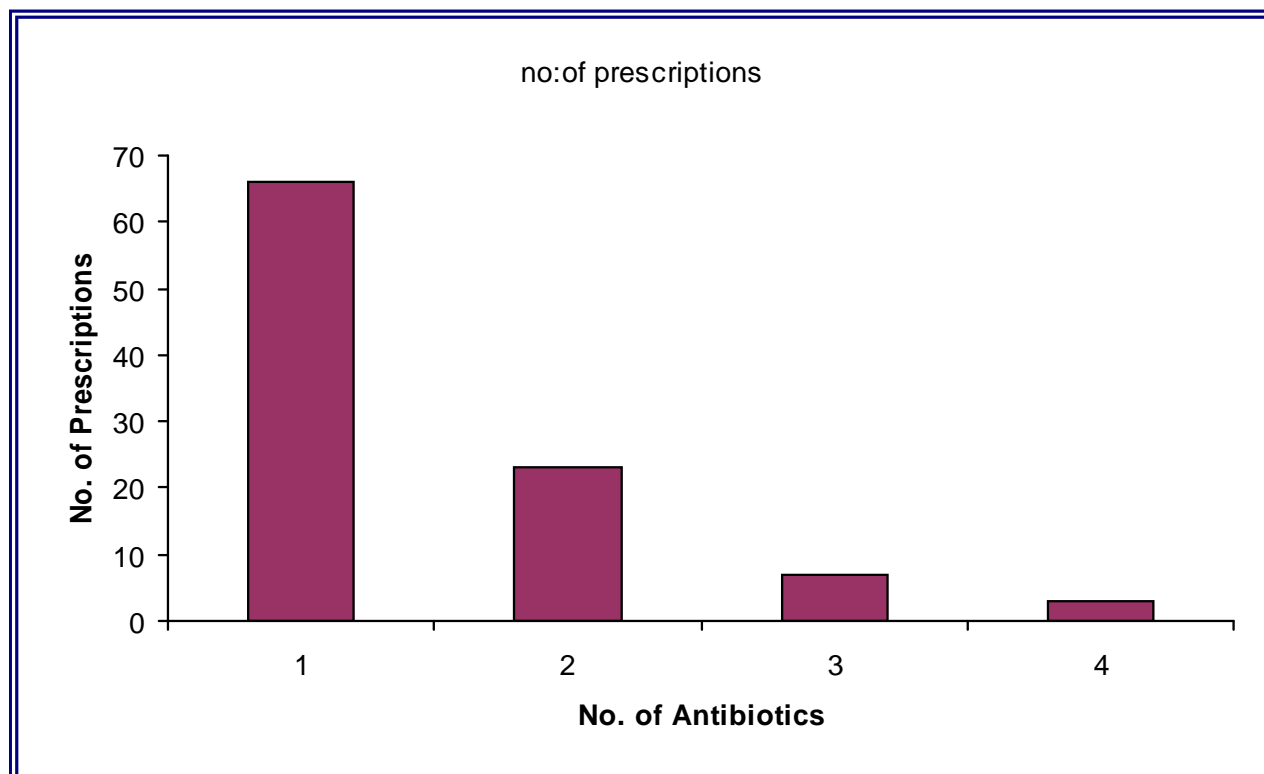
Around 32% of the prescriptions had drug interactions. Among the interacting drugs, levofloxacin had 22% of interactions followed by other drugs (figure no: 5).

Figure no 5: Drug Interactions
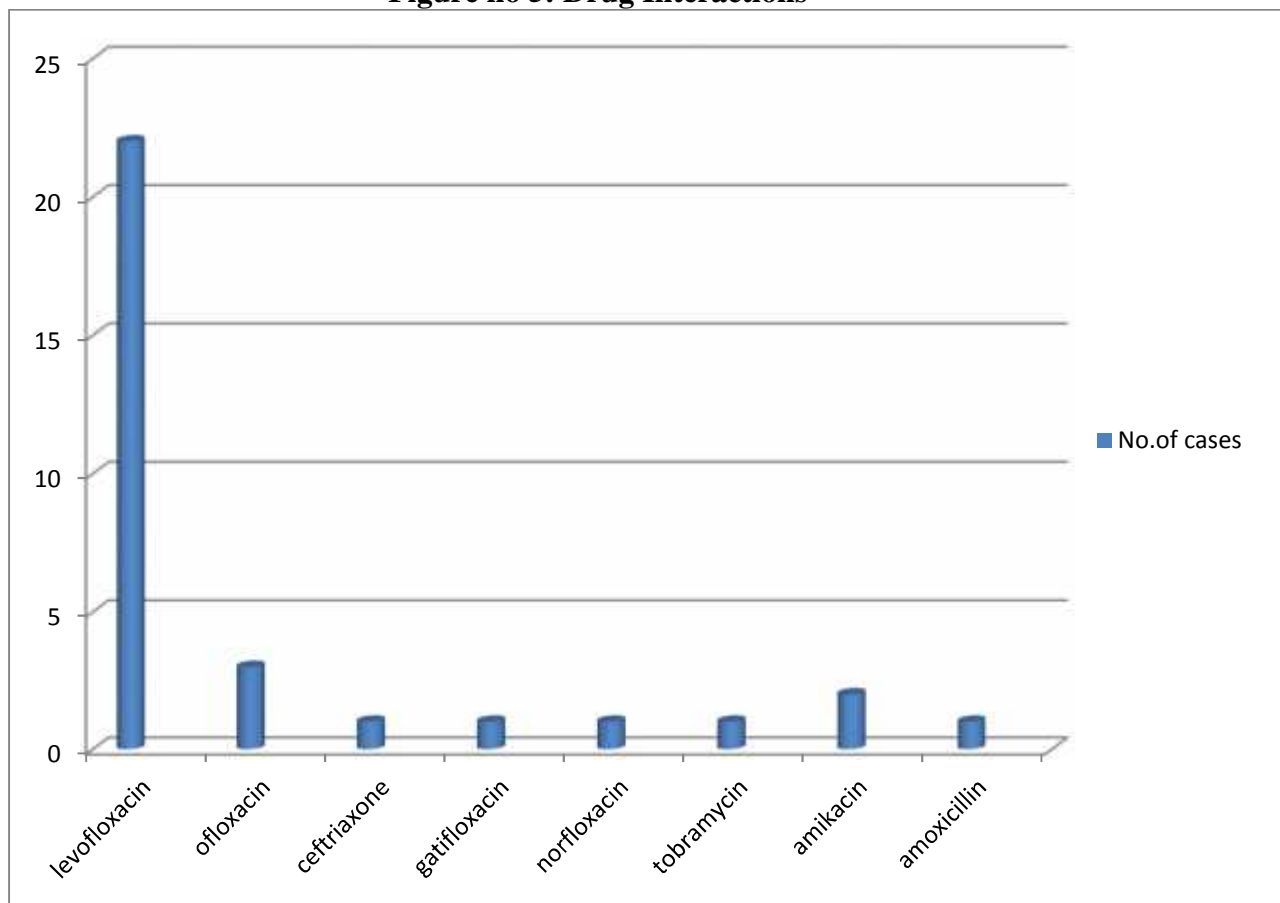
DISCUSSION

The study reports that antibiotics were highly used among all age groups. Number of female patients were high in this study when compared to male patients. Smokers were seen to have an increased risk of respiratory infections leading to use of antibiotics. Cephalosporins were prescribed in maximum number of prescriptions, while fluoroquinolones, pencillins, aminoglycosides were prescribed in minimum number of prescriptions. Monotherapy was prescribed in majority of the patients. Oral antibiotics were prescribed widely in the study population when compared to I.V and other routes. Among the diagnosis observed in the study, antibiotics were widely prescribed for lower respiratory tract Infections. Majority of interactions were seen with levofloxacin and only minimum interactions with other antibiotics.

The study was carried out to understand the current prescribing behavior, to enhance the quality of antibiotics prescribing and raise awareness about antibiotic resistance among general medical practitioners. As the prevalence of antibiotic resistance is higher, pharmacist should play an important role in improving the quality of life of patients by providing patient counseling and health screening services. It is important to improve the antibiotic prescribing based on culture sensitivity test which helps in choosing appropriate antibiotics for patients and leading less resistance[6]. To avoid interactions alternative choice of antibiotics are advised to be prescribed by the physicians. Antibiotics policies and guidelines are to be prepared and frequently revised to update the information regarding various infectious diseases, their sensitivity and resistance patterns. There is a need to develop proper guidelines for the prophylactic use of antibiotics in surgery and various infections. Aggregated antibiogram data as a method for antimicrobial resistance surveillance should be used by health

departments who require an inexpensive, relatively low effort, simple yet accurate alternative for other surveillance activities. The pharmacist should play an important role by assessing patient health status and adherence to standard of care by educating the patients on administering medication to prevent resistance from non compliance[7]. Thus pharmacist should play an important role in health care team by providing information on the rational use of antibiotics for a better patient care.

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