

# Evaluation of Drug Utilization Pattern of Antibiotics in Tertiary Care Hospital

Kotra Vijay Kumar

Postgraduate, Department of Pharmacology, Great Eastern Medical School and Hospital, Srikakulam, Andhra Pradesh

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Corresponding author: Dr. Kotra Vijay Kumar

Conflict of interest: Nil

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## Abstract

**Background:** A Drug utilization study was planned to evaluate the use of antibiotics among patients in the tertiary care hospital and their irrational use leading to the emergence of drug resistance.

**Methods:** It is a prospective study conducted on a total of 150 patients in the medical department of tertiary care hospital. The data was entered in Microsoft excel.

Inclusion criteria include patients on antibiotics and exclusion criteria included patients who were not on antibiotics or had incomplete medical records.

**Results:** Among the 150 patients 75% were male and 25% were female. About 64% were in 21-40 years age followed by 12% in 41-60 years age.

Amoxicillin was the most commonly prescribed antibiotic. 30% of drugs prescribed were generic. 49% received two antibiotics followed by three antibiotic prescriptions.

**Discussion and Conclusion:** Generic drugs should be prescribed more. The prescribers should prescribe according to WHO indicators. To prevent polypharmacy, the minimum number of drugs per prescription should be given. Laboratory investigations must be used for the prescription.

**Keywords:** Prescription, Irrational use, Antibiotics

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## Introduction

There is an increase in the irrational use of drugs all over the world [1]. Drug utilization studies are very important for antibiotics which are extensively used in hospitals [2]. Infections are controlled by antibiotics. The prevalence of usage of antibiotics in India is 22 to 54% and its increasing resistance is due to the irrational use of antibiotics. Antibiotic resistance is increasing among developing countries. The study was planned to evaluate the use of antibiotics among patients in tertiary care hospitals and their

irrational use leading to the emergence of drug resistance.

## Aims & Objectives

1. To evaluate the drug utilization pattern of antibiotics.
2. To evaluate the rationality of antibiotic usage in the medical department.

## Materials & Methods

Study design: Prospective, observational study

Source of data: Data obtained from the medical department of tertiary care hospital

**Population:** 150 patients from the medical department

**Study period:** March 2021 to April 2022

**Inclusion Criteria:** Patients on antibiotics

**Exclusion Criteria:** Patients who were not on antibiotics and with incomplete medical records.

**Study Procedure :**

The institutional ethics committee approved the study. In specially designed

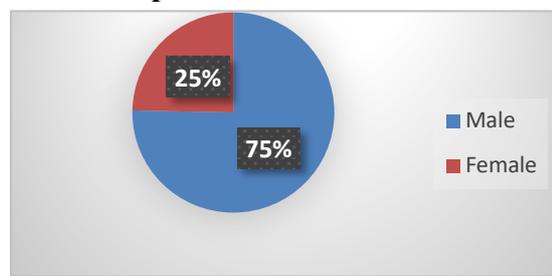
proforma, data was collected. The data is analyzed statistically and tables are generated using Microsoft excel and word.

**Results**

Among 150 patients,75% were male and 25% were female (Table 1). About 64% were between 24-40 years of age followed by 12% at 41-60 years of age (Table 2). Amoxicillin was the most commonly prescribed antibiotic followed by Ofloxacin (Table 3). 49% received two antibiotics followed by three antibiotic prescriptions (Table 4). 35% of drugs prescribed were generic and 65% were non-generic (Table 5).

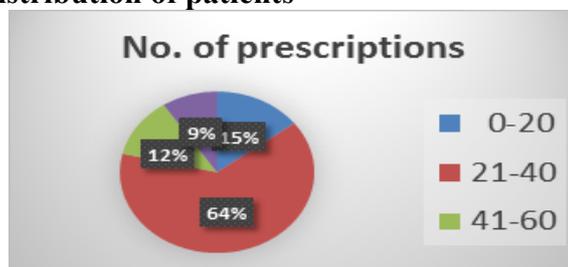
**Table 1: Gender-wise distribution of patients**

Gender	No. of prescriptions	Percentage
Male	113	75%
Female	37	25%
Total	150	100



**Table 2: Age-wise distribution of patients**

Age	No. of prescriptions	Percentage
0-20	22	15%
21-40	96	64%
41-60	18	12%
61-80	14	9%



**Table 3: According to drug class, drugs prescribed**

Antibiotics	The drug has been given in no. of prescriptions
Ceftriaxone	16
Cefotaxime	15
Cefixime	4
Amoxicillin	49
Amikacin	4
Piperacillin	20
Metronidazole	13
Doxycycline	16
Ciprofloxacin	4
Ofloxacin	32
Clindamycin	18
Azithromycin	4

Clarithromycin	2
Clindamycin	14
Moxifloxacin	3
Meropenem	6
Imipenem	1
Tetracycline	1
Artesunate	19
Quinine	2
Rifampicin	7
Pyrazinamide	9
Ethambutol	10
Isoniazid	9

**Table 4: No. of antibiotics prescribed to each patient**

Categories	No. of prescription	Percentage
Single antibiotics	24	16%
Double antibiotics	73	49%
Triple antibiotics	36	24%
More than 3 antibiotics	17	11%

**Table 5: According to antibiotics prescribed by generic name**

Drug	Number of prescriptions	Percentage
Generic	56	37
Non-Generic	94	63
Total	150	100

## Discussion

Due to irrational prescriptions, studies on drug utilization patterns are increasing. The most common cause of resistance is due to irrational prescription. Drug Resistance can be prevented and improvised rationality by giving the lowest possible dose for the shortest duration of time and prescribing drugs at affordable price [3]. As per the guidelines of standard treatment, therapy should be given. Treatment failure and side effects occur if excess or under-prescription of antibiotics is given. So evaluation of drug utilization patterns is useful for accessing prescription rationality.

A study conducted by Meher B. R et al shows the majority of the patients were male, which is in line with our study [4]. In our study majority of antibiotics were given to the age group of 21-40 years. A research study by Pandiamunian J shows the prescription of antibiotics was

maximum in the age group of 51-60 years [5].

Amoxicillin is the most commonly prescribed antibiotic in our study. Research by Lisha Jenny John et. Al shows ceftriaxone is the most commonly prescribed antibiotic in the study [6].

A research study by Mujtaba Hussain Naqvi Syed and others reported that half of the patients in the study were prescribed a single antibiotic followed by two antibiotics [7]. In our study majority of patients were prescribed two antibiotics followed by three antibiotics.

37% of drugs prescribed were generic in our study, whereas 3.64% of drugs prescribed were generic in the study conducted by Meena etal [8].

Through this study, we can analyze the drug utilization pattern in the medical department.

## Conclusion

Antibiotic resistance is increasing worldwide. The prescribers should prescribe according to WHO indicators. Generic drugs should be prescribed more. Along with the clinical diagnosis, prescribers must use laboratory investigations for prescriptions. Antibiotic sensitivity tests should be conducted regularly in the laboratory so that further prescriptions could be done based on sensitivity test results. This can be accomplished by updating clinicians through CME and seminars and providing them with standard treatment guidelines.

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