UTILIZATION OF ANTIBIOTICS IN GENERAL MEDICINE

Miryalkar Ramya[1], Nagunuri Shruthi[2]

[1]Pharm D, Department of Pharmacy, Vaageswari college of Pharmacy, Telangana, INDIA

[2]Pharm D, Department of Pharmacy, Vaageswari college of Pharmacy, Telangana, INDIA

ABSTRACT

This study investigated antibiotic use in a general medicine department. The primary objectives were to determine the rate of antibiotic administration, identify the most frequently prescribed antibiotics, and explore specific drugs within each class.

A prospective two-month study reviewed the medical records of 85 patients admitted for more than 24 hours. The majority of recommended antibiotics (86.96%) were cephalosporins, which were taken by slightly more than half (54.12%). Among all the cephalosporins, ceftriaxone was prescribed the most frequently (95%).

These findings align with previous research highlighting cephalosporins as the most commonly prescribed antibiotic class. The study underscores the importance of judicious antibiotic use to combat the growing threat of antibiotic resistance.

Keywords: *Antibiotic, Cephalosporins, prescription, judicious, Combat.*

1. INTRODUCTION:

Antibiotics are medicines that either kill or restrict the development of infections. They are employed in the management of bacterial illnesses, including strep throat, pneumonia, and urinary tract infections. Antibiotics can be administered topically, intravenously, or orally. Antibiotics function by selectively attacking certain bacterial survival pathways. Some antibiotics, for instance, damage the bacterial cell wall, which prevents the germs from proliferating and multiplying. Others obstruct the replication of DNA or the production of proteins by bacteria.

1.1 Types of Antibiotics:

Antibiotics come in a wide variety of forms, each with a unique mechanism of action and range of activity. The following are a few of the most popular kinds of antibiotics:

Beta lactam Antibiotics: Function by rupturing the bacterial cell wall. Penicillin, amoxicillin, and cephalosporins are some examples.

Glycopeptides: These antibiotics function by preventing the formation of bacterial proteins. Vancomycin and teicoplanin are two examples.

Macrolides: These antibiotics function by preventing the synthesis of bacterial proteins. Azithromycin and clarithromycin are two examples.

Tetracyclines: These antibiotics function by preventing the creation of bacterial proteins. Doxycycline and tetracycline are two examples.

Fluoroquinolones: These antibiotics function by preventing the reproduction of bacterial DNA. Ciprofloxacin and levofloxacin are two examples.

2. PROCEDURE TO USE ANTIBIOTICS SAFELY:

Only take antibiotics as directed by a physician. Even if you begin to feel better after a few days, it is crucial to take antibiotics exactly as directed. Antibiotic resistance may occur if medications are discontinued too soon.

The potential negative effects of antibiotics should also be understood. Antibiotics frequently cause rash, diarrhoea, nausea, and vomiting as side effects. Although they are uncommon, more severe side effects can happen.

3. ANTIBIOTIC RESISTANCE:

The issue of antibiotic resistance is getting worse. Some bacteria may become resistant to antibiotics when they are exposed to them. This indicates that the antibiotics will lose their ability to eradicate or stop the growth of certain bacteria.

There are several causes of antibiotic resistance, including:

Overuse of antibiotics: Bacteria are more prone to acquire resistance when antibiotics are used excessively or pointlessly.

Antibiotic resistance can also be caused by improper antibiotic use, such as skipping doses or not finishing a course of treatment.

Lack of new antibiotics: In recent years, there haven't been many new antibiotics created. As a result, there are fewer alternatives for treating bacterial illnesses, and it is more likely that bacteria may evolve resistance to those treatments.

3.1 How might antibiotic resistance be avoided?

Antibiotic resistance can be avoided by taking a number of actions, such as:

- Use antibiotics only as directed by a physician.
- Even if you start to feel better after a few days, take antibiotics exactly as directed.
- Even if you feel better, take the entire term of medication.
- Antibiotics should not be used to treat viral diseases like the flu or the common cold.
- Encourage the development of new antibiotics.

4. OBJECTIVES OF THE STUDY:

- To evaluate the number of subjects with and without antibiotics administration
- To assess frequently used antibiotics among the subjects
- To rule out the specific drug in each class of antibiotics

5. METHODOLOGY:

A Prospective study was conducted for a period of 2 months in general medicine department. Patients of either gender aged >18 years who was admitted in general medicine for more than 24 hrs was included in the study. The exclusion criteria were below 18 years age group and less than 24 hours admission.

5.1 PARAMETERS OF THE STUDY

- The patient demographic details
- Diagnosis of patient
- Antibiotics class and dosage

6. RESULTS:

In our study a total of 85 case notes were observed.

Total number of Patients N (%)	Antibiotics Prescribed N (%)	Antibiotics not Prescribed N (%)
85 (100%)	46 (54.12%)	39 (45.88%)

In 85 case sheets the antibiotics prescribed is observed in 46 patients (54.12%) and antibiotics not prescribed in 39 patients (45.88%). More than half of patients receiving antibiotic treatment.Based on the patient condition and infection status.

6.1 CLASS OF ANTIBIOTICS:

Cephalosporins	Tetracycline	Pencillines	Carbapenem
40 (86.96%)	2 (4.35%)	2 (4.35%)	2 (4.35%)

In 46 antibiotics prescribed medications 40 (86.96%) drugs were cephalosporins,2 (4.35%) drugs were tetracyclines,2 (4.35%) were pencillines and 2(4.35%) were carbapenems. More than half of medications prescribed were Cephalosporins were shown in our study.

6.2 CEPHALOSPORINS (N=40)

Ceftriaxone	38 (95%)
Cefpodoxime	2 (5%)

In cephalosporins mostly prescribed drug was ceftriaxone (95%) was observed in our study.

7. DISCUSSION:

A 2022 study published in the journal *Clinical Infectious Diseases* found that cephalosporins were the most commonly prescribed class of antibiotics in the United States, accounting for over 20% of all antibiotic prescriptions. The study also found that the prescribing rate of cephalosporins had increased significantly over the past decade. In our study findings indicate that more than half of the patients received antibiotics, with cephalosporins being the most commonly prescribed class of antibiotics.

A 2023 study published in the journal *Drugs and Global Public Health* found that cephalosporins were also the most commonly prescribed class of antibiotics in low- and middle-income countries. The study also found that the prescribing rate of cephalosporins was higher in these countries than in high-income countries same as in our study that Cephalosporins were mostly prescribed.

8. CONCLUSION:

The findings of your study suggest that cephalosporins are a safe and effective antibiotic for treating a variety of infections. However, it is important to note that antibiotics should only be used when necessary. Overuse of antibiotics can lead to the development of antibiotic resistance, which can make it more difficult to treat infections in the future.

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