

Prescription Pattern Analysis of Antibiotics

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Abstract

Antibiotics are among the most commonly prescribed drugs for the treatment of infectious diseases. Irrational use of antibiotics contributes significantly to antimicrobial resistance, increased healthcare costs, and adverse drug reactions. The present study was conducted to evaluate the prescription pattern of antibiotics in a tertiary care teaching hospital.

A prospective observational study was carried out in the General Medicine Department for a period of six months. A total of 100 prescriptions containing antibiotics were analyzed. Data regarding demographic characteristics, diagnosis, antibiotic class, route of administration, duration of therapy, and prescribing indicators were collected and analyzed using SPSS software.

The results revealed that males constituted 58% of the study population. Respiratory tract infections were the most common indication for antibiotic therapy (30%). Cephalosporins were the most frequently prescribed antibiotic class (35%), followed by penicillins (25%). Injectable antibiotics accounted for 58% of prescriptions. Monotherapy was observed in 65% of patients. Generic prescribing was observed in 40% of prescriptions, while 82% of antibiotics were prescribed from the Essential Medicines List.

The study concludes that antibiotic prescribing was generally rational; however, improvement is required in generic prescribing and culture-guided therapy.

Keywords: Antibiotics, Prescription Pattern, Antimicrobial Resistance, WHO Indicators, Drug Utilization.

1. Introduction

Antibiotics are substances that inhibit the growth of or destroy microorganisms. Since the discovery of penicillin by Alexander Fleming in 1928, antibiotics have become essential in treating bacterial infections.

Inappropriate antibiotic use has resulted in the emergence of antimicrobial resistance (AMR), which is a major global health concern. Prescription pattern analysis helps assess the utilization of antibiotics and identify irrational prescribing practices.

The World Health Organization (WHO) recommends periodic evaluation of prescribing patterns using prescribing indicators to promote rational drug use and improve patient outcomes.

2. REVIEW OF LITERATURE

Several studies have evaluated antibiotic utilization patterns.

- Sharma et al. reported that ceftriaxone was the most commonly prescribed antibiotic in tertiary care hospitals.
- Patel et al. observed excessive use of broad-spectrum antibiotics.
- Gupta et al. reported high utilization of prophylactic antibiotics in surgical wards.
- Nair et al. found moderate compliance with WHO prescribing indicators.
- Mehta et al. reported cephalosporins as the most frequently prescribed antibiotic class.

These studies highlight the importance of prescription audits and antimicrobial stewardship programs.

3. AIM AND OBJECTIVES

Aim

To analyze the prescription pattern of antibiotics among patients attending a tertiary care teaching hospital.

Objectives

1. To evaluate antibiotic prescribing patterns.
2. To identify commonly prescribed antibiotics.
3. To assess route of administration.
4. To evaluate generic prescribing.
5. To assess WHO prescribing indicators.
6. To promote rational antibiotic use.

4. MATERIALS AND METHODS

Study Design

Prospective observational study.

Study Site

General Medicine Department of a tertiary care teaching hospital.

Study Duration

Six months.

Sample Size

100 prescriptions.

Inclusion Criteria

- Patients above 18 years.
- Prescriptions containing at least one antibiotic.

Exclusion Criteria

- Incomplete prescriptions.
- Patients below 18 years.

Statistical Analysis

Data were analyzed using SPSS Version 25 and expressed as frequencies and percentages.

5. RESULTS

Table 1: Gender Distribution

Gender	Number	Percentage (%)
Male	58	58
Female	42	42

Interpretation

Male patients constituted the majority of the study population.

Table 2: Diagnosis-wise Distribution

Diagnosis	Number	Percentage (%)
RTI	30	30
UTI	22	22
GI Infection	18	18
Skin Infection	15	15

Diagnosis	Number	Percentage (%)
FUO	10	10
Others	5	5

Interpretation

Respiratory tract infections were the leading indication for antibiotic use.

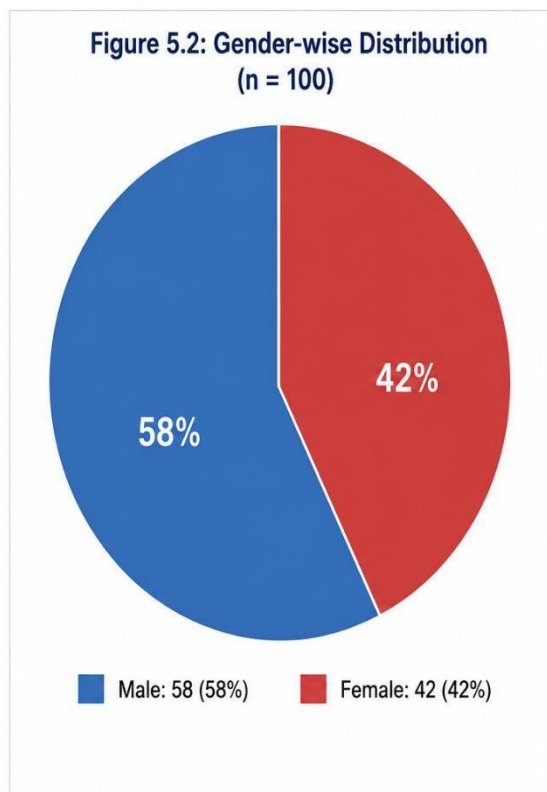
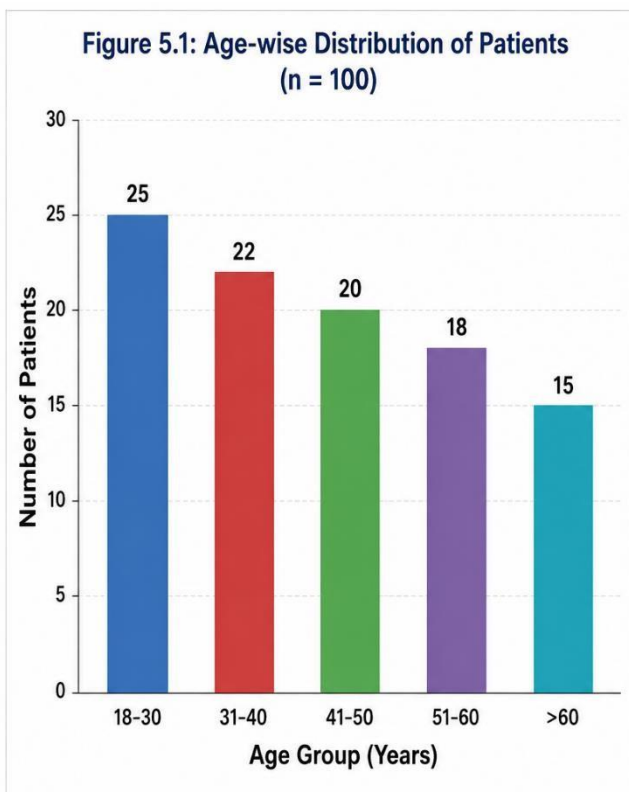


Table 3: Antibiotic Class Distribution

Antibiotic Class	Percentage (%)
Cephalosporins	35
Penicillins	25
Fluoroquinolones	15
Macrolides	12
Aminoglycosides	8
Others	5

Interpretation

Cephalosporins were the most frequently prescribed antibiotics.

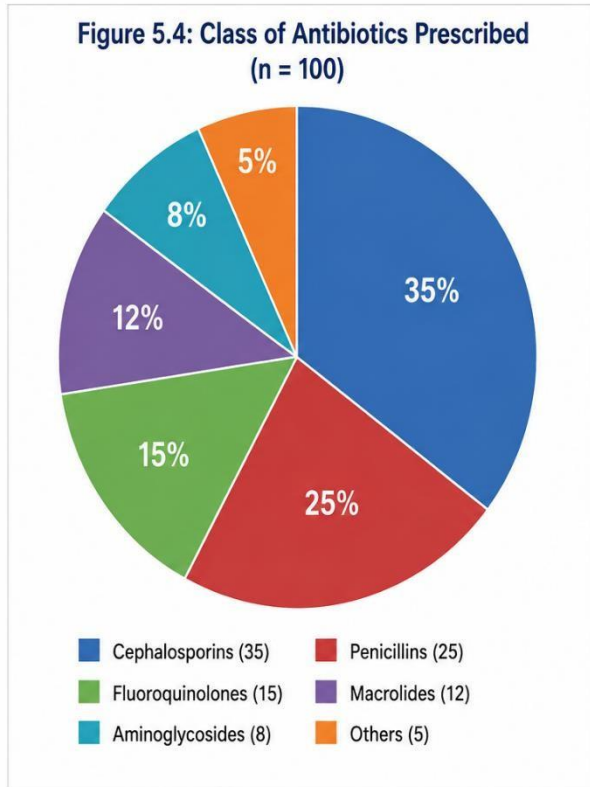
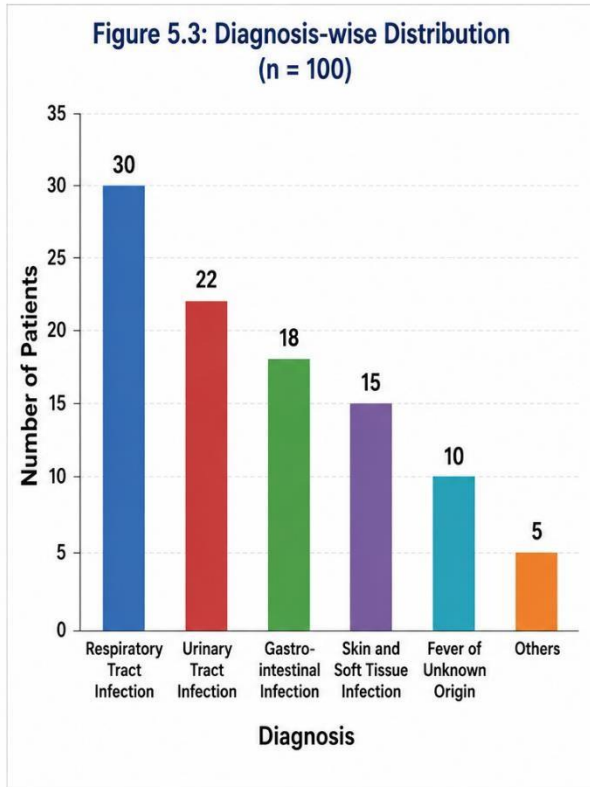


Table 4: Route of Administration

Route	Percentage (%)
Injectable	58
Oral	42

Interpretation

Injectable antibiotics were prescribed more frequently than oral antibiotics.

Table 5: Generic Prescribing

Category	Percentage (%)
Generic	40
Brand	60

Interpretation

Brand prescribing was more common than generic prescribing.

6. DISCUSSION

The present study demonstrated that cephalosporins were the most commonly prescribed antibiotics. Respiratory tract infections represented the major indication for antibiotic therapy. Similar findings have been reported by Sharma et al., Mehta et al., and Ramesh et al.

Injectable antibiotics were frequently used because most patients were hospitalized. Generic prescribing was lower than WHO recommendations, indicating the need for improvement. The majority of antibiotics were prescribed from the Essential Medicines List, which reflects adherence to rational prescribing practices.

7. CONCLUSION

The study revealed that cephalosporins were the most frequently prescribed antibiotics and respiratory tract infections were the most common indication for antibiotic therapy. Injectable antibiotics and monotherapy were commonly utilized. Although Essential Medicines List compliance was satisfactory, generic prescribing rates were relatively low.

Regular prescription auditing, culture sensitivity testing, and antimicrobial stewardship programs are recommended to improve rational antibiotic use and reduce antimicrobial resistance.

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