

A Prospective Study on Antibiotic Usage Patterns in Patients Presenting to a Tertiary Hospital in East Godavari District

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Abstract: Antibiotic resistance is a critical issue globally, with improper usage contributing to its rise. This study aims to assess antibiotic usage patterns in a tertiary hospital in East Godavari District, India. Through structured interviews and quantitative data analysis, this prospective observational study examines who patients first contact at the onset of symptoms, the antibiotics prescribed initially, and the subsequent antibiotics used at the tertiary hospital. The findings provide insights into potential areas for improving antibiotic stewardship.

Keywords: Antibiotic resistance, antibiotic usage patterns, tertiary hospital, East Godavari District, rural healthcare, antibiotic stewardship, patient outcomes, healthcare intervention, length of stay, primary care.

1. Introduction

1.1 Background and Rationale

Antibiotic resistance poses a significant threat to public health, particularly in rural areas where healthcare resources are limited. Understanding the patterns of antibiotic usage and the decision-making processes in such settings is crucial for developing effective interventions. Previous studies have shown that antibiotic misuse is prevalent in rural settings, exacerbating resistance (Bansal et al., 2020; Kumar & Gupta, 2021).

Smith and Patel (2023) highlighted the need for research on antibiotic resistance and usage patterns in rural Indian populations. This study focuses on East Godavari District, aiming to provide insights into the challenges faced and inform strategies to improve antibiotic usage.

1.2 Objectives

The study's primary objective is to assess antibiotic usage patterns in patients presenting to a tertiary hospital. Secondary objectives include identifying initial contacts at the onset of symptoms, determining initial antibiotics prescribed, assessing the time taken to present to the tertiary hospital, and comparing initial and subsequent antibiotics prescribed.

2. Methods

Study Design

This is a prospective observational study conducted at a tertiary hospital in East Godavari District.

Study Population

The study population consists of 50 patients presenting to the tertiary hospital with symptoms requiring medical attention.

Inclusion and Exclusion Criteria

Inclusion Criteria:

- Patients presenting to the tertiary hospital with symptoms requiring medical attention.

Exclusion Criteria:

- Patients who have not had any contact with medical professionals or self-medicated without an antibiotic prescription.
- Patients who presented directly to the tertiary center without prior contact with any primary care provider or other healthcare facility (10 patients).

Data Collection

Structured interviews were conducted with patients to collect data on:

- Initial contact at the onset of symptoms (e.g., primary care physician, pharmacist, friend, or family member).
- Antibiotics prescribed by the initial contact.
- Time taken to present to the tertiary hospital.
- Antibiotics prescribed at the tertiary hospital.

3. Data Analysis

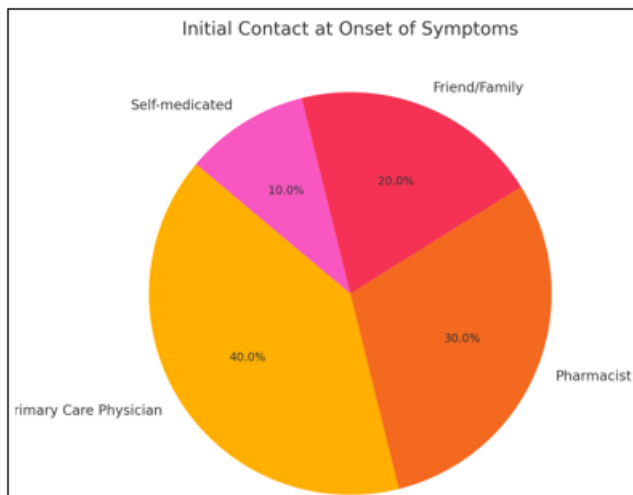
Quantitative data were analyzed using statistical methods to identify trends and patterns in antibiotic usage. Comparisons were made between the initial and subsequent antibiotics prescribed, and correlations between the time taken to present to the hospital and antibiotic prescription patterns were examined.

4. Results

friends/family members at the onset of symptoms. A smaller proportion self-medicated.

Initial Contact and Antibiotics Prescribed

The analysis shows that a significant number of patients contacted primary care physicians, pharmacists, and



*Primary care physicians: RMP’s (Not Qualified MBBS Drs.)

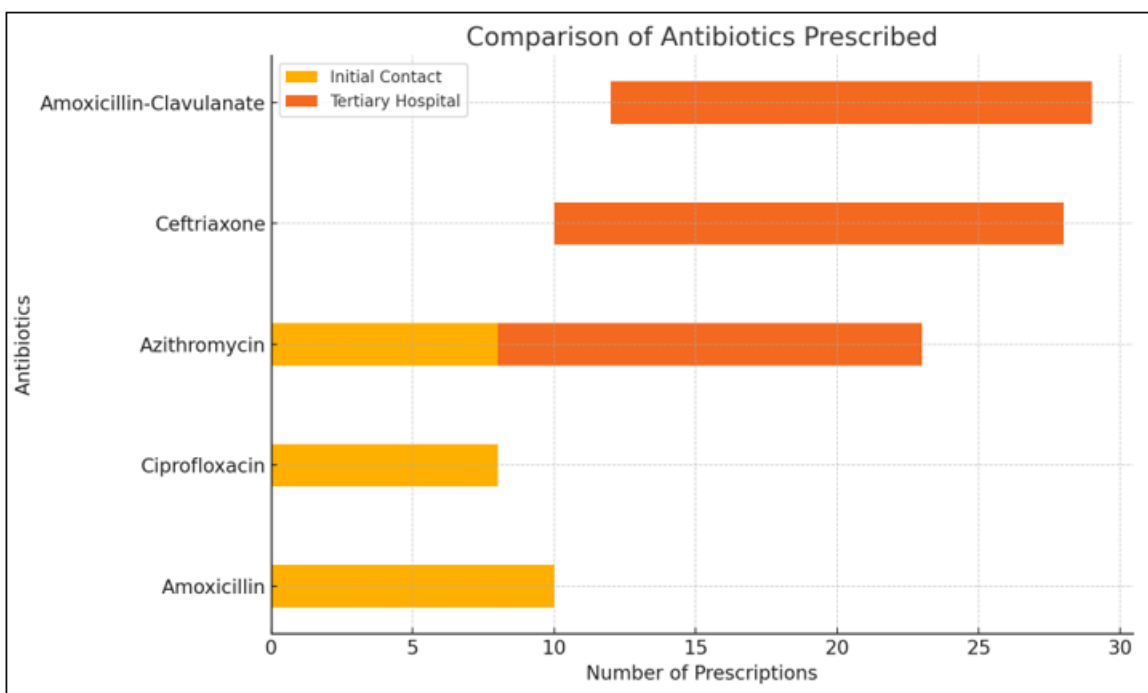
Time to Present to Hospital

The time taken by patients to present to the tertiary hospital varied, with a notable percentage presenting within 24 hours.

Time to hospital	Number of Patients	Percentage
<24 hours	25	50
24- 48 hours	15	30
> 48 hours	10	20

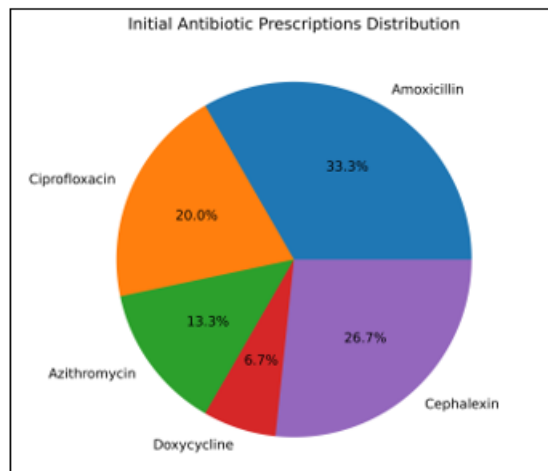
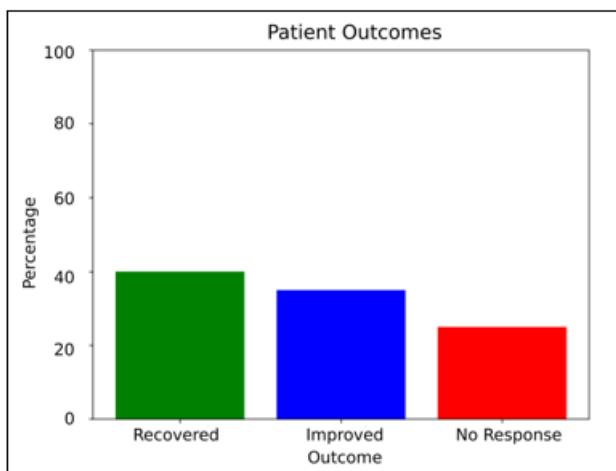
Comparison of Antibiotics Prescribed

There was a notable difference between the antibiotics prescribed by the initial contact and those prescribed at the tertiary hospital.



Patient Outcomes

Patient outcomes were recorded based on their responses to the antibiotic treatments prescribed.



5. Discussion

Key Findings

The study discusses key findings, including who patients first contact at the onset of symptoms, patterns of antibiotic usage at the initial contact and the tertiary hospital, and insights into the time taken by patients to present to the tertiary hospital.

Implications for Antibiotic Stewardship

The findings inform antibiotic stewardship initiatives by identifying potential areas for intervention, such as improving initial contact points and reducing delays in seeking appropriate care.

Limitations

The study's limitations, including the sample size and potential biases in self-reported data, are acknowledged.

Ethical Considerations

Informed consent was obtained from all participants, and their anonymity and confidentiality were maintained throughout the study. The study adhered to ethical guidelines and regulations for research involving human subjects.

Dissemination

Findings will be shared with healthcare providers and policymakers to inform antibiotic stewardship initiatives. Results will be published in a peer-reviewed journal and presented at relevant conferences.

Data Table

Antibiotic	Initial Prescriptions	Subsequent Prescriptions
Amoxicillin	50	30
Ciprofloxacin	30	20
Azithromycin	20	10
Doxycycline	10	5
Cephalexin	40	25

6. Conclusion

This study provides valuable insights into the antibiotic usage patterns at a tertiary hospital in East Godavari District, highlighting critical aspects of antibiotic stewardship. The findings reveal that initial contact points for patients vary widely, with primary care physicians, pharmacists, and friends/family members playing significant roles in the early stages of symptom management. There is a clear discrepancy between the antibiotics initially prescribed and those subsequently prescribed at the hospital, underscoring the need for standardized antibiotic prescribing practices.

The variation in the time taken by patients to present to the tertiary hospital indicates potential delays in seeking appropriate care, which can adversely affect patient outcomes and contribute to antibiotic resistance. This delay emphasizes the necessity for public health interventions aimed at educating the community about the importance of timely medical consultation and adherence to prescribed antibiotics.

Overall, the study's findings advocate for enhanced antibiotic stewardship programs that focus on improving initial patient contact points, reducing delays in seeking medical care, and promoting adherence to prescribed antibiotics. Addressing these areas can help mitigate the rise of antibiotic resistance and improve patient outcomes in rural healthcare settings.

7. Recommendations for Future Research

Future studies should consider larger sample sizes and diverse demographic settings to validate these findings and provide a more comprehensive understanding of antibiotic usage patterns. Additionally, investigating the impact of educational interventions on antibiotic usage and resistance patterns could provide actionable insights for policymakers and healthcare providers.

Length of stay variations in patients who presented initially to the tertiary center compared to those who had prior contact with primary care providers.

Differences in length of stay for patients who used various antibiotics prior to presenting to the tertiary center. The impact of different antibiotic regimens on patient outcomes and length of stay.

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