

# Original Research

## Prescription pattern of antibiotics among patients in hospital

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### ABSTRACT:

**Background:** The consumption of antibiotics has increased worldwide with most of this occurring in low- and middle-income countries. The present study was conducted to assess prescription pattern of antibiotics among patients. **Materials & Methods:** 150 patients of both genders were assessed for report of prescribing indicators, commonly prescribed antibiotics. **Results:** Age group <18 years had 18, 18-28 years had 22, 28-38 years had 26, 38-48 years had 30, 48-58 years had 44 males and 58-68 years had 10 patients. The difference was non-significant ( $P > 0.05$ ). Commonly prescribed antibiotics was amoxicillin in 54, ciprofloxacin in 36, azithromycin in 20, metronidazole in 25, ceftriaxone in 5, cephalixin in 6 and clarithromycin in 4. The difference was significant ( $P < 0.05$ ). Average number of drugs per encounter was 1.8%, percentage of encounters with antibiotics was 70.5%, percentage of encounters with injection was 8.4%, percentage of drugs prescribed by generic name was 92% and percentage of drugs from essential drug list was 97%. **Conclusion:** Commonly prescribed antibiotic was ciprofloxacin, amoxicillin and azithromycin.

**Key words:** antibiotics, azithromycin, Enterococcus faecium

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### INTRODUCTION

Multidrug resistant strains have been widely documented for Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii and Pseudomonas aeruginosa in India.<sup>1</sup> The infections caused by aforementioned organisms are not only difficult to treat because of limited number of available antimicrobial choices but also lead to increased treatment duration and associated costs.<sup>2</sup> Unfortunately, India represents the country with highest antimicrobial consumption. Furthermore, overuse of antimicrobials is causally linked to emergence of antimicrobial resistance. Thus, one of the logical ways for curtailing antimicrobial resistance is to reduce inappropriate or irrational antibiotic prescribing. Antibiotic stewardship programs often target such irrational use of antimicrobials.<sup>3</sup> The consumption of antibiotics has increased worldwide with most of this occurring in low- and middle-income countries.<sup>3</sup> Antibiotics play a pivotal role in combating disease and maintaining health especially

in developing countries where infectious diseases are still a big challenge. However, in recent years their benefit is facing a great challenge due to the emergence of antibiotic resistance.<sup>4</sup> Antibiotic resistance poses a significant threat to global public health and was given special mention as a serious threat to public health, economic growth, and global economic stability. Increased antibiotic resistance rates may lead to prolonged hospitalization and duration of treatment, as well as increased treatment costs and mortality.<sup>5</sup> The present study assessed prescription pattern of antibiotics among patients.

### MATERIALS & METHODS

This study comprised of 150 patients of both genders. All gave their written consent. Data such as name, age, gender etc. was recorded. Parameters such as report of prescribing indicators, commonly prescribed antibiotics etc. was recorded. The results were compiled and subjected for statistical analysis using Mann Whitney U test. P value less than 0.05 was set significant.

## RESULTS

**Table I Patients distribution**

| Age group (years) | Male | P value |
|-------------------|------|---------|
| <18               | 18   | 0.72    |
| 18-28             | 22   |         |
| 28-38             | 26   |         |
| 38-48             | 30   |         |
| 48-58             | 44   |         |
| 58-68             | 10   |         |
| Total             | 150  |         |

Table I shows that age group <18 years had 18, 18-28 years had 22, 28-38 years had 26, 38-48 years had 30, 48-58 years had 44 males and 58-68 years had 10 patients. The difference was non-significant ( $P > 0.05$ ).

**Table II Assessment of commonly prescribed antibiotics**

| Antibiotics    | Number | P value |
|----------------|--------|---------|
| Amoxicillin    | 54     | 0.01    |
| Ciprofloxacin  | 36     |         |
| Azithromycin   | 20     |         |
| Metronidazole  | 25     |         |
| Ceftriaxone    | 5      |         |
| Cephalexin     | 6      |         |
| Clarithromycin | 4      |         |

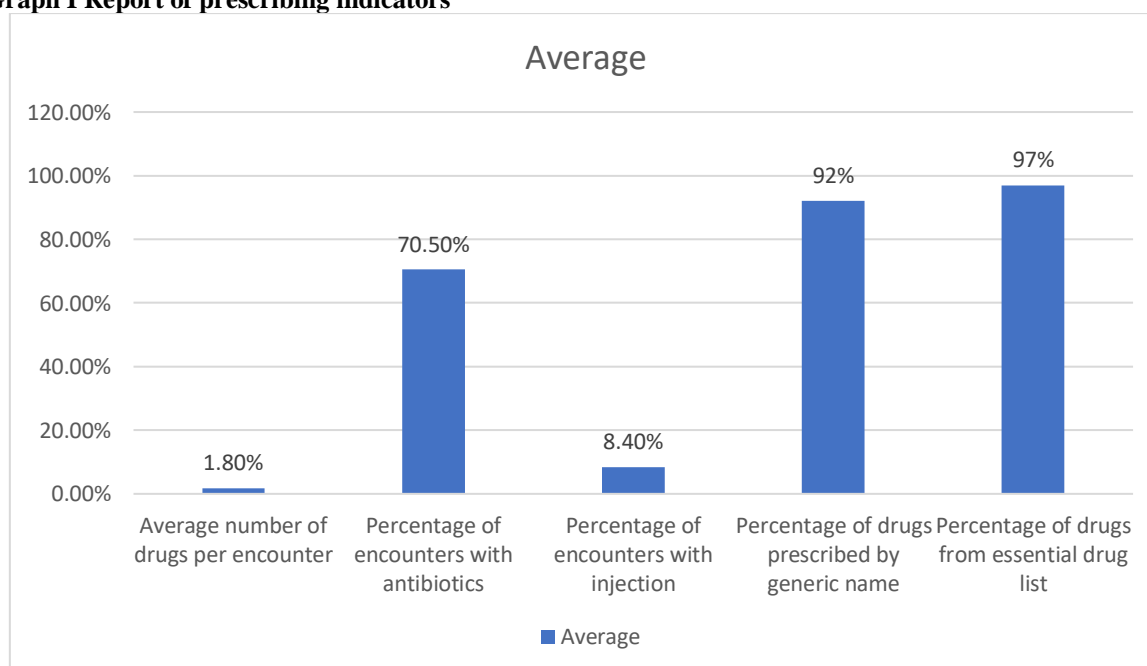
Table II shows that commonly prescribed antibiotics was amoxicillin in 54, ciprofloxacin in 36, azithromycin in 20, metronidazole in 25, ceftriaxone in 5, cephalexin in 6 and clarithromycin in 4. The difference was significant ( $P < 0.05$ ).

**Table III Report of prescribing indicators**

| Prescribing indicators                         | Average |
|--|---------|
| Average number of drugs per encounter          | 1.8%    |
| Percentage of encounters with antibiotics      | 70.5%   |
| Percentage of encounters with injection        | 8.4%    |
| Percentage of drugs prescribed by generic name | 92%     |
| Percentage of drugs from essential drug list   | 97%     |

Table III, graph I shows that average number of drugs per encounter was 1.8%, percentage of encounters with antibiotics was 70.5%, percentage of encounters with injection was 8.4%, percentage of drugs prescribed by generic name was 92% and percentage of drugs from essential drug list was 97%.

**Graph I Report of prescribing indicators**



## DISCUSSION

Antibiotics have been used widely in the prevention and management of infections since the discovery of penicillin in the 1920's.<sup>6</sup> This discovery, among others, has changed the course of medicine and reduced infection-related mortality.<sup>7</sup> In recent times, however, there have been concerns over the inappropriate use of antibiotics which has partly contributed to the development of resistance in disease-causing microorganisms.<sup>8</sup> In developing countries antibiotics are prescribed for 44% to 97% of hospitalized patients often unnecessarily or inappropriately. It is estimated that half of all medicines in Africa are used inappropriately including two third of antibiotics.<sup>9,10</sup> The present study assessed prescription pattern of antibiotics among patients.

We found that age group <18 years had 18, 18-28 years had 22, 28-38 years had 26, 38-48 years had 30, 48-58 years had 44 males and 58-68 years had 10 patients. Kaur et al<sup>11</sup> conducted a prospective observational study in triage area of emergency unit of a tertiary care hospital. All the referred patients were screened for antibiotic prescription. Data extraction form was used to capture information on patient demographics, diagnosis and antibiotics prescribed. Antibiotic prescription details with regard to dosage, duration and frequency of antimicrobial administration were also recorded. Out of 517 screened patients, 300 were prescribed antimicrobials. Out of 29 antibiotics prescribed, 12 were prescribed in more than 90% of patients. Broad spectrum antibiotics accounted for 67.3% of prescriptions. In 129 out of 300 patients, no evidence of infectious etiology was found. This study highlights some common but serious lapses in antibiotic prescription patterns in patients referred from various healthcare settings. This emphasizes the need to provide training for rational use of antibiotics across healthcare settings.

We found that commonly prescribed antibiotics was amoxicillin in 54, ciprofloxacin in 36, azithromycin in 20, metronidazole in 25, ceftriaxone in 5, cephalixin in 6 and clarithromycin in 4. Average number of drugs per encounter was 1.8%, percentage of encounters with antibiotics was 70.5%, percentage of encounters with injection was 8.4%, percentage of drugs prescribed by generic name was 92% and percentage of drugs from essential drug list was 97%. Remesh et al<sup>12</sup> evaluated the prescribing pattern of antibiotics, their adherence to essential medicines list, disease conditions for which they were prescribed, and their adverse effects. The mean duration of hospitalization among the study population was 5.48 ( $\pm 4.28$ ) days. Of the 410 medicines prescribed, antibiotics contributed 151 (36.8%). They were mostly indicated for respiratory infections, and the most common antibiotic was Beta-lactams (91 (60.2%). Interestingly, 89 antibiotics (60%) were administered as injections. About 70 (46%) of the antibiotics were prescribed without any

combinations. The adherences to World Health Organization's essential medicines list were 122 (81%). A total of seven adverse drug reactions were reported in the current study. Of which, none were serious, and five (70%) were cutaneous reactions. The limitation of the study is small sample size.

## CONCLUSION

Authors found that commonly prescribed antibiotic was ciprofloxacin, amoxicillin and azithromycin.

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