

Antibiotic Prescribing in Various Clinical Departments in a Tertiary Care Teaching Hospital in Northern India

KUMAR ABHIJIT¹, PUSHPAWATI JAIN², PRERNA UPADHYAYA³, SHIPRA JAIN⁴

ABSTRACT

Background: Antibiotic resistance is not only a problem for the individual patient; it also reduces the effectiveness of established treatment and has become a major threat to public health by increasing the complexity and cost of treatment and reducing the probability of a successful outcome.

Aim: A prospective cross sectional study was carried out with the aim of identifying prescription pattern of antibiotics in a tertiary care teaching hospital in Northern India.

Materials and Methods: A total of 300 prescriptions were collected, collated and analysed from the indoor patients of MG hospital, Jaipur, India from the department of Medicine, Surgery and Orthopaedics. The prescribing and dispensing details of antibiotics from each prescription were recorded in the tabular form as mentioned in Data Acquisition form. Comparison of antibiotic prescribing practices among all the three departments was made by using Percentage method.

Results: Majority of prescriptions (51%) with single drug was prescribed in Medicine department, followed by 16% in surgery and only 2% in Orthopaedics. Prescriptions with 3 drugs were prescribed mostly in Orthopaedics (66%) followed by 46% in Surgery and 10% in Medicine. 51% prescriptions in Orthopaedics department were of Ceftriaxone+ Sulbactam+ Amikacin. Thirty four percent prescriptions in Medicine department were of Ceftriaxone. 18% prescriptions in Surgery department were of Ceftriaxone+ Sulbactam+ Tobramycin.

Conclusion: This study clearly highlights the practice of Poly-Pharmacy and injudicious usage of antibiotics in hospital settings. The Government of India is planning to revise the antibiotic policy issued in 2011 and put a ban on over the counter availability of third generation antibiotics. General public awareness and sensitization of doctors and revision of clinical drug policy is the need of the hour to bring the changes at all possible level for the longterm and better clinical outcome in medical practice.

Keywords: Antibiotic resistance, Prescription monitoring, Rational use of medicines

INTRODUCTION

Irrational use of medicine results in serious morbidity & mortality as well as additional economic burden leading to reduction in the quality of drug and, thereby wastage of resources, increased treatment cost, increased risk for adverse drug reaction and emergence of resistance [1].

The most commonly seen irrational use of medicine is excessive use of antibiotics [2]. As the consumption of antibiotic rises, resistance to antibiotics becomes a major threat to public health. Existing evidence suggests that there is a causal association between antimicrobial usage in hospital and antimicrobial resistance [3]. Some authors recommend that hospitals should monitor both antimicrobial use & susceptibility trends in an attempt to reduce emergence & spread of anti microbial resistant pathogens.

Antibiotic resistance is not only a problem for the individual patient, it also reduces the effectiveness of established treatment & has become a major threat to public health by increasing the complexity and cost of treatment and reducing the probability of a successful outcome. Therefore, efforts are needed to counteract the growing problem of anti microbial resistance [4]. Drug utilization research can provide useful information to health care providers & policy makers. It offers the prospect of improving the quality of pharmacotherapy gaining insight in volume and cost development of drug use & estimating prevalence and incidence of disease rather than drug use [5].

Keeping these facts in mind, this study was carried out with the aim of identifying prescription pattern of antibiotics in a tertiary care teaching hospital in Northern India.

MATERIALS AND METHODS

This is a prospective cross sectional study conducted in indoor patients of Mahatma Gandhi Medical College and Hospital, Jaipur, India. It is a 1000 bedded teaching hospital which caters to the general and specialised needs of the peripheral areas. Protocol approval was taken from the Institutional Ethics Committee, Mahatma Gandhi Medical College and Hospital, Jaipur before starting the study. A total of 300 prescriptions were collected, collated and analysed from the indoor patients of MG hospital, Jaipur from the department of Medicine, Surgery and Orthopaedics. The IPDs were visited twice a week. Each prescription was followed for a total duration of 5 days.

Comparison of antibiotic prescribing practices among all the three departments was made by using Percentage method.

RESULTS

The antibiotic parameters were compared among the department of Medicine, Surgery and Orthopaedics. Demographic parameters like name, age, sex and address of patients were mentioned in 100% of prescriptions in department of Medicine, Orthopaedics and Surgery [Table/Fig-1].

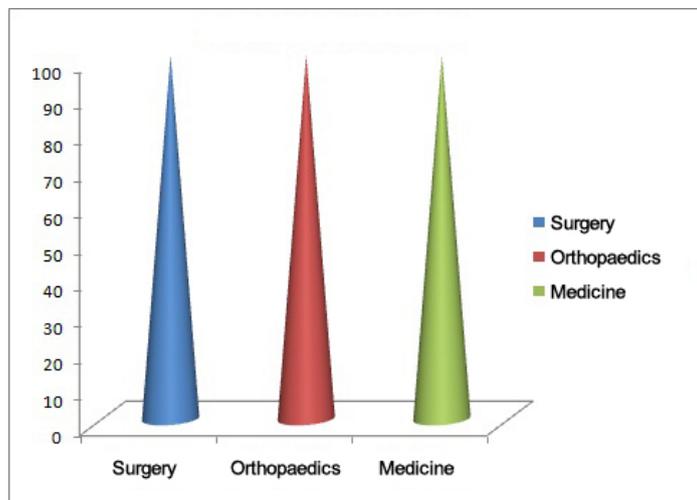
Monotherapy v/s Polytherapy [Table/Fig-2]

Majority of prescriptions (51%) with single drug were prescribed in Medicine department, followed by 16% in surgery and only 2% in Orthopaedics. Prescriptions with 2 drugs were maximally prescribed in Medicine (39%) followed by 38% in Surgery and 32% in Orthopaedics. Prescriptions with 3 drugs were prescribed mostly

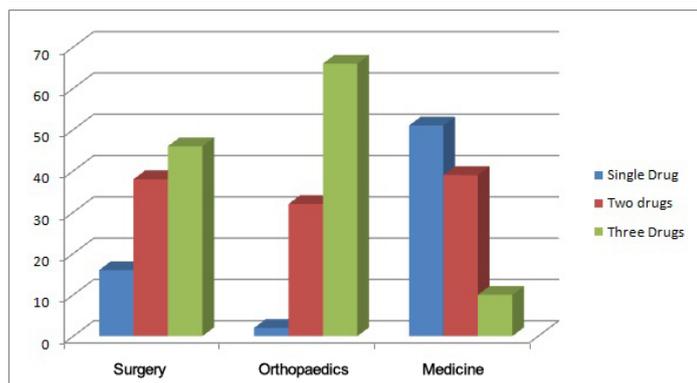
in Orthopaedics (66%) followed by 46% in Surgery and 10% in Medicine department.

Department wise analysis of antibiotics used [Table/ Fig-3]

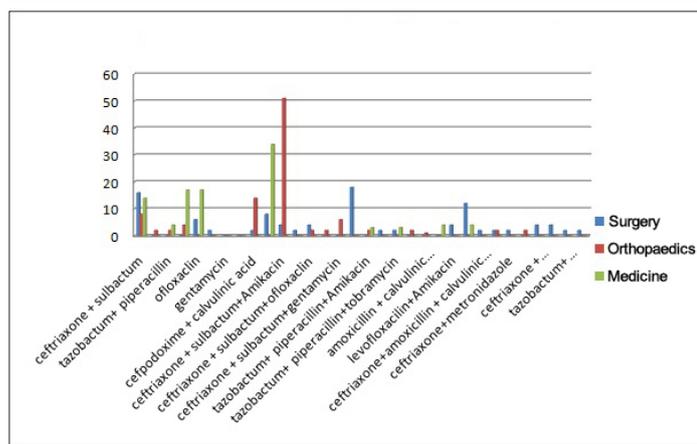
51% prescriptions in Orthopaedics department were of Ceftriaxone+ Sulbactam+ Amikacin. 34% prescriptions in Medicine department were of Ceftriaxone. 18% prescriptions in Surgery department were of Ceftriaxone+ Sulbactam+ Tobramycin.



[Table/Fig-1]: Demographic parameters in all 3 departments



[Table/Fig-2]: Monotherapy vs. Polytherapy in all 3 departments



[Table/Fig-3]: Department wise analysis of antibiotics used

DISCUSSION

A prescription by a doctor may be taken as a reflection of physician’s attitude to the disease and the role of drug in its treatment. It also provides an insight into the nature of the health care delivery system [6]. Quality of life can be improved by enhancing standards of medical treatment at all levels of the health care delivery system. Setting standards and assessing the quality of care through performance review should become part of everyday clinical practice [7].

The present study focused on the usage of antibiotics in the indoor patients of department of Medicine, Surgery and Orthopaedics. It is seen that majority of prescriptions in all three departments had fixed dose combinations, with maximum prescriptions in Orthopaedics. Most commonly prescribed combination was of Ceftriaxone+Sulbactam+Amikacin. The antibiotics were prescribed without performing sensitivity tests.

Up to 50% of antibiotic usage in hospitals is inappropriate. In hospitals, infections caused by antibiotic-resistant bacteria are associated with higher mortality, morbidity and prolonged hospital stay compared with infections caused by antibiotic-susceptible bacteria. Clostridium difficile associated diarrhea (CDAD) is a hospital acquired infection that is caused by antibiotic prescribing [8].

The government is considering a revision of antibiotic policy drawn up in 2011, soon after the NDM-1 controversy broke out. The Chennai Declaration, known as a milestone event, was held in August 2012 to draw up a road map to tackle antimicrobial resistance in the country. It is suggested that restriction be placed on across the counter sales of antibiotics, and that additional drugs could be added to the list in a phased manner. It also recommended that a national antibiotic resistance surveillance system be established with representation from all regions in the country, government and private hospitals [9].

This study clearly highlights the practice of poly-pharmacy and injudicious usage of antibiotics in hospital settings [10]. Multi-faceted interventions are required at many levels for the benefits of the community. Educational programmes for rational prescribing, creation of a hospital prescribing policy, imparting knowledge of rational prescribing in undergraduate clinical pharmacology training, keeping a check on influence of pharmaceutical industry, providing effective public education to the consumer through medical camp, advertisements and hoardings have been proved to be effective in this direction. Adequate training on drug information & standard treatment guidelines to the prescriber through Continuing Medical Education incorporating the concept of Essential drug, legislation of policies on rational prescribing practice & antibiotic policy prepared by government institution may help the medical professional to prevent irrational prescribing [11].

A serious concern about the rising trend of antimicrobial resistance in the country has prompted medical societies to hold the joint “Road map meeting” in order to seek practical, implementable solutions to the problem. Roles and responsibilities of Ministry of health, DCGI (Director controller Journal of India), HICC (Health Infection control committee), Antibiotic stewardship committees, NABH (National Accreditation Board of Hospitals), Medical council of India, medical teachers, medical education, medical journals, mass media are important [9].

CONCLUSION

That general public awareness, sensitization of doctors and revision of clinical drug policy is the need of the hour to bring changes at all possible levels for better clinical outcome in medical practice.

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