



STUDY OF PRESCRIBING PATTERN OF ANTIMICROBIAL AGENTS IN INDOOR ADULT PATIENTS OF OBSTETRICS AND GYNAECOLOGY DEPARTMENT, TERTIARY CARE TEACHING HOSPITAL (WESTERN RAJASTHAN).

Pharmacology

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ABSTRACT

Introduction: Maternal health is very important because both foetus and mother are at jeopardy. Many drugs are used in Obstetrics & Gynaecology department but they are least studied with respect to drug utilization. Hence, present study was evaluating the prescribing pattern of antimicrobials agent in Obstetrics and Gynaecology department.

Material & Methods: This prospective study was conducted in department of Pharmacology in collaboration with Gynaecology department of Dr. S.N. Medical College associated hospitals, Jodhpur (Rajasthan). Patients were enrolled on the basis of inclusion and exclusion criteria.

Results: In this study, total 250 indoor adult patients' prescriptions were analyzed. Among them maximum patients found to be 18-30 years of age group. The most commonly prescribed antimicrobial agents were Metronidazole; followed by Amikacin; Ceftriaxone.

Conclusion: In conclusion, Metronidazole, Amikacin, Ceftriaxone were most commonly prescribed antibiotics and also included in essential drug list. The use of the generic names was found to be satisfactory.

KEYWORDS

Prescribing Pattern, Antimicrobial Agents, Drug Utilization

INTRODUCTION

Prescribing practices can be defined as the ability of health professionals to differentiate and discriminate among the various choices of drugs and determine the ones that will be most effective and beneficial to their patient. Patient's quality of life can be improved by enhancing the medical standards at all level of the health care delivery system.¹

Prescription pattern monitoring studies (PPMS) are a tool for assessing the prescribing, dispensing and distribution of medicines. Prescription pattern monitoring studies (PPMS) are drug utilization studies with the main focus on prescribing, dispensing and administering of drugs. They promote appropriate use of monitored drugs and reduction of abuse or misuse of monitored drugs.²

In 1979, the United States Food and Drug Administration (FDA) introduced a system of rating pregnancy-risk associated with pharmacological agents, which categorized all drugs approved after 1983 into one of five pregnancy risk categories (A, B, C, D, and X). It indicates the effect of the agent on the fetus based on available animal and human data and recommends the degree of precaution that should be undertaken with each drug.³

Antibiotics group of drugs, most frequently prescribed drugs among hospitalized patients especially in intensive care and various surgical departments. Programs designed to encourage appropriate antibiotic prescriptions in health institutions are an important element in quality of care, infection control and cost containment.^{4,5}

In developing countries antimicrobial agents are prescribed for 44-97% of hospitalized patients often unnecessarily or inappropriately. Several socio economic and behavioural factors are thought to contribute to the inappropriate and misuse of antimicrobial agents and consequently, to the increased incidence of microbial resistance in developing countries.⁶

Maternal health is very important as both foetus and mother are at risk. Studies in developing countries that quantify burden of obstetrics & gynaecological disease in order to influence health policy with respect to the department of Obstetrics & Gynaecology are limited. Some of these studies have shown a high prevalence of previously unrecognized morbidity, placing a heavy burden on women. Drugs used in Obstetrics & Gynaecology are strong selling drugs in pharmaceutical market; but they are the least studied drugs in terms of drug utilization studies.⁷

Drug utilization evaluation studies plays important role in

identifying the prescription pattern among the patients which helps in provide useful information for improvement of the appropriate and effective use of antibiotics and also developing the proper protocols for the use of antibiotics in hospitals. Drug utilization research helps to facilitate appropriate use of drugs in patient populations, so as to minimize the adverse events, drug interactions and leading to better patient outcome.⁸

The aim of our study was to evaluate the prescribing pattern of Antimicrobial agents in the department of Obstetrics and Gynaecology (OBGY) at Dr. S.N. Medical College, Jodhpur (Rajasthan) and to help the clinicians to make a more rational use of antimicrobials to decrease the incidence of antimicrobial resistance among patients.

MATERIALS AND METHODS:

This prospective study was conducted by the department of Pharmacology in collaboration with the Obstetrics & Gynaecology department of Dr. S.N. Medical College associated group of hospitals, Jodhpur (Rajasthan). Before starting the study, approval was obtained from the Institutional Ethics Committee.

The data of the patients who received antimicrobials agents were collected on the basis of the inclusion and exclusion criteria and they were analyzed further for the drug utilization studies. Only adult females were included in this study. All the patients with antibiotics in their prescriptions, between 18-65 years of age were included in the study over 6 months. Any patient died post-operatively before being discharged was excluded from the study, absconded/discharged against medical advice, discharged within 24 hours and Out Door Patients (OPD) excluded from our study.

Total 250 patients were selected during our study and were analyzed on the basis of inclusion and exclusion criteria. All the information was recorded in Case Record Form (CRF), which was designed according to WHO criteria. It includes age, gender, information related with prescribed drug therapy including the diagnosis, dose, frequency of drug administration, routes of drug administration and duration of therapy, respectively. The Epi info version 7 was used for data analysis. Data was summarized by routine descriptive statistics and was presented in numerals and percentages.

Rationality of antimicrobial agents is correlated with drug utilization evaluation studies. The drug utilizations are universally assessed by the World Health organization (WHO) core drug indicators such as prescribing indicators. These indicators as follows: total number of drugs prescribed; total number of antibiotics prescribed; number of

antibiotics used as monotherapy/ combination; drugs prescribed by generic/ branded names and prescribed from essential drug list.

RESULTS:

Total 250 indoor patients prescription were analyzed on the basis of inclusion and exclusion criteria. Among 250 patients, maximum patients 191 were enrolled in 18-30 years age group followed by 49 patients 31-50 years, 10 patients 51 to 70 years. The mean age of the total patients was in this study 28.76 ± 9.68 . (Figure 1) The total number of antibiotics which were prescribed to the patients was 841. Each patient, on an average was prescribed antibiotics 3.36 per prescription. In this study observed that all antibiotic prescribed by generic name as a recommended by WHO (100%). (Table 1)

The most commonly prescribed antimicrobial agents were Metronidazole (n=235) followed by Amikacin (n=195), Ceftriaxone (n=137), Gentamicin (n=58). A fixed dose of combination Piperacillin plus tazobactam (n=107) and Cefoperazone plus sulbactam (n=62) were most commonly prescribed in present study. (Figure 2)

In current study, single drug therapy was prescribed in only 6 cases. As a form of poly drug therapy, 2 antibiotics were prescribed in 8 patients. Prescription with Three drugs 3 were prescribed in 134 patients and prescription with four and more than four antibiotic seen with 102 patients. (Figure 3)

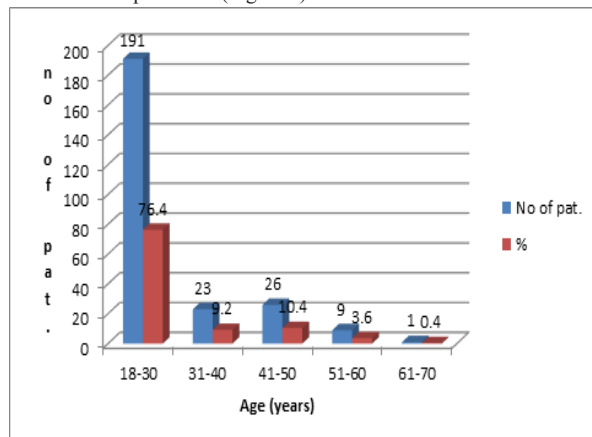


Figure 1: Age Wise Distribution Of Patients:

Table 1: Inrud: International Network Of Rational Use Of Drugs, WHO: WORLD HEALTH ORGANIZATION:

PRESCRIBING INDICATOR:

Prescribing indicators	Value	Standard value (WHO)
Average number of Antibiotics per Prescription	3.36	1.6–1.8
Percentage of encounters with an injection prescribed	100%	13.4–24.1%
Percentage of drugs prescribed by generic name	100%	100%
Percentage of drugs prescribed from the essential list	100%	100.0%

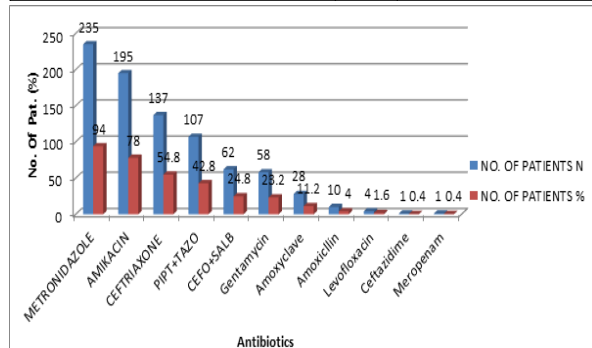


Figure 2: Prescribing Frequency Of Antimicrobial Agents:

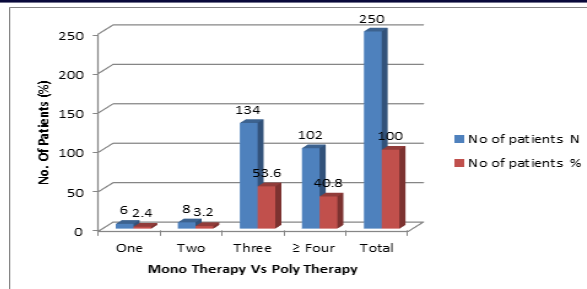


Figure 3: Mono Therapy Vs Poly Therapy:

DISCUSSION:

The importance of assessment and evaluation of quality in healthcare is gaining global recognition and medicines play a pivotal role in the healthcare delivery system. The appropriate use of medicines is a crucial element in the quality of health outcomes and in the appropriate medical care provided to patients.⁹

In India, infectious disease burden highest in the world. Consequently, antimicrobial agents will play a critical role in limiting morbidity and mortality in the country and worldwide level. There is much ad-hoc information about the inappropriate and misuse consumption of antimicrobial agents, over-the-counter availability of antimicrobial agents, and inadequate dosage leading to antimicrobial drug resistance.¹⁰

The present study was undertaken to evaluate the prescribing pattern of AMAs in the department of Obstetrics and Gynaecology in indoor adult patients at Dr. S.N. Medical college, Jodhpur (Rajasthan).

Most of the patients in our study were in the age groups of 18-30 years followed by 31-50 years, which is similar to Shalini *et al.*¹¹ which reported 70% patients in the age group of 20-29 years. In our study, the mean age of the patients 28.76 ± 9.68 . similar finding were reported by Baig MS *et al.*¹² where the mean age of presentation was 30.19 ± 9.83 years and the most common age group was between 18-30 years. Another similar study conducted by Kaur *et al.*¹³ revealed that mean age of women attending Obstetrics and Gynaecology OPD was 29.80 ± 6.293 years.

The current study observed that Metronidazole, Amikacin and Ceftriaxone were most commonly prescribed antibiotics, which is similar to Beg MS *et al.*¹² where they found the most commonly prescribed group was Metronidazole followed by Ciprofloxacin. In contrast to our study, another study carried out by Shah BK *et al.*¹⁴ which demonstrated that ciprofloxacin (60.90%) was most commonly prescribed drug followed by Ampicillin (54.54%) and Metronidazole (39.69%).

Average number of antibiotics per prescription in our study was 3.36 which is slightly higher than other study conducted by Preeti Singh *et al.*¹⁵ revealed that 2.43 average antibiotics per prescription were reported. Another study conducted by Nandy Manab *et al.*¹⁶ revealed that 1.95 antibiotics per prescription were reported.

In our study, antibiotics prescribed with single, double, triple and four and more than four were 2.40%, 3.20%, 53.60%, 40.80% respectively. One study reported that single antibiotic was used in 30% of cases whereas two and three and even four antibiotics were used in 14% and 20% of cases, respectively.¹⁷

CONCLUSION:

Our study concluded that most of the prescription was found to be rational according to the use of Antimicrobial agents which helps in reducing adverse events and health care cost. All antibiotics prescribed in generic form. A developing antibiotic policy and therapeutic guidelines with suitable intervention when required and continued assessment of problems associated with bacterial resistance would facilitate the rational use of antimicrobial agents. Drug and therapeutics committees should be established in hospitals to monitor and implement interventions to improve the use of medicines. Proper measures should be taken to avoid the inappropriate use of antibiotics.

ACKNOWLEDGEMENT:

Principal investigator of the study would like to thank Dr. Anusuya Gehlot, Senior Professor, Department of Pharmacology, Dr. S.N. Medical College, Jodhpur, (Rajasthan) for their valuable guidance and support.

Funding: No funding sources

Conflict of Interest: None declared

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