International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 1494-1498 www.ijprajournal.com ISSN: 2249-7781

Study of Prescription Pattern of Antibiotics in Post-surgery Patients at a tertiary care teaching Hospital

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Submitted: 01-02-2023 Accepted: 10-02-2023

ABSTRACT
Surgical site infections (SSIs) is one of the most common indications of antibiotic prescription in the surgical ward. SSIs are defined as infections occurring up to 30 days after surgery and affecting either the incision or deep tissue at the operation site. Antibiotic overuse and prescription volume have been found to be related to the prevalence of bacterial resistance.A prospective study was conducted for a period of 3 months to assess the prescription pattern of antibiotics in post-surgery patients admitted in the surgery ward inNavodaya Medical College, Hospital & Research Centre, Raichur. All prescriptions of antimicrobials in the operated patients admitted under the department of surgery were included in the study. The study revealed thatout of these, 37 were male and 23 were female. Nitroimidazoles were the most common antibiotic class which was prescribed (30.71%). Cephalosporin were the second most commonly prescribed class (28.5%). Followed by Aminoglycosides (27.14%), macrolides (5.71%) and penicillin (5.71%) Metronidazole (30.71%) was the mostprescribed antimicrobial agent, followed by amikacin (27.14%) and ceftriaxone (26.42%). Analysis of randomly selected case sheets of surgery ward showed that a total of 358medicines were prescribed to 60 patients, out of these 140 (39.1%) were antibiotics. A total of 60 patients were prescribed antibiotics with an average of 2 antibiotics per patients. The total number of drugs for encounter per prescription is between 5-8 drugs (68.33%). There should be rational use of antimicrobials to prevent SSI and enhance the rate of wound healing.

KEYWORDS: Antibiotics, Prescription pattern, post-surgery, rational use.

I. INTRODUCTION

Antimicrobial agents are widely used to prevent and treat infection in surgical operations during the perioperative period. Preoperative and intraoperative use of antimicrobials is intended for prophylactic purposes whereas postoperative use of antimicrobials is for a therapeutic purpose: to treat surgical site infection (SSI).[1]

Surgical site infections (SSIs) is one of the most common indications of antibiotic prescription in the surgical ward. SSIs are defined as infections occurring up to 30 days after surgery and affecting either the incision or deep tissue at the operation site. Despite improvements in prevention, SSIs remain a significant clinical problem as they are associated with substantial mortality and morbidity and impose severe demands on healthcare resources.[2]

Nevertheless, inappropriate use of antibiotics has been described worldwide in both community and hospital settings particularly in developing countries. The overuse and volume of antibiotic prescribing in communities has been found to correlate to the incidence of bacterial resistance.[3] Infections caused by resistant organisms limit treatment options, and with the lack of availability and development of new antibiotics, there has been little improvement in the armoury.[2]

The goals of administration to surgical inpatients focus on preventing SSI-related morbidity and mortality thereby reducing the economic burden on health care and minimizing the modification of patient's endogenous bacterial flora.There should be rational use of antimicrobials to prevent SSI and enhance the rate of wound healing.[4]

Clinical audit, in accordance with education, and prescribing guidelines can favourably change antibiotic prescribing patterns among practitioners.Thus, the present study was conducted to assess the prescribing pattern of the antibiotic in Department of Surgery at a tertiary care teaching hospital.

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II. MATERIALS AND METHODS

A prospective study was conducted for a period of 3 monthsfrom August 2022 to October 2022 in the Navodaya Medical College, Hospital & Research Centre, Raichur. All prescriptions of antimicrobials in the operated patients admitted under the department of surgery were included in the study. The sample size calculated for the study was 60. Participants who did not undergo surgical intervention and prescriptions without the doctor's signature and diagnosis were excluded from the study. The instrument used in the study is data entry form and prescription of the patient.

III. RESULTS

Total numbers of prescriptions collected were 60 from the surgery ward. Out of these 37 were male and 23 were female. Nitroimidazoles were the most common antibiotic class which was prescribed (30.71%). Cephalosporinwere the second most commonly prescribed class (28.5%), followed by Aminoglycosides (27.14%), macrolides (5.71%) and penicillin (5.71%). Metronidazole (30.71%) was the most prescribed antimicrobial agent, followed by amikacin (27.14%) and ceftriaxone (26.42%). Analysis of randomly selected case sheets of surgery ward showed that a total of 358medicines were prescribed to 60 patients, out of these 140 (39.1%) were antibiotics. A total of 60 patients were prescribed antibiotics with an average of 2 antibiotics per patients. The total number of drugs for encounter per prescription is between 5-8 drugs (68.33%).

Table 1: Distribution according to Gender group (N=60)

Gender	No. of Patients	Percentage (%)
Male	37	61.666
Female	23	38.334

Table 2: Distribution according to Age group (N=60)

Age (in years)	No. of Patients	Percentage (%)
1-10	2	3.33
11-20	5	8.33
21-30	6	10
31-40	10	16.66
41-50	10	16.66
51-60	13	21.66
61-70	5	8.33
71-80	9	15

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Table 3: Pattern of Usage of Drugs in Post-Operative Patients (N= 358)

Class Of Drugs	Number of Prescriptions	Percentage (%)
Antibiotics	140	39.1
Analgesics	80	22.3
Antacids	54	15.08
Anti-Emetics	35	9.77
IV Fluids	49	13.68

Fig 1: Distribution according to Class of Antibiotics (N=140)

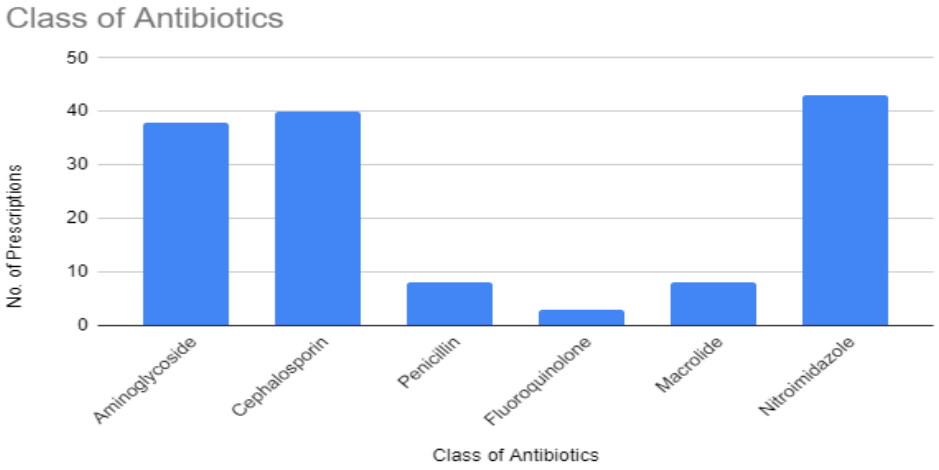

Fig 2: Distribution according to Number of Antibiotics (N=145)

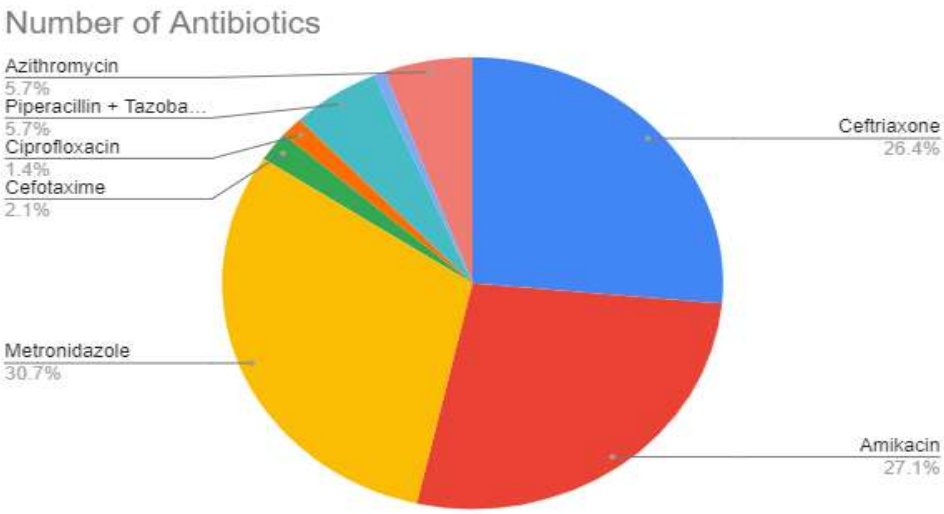

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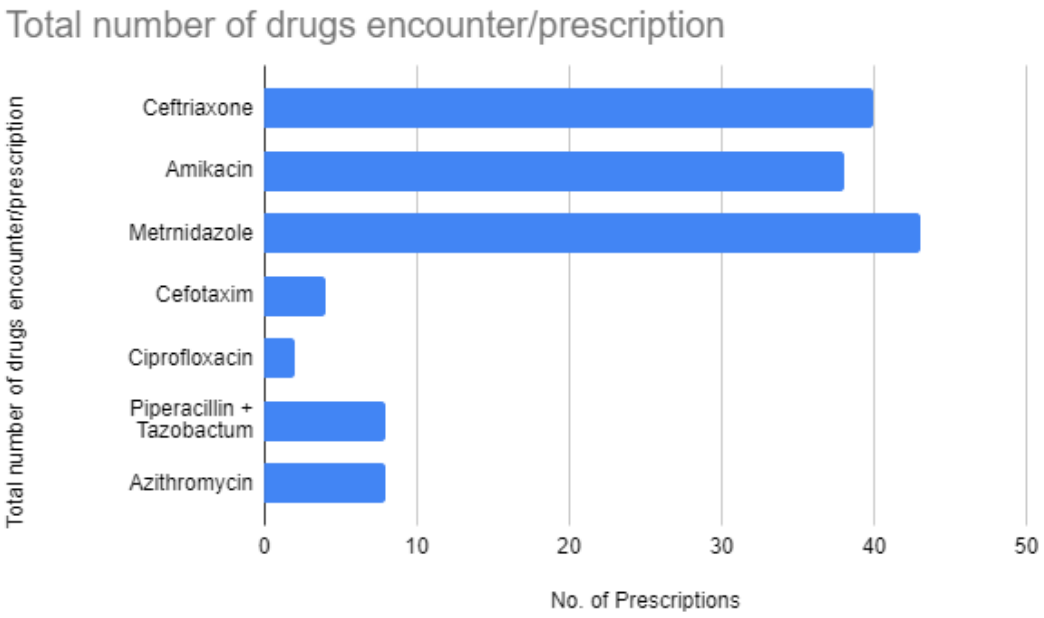
Fig 3: Distribution according to Total number of drugs encounter/prescription (N=60)



IV. DISCUSSION

In general practice, the surgical disease conditions are treated mostly empirically, with the goal of treating patients as precisely as possible.The present study was focused to assess the prescribing pattern of the antibiotic in Department of Surgery at a tertiary care teaching hospital.During the study period; we have collected a total number of 60 cases under surgical department. We found that most of the affected people were males with 61.66% (n=37) and females with 38.3% (n=23) which was in accordance with the study done bySangitaA D et al. which is almost similar to our data. Most of the people were under the age group of 51-60 years with 21.66 % (n=13) which is comparable to 57.08% in the study done. Drugs prescribed in the study population during post-operative stage in the descending order, Antibiotics (39.1%), Analgesics (22.3%), Anti-ulcer (15.08%), IVfluids (13.68%) and Anti emetics (9.77%).

Nitroimidazoles were the most common antibiotic class which was prescribed (30.71%). Cephalosporin were the second most commonly prescribed class (28.5%). Followed by Aminoglycosides (27.14%), macrolides (5.71%) and penicillin (5.71%). Metronidazole (30.71%) was the mostprescribed antimicrobial agent, followed by amikacin (27.14%) and ceftriaxone (26.42%). Antacids (15.08%) were the additional drugs prescribed to prevent the adverse effects of analgesics. Total no of drugs per prescription 5-8 (68.33%) of the study population, followed by 9-12 drugs (23.33%) and 0-4 (8.33%).

V. CONCLUSION

The practice of polypharmacy and high antibiotic prescription rate is a concern in our part of the country. In this study a total of 60 case records of post-operative patients were collected. The commonly used antimicrobials in this study were Nitroimidazoles followed by Cephalosporin and Aminoglycosides. This report is intended to be a step in the broader evaluation safety and efficacy of drug prescription. This study shows the usage of prescription pattern of drugs in post-operative patients. This study shows that poly pharmacy was found to be very common which is mostly observed in the case of antibiotics. Lack of generic drug prescribing was also observed.

ACKNOWLEDGEMENT

Authors take it as a privilege to acknowledge Medical Superintendent, Principal, physicians, nursing staffs and other healthcare professionals of study hospital for their support during our research work.

REFERENCES

[1]. Rayamajhi B et al. An Assessment of Antimicrobial Prescription Pattern among Surgical Patients: A Hospital Based Cross Sectional Descriptive Study. JSSN. 2021; 24(1):23-7.
[2]. Kujur L, Archana S, Ekka D. Antibiotic utilization pattern in the department of surgery in a tertiary care center in eastern India. Int. J. Surg. 2019; 6(1):4080-1.
[3]. Ravi G, Chikara G, Bandyopadhyay A, Handu S. A prospective study to evaluate antimicrobial prescribing pattern among admitted patients in hilly Himalayan region of northern India. J Family Med Prim Care. 2021; 10(4):1607-13.
[4]. Sane O, RohitD, Shahani R. Antibiotic Prescription Pattern in Surgical Wards of MGM Hospital, Kamothe. Int. J. Infect. Dis. 2018; 8(3):52-7.
[5]. Darkwah T, Afriyie K, Sneddon J et al. Assessment of prescribing patterns of antibiotics using National Treatment Guidelines and World Health Organization prescribing indicators at the Ghana Police Hospital: a pilot study. Pan Afr Med J. 2021; 39(1):222-3.
[6]. Ofori-Asenso R et al. A closer look at the World Health Organization's prescribing indicators. J PharmacolPharmacother. 2016; 7(1):51-4.
[7]. Haldeman MS, Kishimbo P, Seddon M, Sangare A, Mwasomola D, Hall J et al. Evaluation of antimicrobial utilization and concordance with national guidelines at a tertiary hospital in the southern highlands zone of Tanzania. AmJ Trop Med Hyg. 2020; 102(1):370–6.
[8]. Vasudavan S, Grunes B, Mcgeachie J, Sonis AL. Antibiotic prescribing patterns among dental professionals in Massachusetts. Pediatr Dent. 2019; 41(1):25–30.
[9]. Demoz GT, Kasahun GG, Hagazy K, et al. Prescribing Pattern of Antibiotics Using WHO Prescribing Indicators Among Inpatients in Ethiopia: A Need for Antibiotic Stewardship Program. Infect Drug Resist. 2020; 13(1):2783-94.
[10]. Kaur A, Bhagat R, Kaur N, et al. A study of antibiotic prescription pattern in patients referred to tertiary care center in Northern India. TherAdv Infect Dis. 2018; 5(4):63-8.