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PRESCRIBING PATTERN OF ANTIBIOTICS AMONG PRE AND POST-OPERATIVE CAESAREAN SECTION AMONG PRACTICING OBSTETRICIAN

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Abstract

Aim: The aim of present study is to evaluate the prescribing pattern and rational use of antibiotics in post-operative caesarean section (CS) in tertiary care hospital.

Materials and methods: Prospective observational case report study was conducted from July-2021 to November-2021. The complete data of 75 women who had undergone caesarean section like, age, line of management, number of antibiotic being prescribed before C section and during discharge, adverse effects and complications occurred during study was collected. Data was entered in MS excel sheet and analysed by descriptive statistics.

Results: Total of 75 post-operative caesarean section inpatients data was collected and analysed in the study. Cephalopelvic disproportion was the most common cause of C-section. Among 75 women, 31% were belongs to age group 25 to 30 years and remaining 69% were belongs to age group 31 to 35 years. Before C-section to prevent infections, most commonly prescribed antimicrobial agents were IIIrd generation Cephalosporin's (91.11%) and metronidazole (79.35%). Some patients also received other groups of antibiotics like Aminoglycosides (20.54%) and Penicillin (2.94%). During discharge most commonly penicillin were given (67.1%) followed by aminoglycosides (44.1%), tinidazole 32.35%, metronidazole (23.52%) and cephalosporin's 23.52%. All the drugs were prescribed in generic name and in small letters of English.

Conclusion: Usage of antimicrobial agents has become common either to prevent or to treat infections during or after cesarean section but, aseptic precautions must be the first approach to prevent infections. Prescribers should be cautious while prescribing antibiotics and also make sure the rationality of prescription.

Key words: Caesarean section, Cephalosporins, Aminoglycosides, Metronidazole.

INTRODUCTION

In 2017, an estimated 11.9 million cases of direct maternal infections were occurred worldwide[1] and 5.7 million women developed sepsis during pregnancy, childbirth or the postpartum period.[2] Puerperal sepsis is a life-threatening condition defined as organ dysfunction resulting from infection during pregnancy, childbirth, post-abortion or postpartum period.[3] Maternal infections during

childbirth also have a significant impact on newborn mortality, causing[1] 1 million newborn deaths annually.[4, 5]

Several factors such as prolonged prelabour rupture of membranes, multiple vaginal examinations, manual removal of the placenta, severe perineal trauma, operative vaginal birth, caesarean section and pre-existing maternal conditions (e.g. malnutrition, diabetes, obesity, severe anaemia, bacterial vaginosis and group B streptococcus infections are associated with increased risk of maternal infections.[6, 7] Caesarean section is the most important risk factor for infection during postpartum period, as compared with vaginal birth caesarian section has been associated with increased risk of maternal infections.

Worldwide, the incidence of post-caesarean infection varies from 2.5% to 20.5%[8]. The risk of infection can be reduced through sound surgical technique, correct use of topical antiseptic agents and antibiotic prophylaxis. We should try to improve the prevention, diagnosis and clinical management of sepsis[9]. An effective intervention for reducing morbidity and mortality related to maternal infection is the prophylactic and therapeutic use of antibiotics. Irrational use of the antibiotics is responsible for producing antibiotic resistance and now it has become a serious problem in developing countries. Not only resistance but it also add to cost of treatment and increases the mortality and morbidity of mother and newborn babies.

Hence forth, our study has been done to evaluate and analyze the prescribing pattern of antibiotics, and also to assess the rationality of the antibiotics use in women who had undergone caesarean section

MATERIAL AND METHODS

Prospective observational case report study was conducted from July-2021 to November-2021 in Kanpur city. The complete data of 75 womens who had undergone caesarean section (CS) like, age, line of management, number of antibiotic being prescribed before C section and during discharge, adverse effects and complications occurred during study was collected. Data was entered in MS excel sheet and analysed by descriptive statistics.

Inclusion criteria:

- Non progress of labour
- Acute foetal distress
- Intra uterine growth retardation
- Congenital malformation

Exclusion criteria:

- Septicemia/Sepsis
- Antipartum haemorrhoge
- Vaginal bleeding for more than one day

RESULTS

In the present study, a total of 75 case sheets were analyzed in 5 months which included patients admitted in gynecology department. All the patients were undergone caesarean section associated with either non progress of labour or acute foetal distress or intra uterine growth retardation and congenital malformation. These postoperative patients were prescribed antibiotics of different categories.

Table-1: Age Wise Distribution

Age group	Percentage (%)
25-30 years	39%
31-35 years	61%

Table-2: Prescribed antibiotics before C section

Class of antibiotics	Percentage (%)
Cephalosporin's	91.11
Metronidazole	79.35
Aminoglycosides	20.54
Penicillin's	2.94

Table-3: Prescribed antibiotics at discharge

Class of antibiotics	Percentage (%)
Penicillin's	67.1
Aminoglycosides	44.1
Tinidazole	32.35
Metronidazole	23.52
Cephalosporin's	23.52

Cephalopelvic disproportion causing non progress of labour was the most common cause of C-section. Among 75 women, 31% were belongs to age group 25 to 30 years and remaining 69% were belongs to age group 31 to 35 years.**Table-1** Before C-section to prevent infections, most commonly prescribed antimicrobial agents were IIIrd generation Cephalosporin's (91.11%) followed by metronidazole (79.35%). Some patients also received other groups of antibiotics like Aminoglycosides (20.54%) and Penicillin's (2.94%). **Table-2** During discharge most commonly penicillin's were given (67.1%) followed by aminoglycosides (44.1%), tinidazole 32.35%, metronidazole (23.52%) and cephalosporin's 23.52%. **Table-3** All the drugs were prescribed in generic name and in small letters of English. No adverse effects were found during study.

DISCUSSION

Antibiotics are 2nd maximum commonly prescribed drugs in the worldwide.[10] Unfortunately emerging antibiotic resistance is a prime worldwide public health challenge. At the same time, untreated infections are one of the primary causes of maternal mortality in low and middle-income countries. However, current WHO guidelines do not recommend routine antibiotic prophylaxis for women undergoing operative vaginal birth because of insufficient evidence of effectiveness.[11] Antimicrobials are regularly used as prophylaxis to prevent postoperative bacterial infection.

In our study, maximum numbers of patients were in age group between 30 to 35 years and maximum patients were given IIIrd generation cephalosporin's which is similar to another study[12] followed by metronidazole and aminoglycosides which indicates the high probability of bacterial infection after C section. Same pattern of antibiotic usage for prophylaxis purpose was observed in other studies.[13, 14] Cephalosporin groups of antibiotics are highly potent and have wide spectrum, active against both gram positive and gram negative organisms. In present study maximum of the antibiotics after surgical intervention were cephalosporin's (91.11%) followed by metronidazole (79.35%) and during discharge penicillin's (67.1%) were commonly prescribed followed by aminoglycosides (44.1%). Use of antibiotic prophylaxis is extensively advocated after caesarean segment due to the fact that it reduces occurrence of maternal infection[15] In 60% of prescriptions, drugs were prescribed by brand name, whereas in another study, drugs prescribed in generic name was 37.71%.[16,17]

CONCLUSION

Cephalosporins are most commonly prescribed antibiotics as prophylaxis to prevent bacterial infections in caesarean section and penicillin's are recommended during discharge. In majority of prescriptions, drugs were prescribed in generic name and in small letters of English. Usage of antimicrobial agents has become common either to prevent or to treat infections during or after

cesarean section but, aseptic precautions must be the first approach to prevent infections. Prescribers should be cautious while prescribing antibiotics and also make sure the rationality of prescription.

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