

ELECTIVE CAESAREAN SECTION; SHORT ANTIBIOTIC PROPHYLAXIS VERSUS PROLONGED ANTIBIOTIC THERAPY

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ABSTRACT... Objective: To compare short antibiotic prophylaxis versus prolonged antibiotic regime in terms of morbidity control of infection in patients undergoing elective caesarean section. **Study Design and Settings:** It was a experimental study done in Gynae/Obs unit I Holy Family Hospital Rawalpindi over a period of one year. **Patients and Methods:** Total of 200 patients selected randomly were admitted in antenatal ward for elective caesarean section. All these booked patients with age less than 40 years, gestational age of > 38 weeks, Hb >10g/dl, with no signs of genitourinary or respiratory tract infection were included in the study. These patients were divided in two groups with 100 patients in each group. In group I, short antibiotic prophylaxis in form of three doses of injectable antibiotic was given. In group II prolonged antibiotic regime was given as 5 days course. Augmentin was chosen as it has proven efficacy and good coverage for microorganisms of urogenital tract and skin. Injection Augmentin was given in dose of 1.2g (1g Amoxycillin + 200mg clavulanic acid) I/V x BD. All operation were performed by transverse lower segment caesarean section by registrars and consultants. Anaesthesia used was mostly spinal and more than 80% of the patients were having body mass index of <30. These patients were followed in postnatal ward for post operative infectious morbidity till discharge. Data collected through proformas was entered in computer and analyzed using SPSS. **Result:** Over all post operative infectious morbidity in group I was 29% and in group II 30% (p = 0.877). Post operative fever in group I was 09% and group II 08% (p = 0.800), while frequency of endometritis was found to be same in both groups which was 03%. No case of chest infection was recorded in both groups. Only 5% patients in group I and 4% patients in group II were reported to have urinary tract infection (p = 0.733). The most common complication found during study was wound infection, the rate being 12% in group I and 15% in group II (p = 0.535). So the overall results showed no statistically significant difference between two groups. **Conclusion:** Short antibiotic prophylaxis is as effective as prolonged antibiotic regimen. As it is cost effective and most of our patients come from low socio economic class, so this short antibiotic prophylaxis should be recommended routinely for all elective caesarean sections.

Key words: Elective caesarean section, short antibiotic prophylaxis, prolonged antibiotic regime, infectious morbidity.

INTRODUCTION

Caesarean section is probably the most common surgical procedure carried out in the field of obstetrics. Infectious morbidity is its common complication with reported rates of 18–83%^{1,2,3}. Prophylactic antibiotics have been shown to be highly effective in reducing the infective morbidity of caesarean section^{4,5}. Recent trends in surgical antibiotic prophylaxis are for shorter courses to be given one or at the most three doses. Short antibiotic prophylaxis decreases post partum infection rate without developing bacterial resistance We are still using prolonged antibiotic therapy in our setting, considering that facilities for

operation theatre sterilization are not ideal⁶. We expect that probably prolonged antibiotic therapy will be more effective to control infectious morbidity, although it is associated with extra burden for the patient pocket and paramedical staff as well as developing bacteria resistance.

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Therefore the efficacy and cost-effectiveness of two regimes that is three doses versus five days antibiotic therapy was evaluated. We conducted a comparative study in Gynae/Obs unit-I HFH over a period of one year.

PATIENTS AND METHODS

It was a randomized trial. Total of 200 Patients were selected and admitted in antenatal ward for elective caesarean section. So all booked patients of any parity, age <40 years, gestational age > 38 weeks, with no sign of genitourinary or respiratory tract infection were included in this study. They were divided in two groups with 100 patients in each group. Augmentin was chosen as antibiotic to be given in this study, because it has proven efficacy and good coverage for microorganisms of urogenital tract and skin.

In group I, short antibiotic prophylaxis was given in form of three doses of injection Augmentin 1.2g (1g Amoxycillim 200 mg clavulanic acid). I/V. First dose was given at the time of induction of anaesthesia and two doses given post operatively at 8 hourly interval.

In group II, prolonged antibiotic therapy was given i.e injection Augmentin 1.2 g at the time of induction of anaesthesia followed by 1.2 g. I/V x B.D till patient started taken orally when they were administered tab. Augmentin 625 mg TDS for 5 days. A standard operation techniques was used i.e transverse LSCS.

Patients were followed in postnatal ward for infectious morbidity till discharge. Infectious morbidity was measured in terms of postoperative fever, endometritis, wound infection, chest infection and urinary tract infection (UTI). Data collected through proformas was entered in computer and analyzed through SPSS.

RESULT

General Result: In this study according to parity, there were 13.5% primigravidae, 77.5% multigravidae and 9% grandmultiparae 88% patients had body mass index (BMI) <30, 12% have BMI between 30-40. Regarding surgical skills 72% operations were performed by registrars and 28% by consultants. Most common

anaesthesia used was spinal anaesthesia (76%), general anaesthesia used in 22% and epidural anaesthesia in 2.5% cases. Skin incision used was Pfannenstiel in 87% cases and only 13% had midline incision. Duration of surgery was less than one hour in 63 % cases and more than one hour in 37% cases.

Specific Result: Post operative fever was seen in 9% cases in group –I and 8% in group- II. While frequency of endometritis was found to be same in both groups which was 3%. No case of chest infection was recorded in either group. UTI was reported in 5% cases group- I and 4% cases and group-II. The most common complication found in both groups was wound infection i.e.12% in group-I and 15% in groups-II. So the overall post operative infectious morbidity in group-I was 29% and in group 30%. There was no statistically significant difference between two groups.

Post operative infectious Morbidity	Group-I	Group-II	P-value
Fever	9%	8%	0.8
Endometritis	3%	3%	-
Chest infection	0%	0%	-
UTI	5%	4%	0.733
Wound infection	12%	15%	0.535
Total	29%	30%	-

DISCUSSION

This study was carried out to see the effectiveness of antibiotic prophylaxis, when short courses of three doses of antibiotic is compared with long course of 5-7 days. Cost of short antibiotic prophylaxis is approximately one third of the cost of prolonged antibiotic regimen. The cost as well as the duration of treatment effects the patient's financial and family issues so the effectiveness of short antibiotic prophylaxis has been investigated. Various studies and recent literature have shown that antibiotic prophylaxis as a single dose to three doses effectively reduces the post operative infectious morbidity in elective caesarean section^{7,8,9}.

Regarding post operative complications, febrile morbidity was seen slightly less in group-I showing that short antibiotic prophylaxis does not increase the rate of post operative fever than prolonged antibiotic therapy. The first spike in temperature in these cases were recorded within the first 24 hours and there temperature returned to normal within 72 hours.

Another indicator of post operative infection is endometritis. In our study, it was diagnosed on clinical grounds of fever, uterine tenderness and abnormal lochia. In some studies, it is also a diagnosis of exclusion. Harger and English have shown increased rate of endometritis upto 20% in both groups^{10,11,12}. The reason probably was, they included emergency and elective caesarean sections in their study but in our only elective cases were included. The rate of endometritis was same in both groups i.e 3%. Retained products of conception were found in two cases while no growth obtained on high vaginal swab in three cases. No cause could be found in one case.

In our study UTI rate was just upto 5% while some studies have reported high rate of UTI e.g. Garibaldi found in his study 33% rate of UTI^{13,14}. The reason was that these patients had prolonged catheterization before operation and probably proper sterilization and management of urinary catheter was not observed¹⁵.

One of the most common complication seen in our study was wound infection which contributed to all cases of hospital stay more than one week. Seven cases had cellulites which settled with time. 14 cases had serous exudation, six cases had purulent exudates. Wound swab was sent for culture and sensitivity (C/S) and meanwhile local wound toilet and saline irrigation was done. Antiseptic dressing was done daily. 8 patients settled with conservative treatment. Only five cases showed on their C/S report. The most common organism was staphylococcus aureus (3 case). Pseudomonas aeruginosa (one case) and Enterococcus faecalis (one case). Isolation of bacteria that are not present in genital tract such as staphylococcus aureus (found in skin) and pseudomonas aeruginosa (found in hospital

environment), leads support to this iatrogenic aetiology of wound infection i.e related to long hospital stay, lapse in surgical techniques and haemostasis. Collection of blood and serous fluid in wounds may be due to the lack of proper haemostasis and surgical technique. These are excellent culture media that may result in infection if contaminated.

In our study no case of chest infection was reported. The reason was that we excluded all patients with pre-existing respiratory tract infection or any febrile illness. Most of the patients were given spinal anaesthesia and early mobilisation with breathing exercises was practiced. In our study the short course of prophylactic antibiotic effectively decreased the post operative infectious morbidity and the results are similar to prolonged antibiotic course. As short course decrease the cost of treatment and hospital stay, so are cost effective. It should be given to all patients under going elective caesarean section except in few cases in which risk of post operative infectious morbidity is high where prolonged antibiotic therapy may be given.

CONCLUSION

Short antibiotic prophylaxis is as effective as prolonged antibiotic regimen. It is cost effective so it should be recommended routinely for all elective caesarean sections.

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