International Journal of Current Advanced Research
ISSN: O: 2319-6475, ISSN: P: 2319-6505, Impact Factor: 6.614
Available Online at www.journalijcar.org
Volume 8; Issue 05 (D); May 2019; Page No.18770-18772
DOI: http://dx.doi.org/10.24327/ijcar.2019.18772.3596

Research Article

TIMING OF PROPHYLACTIC ANTIBIOTIC ADMINISTRATION IN WOMEN UNDERGOING TERM CAESAREAN SECTION

Shazia Parveen, Priyanka Singh* and Zehra Mohsin

Department of OBG, JNMCH, AMU, Aligarh

A R T I C L E I N F O

Article History:

Received 4th February, 2019
Received in revised form 25th March, 2019
Accepted 23rd April, 2019
Published online 28th May, 2019

Key words:

Antibiotics; caesarean section; postoperative infection

A B S T R A C T

Introduction: Caesarean section is the most common procedure performed on pregnant women globally. With increase in frequency of caesarean delivery the morbidity associated with the procedure is also increasing. The earlier practice regarding the timing of antibiotic was to administer a single dose at the time of cord clamping but now antibiotic prophylaxis is recommended within 60 minutes of the start of caesarean delivery.

The present study was undertaken to determine whether the administration of antibiotic prior to skin incision is superior to administration at the time of cord clamping for prevention of post caesarean infectious morbidity and to study the neonatal outcome in both groups.

Material & Methods: The study was conducted in the Department of Obstetrics & Gynecology, Jawaharlal Nehru Medical college, AMU, Aligarh after approval from the ethical committee of the institution. A total of 200 patients were included in this interventional experimental study. In group A (100) patients received antibiotic at the time of cord clamping and in group B(100) patients received antibiotic prior to skin incision.

Result: There was no significant difference in the incidence of fever, wound discharge, UTI, URTI, wound gaping, endometritis, rates of neonatal sepsis and NICU admission in the two groups.

Conclusion: The present study shows that there is no significant difference in the administration of prophylactic antibiotic before skin incision or at the time of cord clamping in the rates of total maternal infectious morbidity, wound infection and neonatal morbidity in terms of sepsis and NICU admission.

INTRODUCTION

Over the past three decades the rates of caesarean section have increased reaching upto 25% in some centres[(1)]. Caesarean delivery is associated with a significantly higher risk of postoperative infections than vaginal birth. The morbidity associated with this procedure has been reported as 8 folds higher than vaginal delivery[(2)]. Antibiotic prophylaxis reduces the risk of these infections.

The use of prophylactic antibiotics has resulted in 60-70% reduction in endometritis and 30-65% reduction in wound infection rates.The Cochrane review concluded that the incidence of puerperal infection is significantly reduced when antibiotic prophylaxis is given in all cases of caesarean section[(3)].The previous rationale regarding the timing of antibiotic was to administer it at the time of cord clamping. Evidence has shown that antibiotics given after cord clamping give almost comparable protection than those given before the procedure[(4)]. Early administration of antibiotic was believed to result in masking neonatal infections thus increasing the cost of neonatal septic workup, so it was avoided[(5)].Later studies have found no significant differences in the maternal and neonatal infectious morbidity whether the antibiotic was given prior to skin incision or at the time of cord clamping.

The prophylaxis now is recommended for all caesarean deliveries within 60 minutes prior to skin incision if the patient is not receiving antibiotics (e.g for chorioamnionitis).In emergency caesarean antibiotic prophylaxis should be administered as soon as possible preferably before skin incision.

MATERIALS AND METHODS

The study was an interventional experimental study conducted in the Department of Obstetrics and Gynaecology in collaboration with the Neonatal unit of Department of Pediatrics and Department of Microbiology, JN Medical college, AMU, Aligarh. The subjects were patients undergoing elective or emergency caesarean with no comorbid conditions or prior infections. Exclusion criteria were:

1. Women with fever or other evidence of infection
2. Prolonged rupture of membrane > 18 hours

Corresponding author:* **Priyanka Singh
Department of OBG, JNMCH, AMU, Aligarh

3. Women on antibiotics, obesity, HIV positive, Diabetic etc

The patients were divided into 2 groups with 100 patients each;Group A included patients who received prophylactic antibiotic(Single dose of Ceftriaxone 2g) at the time of cord clamping and Group B included patients receiving the dose prior to skin incision(within 30 minutes).The postoperative infectious morbidity and neonatal outcome were compared.

RESULTS

In our study the socio-demographic characterstics of the two groups were comparable with most women in Group A(53%) and Group B(53%) were in the 20-25 year age group.56% in Group A and 53% in Group B were primigravida.

Table 1 Showing indications of caesarean section among the groups

Indications of LSCS	Group A (N=100)		Group B (N=100)	
Fetal distress	76	76%	72	72%
CPD	08	08%	08	08%
Breech	06	06%	11	11%
Transverse lie	02	02%	00	0%
Placenta previa	01	01%	01	01%
Previous 2 LSCS	02	02%	02	02%
Previous LSCS	03	03%	01	01%

Most caesarean sections were done for fetal distress -76% in Group A and 72% in Group B,8% were for CPD and 6% and 11% for breech in Group A and Group B respectively(Table 1).Fever was the most common complication which was seen in15% patients in Group A and 08% patients in Group B. Wound discharge was present in 06% patients in Group A and 05% patients in Group B. Most common organism that caused surgical site infection in both groups was Staphylococcus aureus followed by coagulase negative staphylococci. The incidence of UTI was 5% in Group A and 7% in Group B. 1% of patients in both groups developed wound gaping (Table 2).Endometritis which is diagnosed as fever with unhealthy lochia and leucocytosis was found in 0% patients in both groups.The mean duration of hospital stay was slightly more i.e 5.8±2.1 in Group A and 6.1±2.3 in Group B but the difference was not statistically significant. None of the patients developed adverse effects due to the drug.

Table 2 showing incidence of postoperative complications

Postoperative complications	Group A No.	%	Group B No.	%	χ^2	P value
Fever	15	15	08	08	2.4	NS
Wound discharge	06	06	05	05	0.5	NS
UTI	05	05	07	07	0.35	NS
URTI	03	03	03	03		
Wound gaping	01	01	01	01		
Endometritis	00	0	00	0		

The mean birth weight of neonates in Group A was 2.8±0.4 kg and in Group B was 2.8±0.5 kg. Majority of neonates in both groups that is 96% in Group A and 95% in Group B had APGAR score of 7-9 at 5 minutes of birth. Neonatal sepsis was found to be 3% in both groups.5% neonates in Group A and 3% in Group B developed respiratory distress. 9% babies in Group A and 7% in Group B required NICU admission (Table 3).There was no significant difference in the rates of sepsis or NICU admission between the two groups.

Table 3 showing neonatal outcome in both groups

Neonatal Outcome	Group A No.	%	Group B No.	%
Normal	90	90	93	93
Neonatal sepsis	03	03	03	03
Respiratory distress	05	05	03	03
Neonatal jaundice	01	01	01	01
NICU admission	09	09	07	07
Congenital anomaly(TOF)	01	01	00	0
Neonatal mortality	01	01	02	02

DISCUSSION

The rates of caesarean section in many countries have increased beyond the recommended level of 5-15% by WHO. In our hospital which is a referral centre it is 36.6%.The caesarean section rate in USA was reported to be 32.8%.In our study the total infectious morbidity in Group A was 8% compared to 10% in Group B and the difference was not found to be statistically significant. Witt *et al*[6] reported lower incidence of total infectious morbidity i.e 3.7% in Group A and 4.8% in Group B. They reported wound infection rate of 2.4% in both the groups. Sullivan *et al*[7]found a total infectious morbidity of 11.5% in Group A and 4.5% in Group B,5.4% patients in Group A and 1.1% patients in Group B developed endometritis,17% patients in Group A and 13.5% neonates in Group B required NICU admission and 3.6% neonates in Group A and 3.2% in Group B developed neonatal sepsis. This is comparable to neonatal sepsis rates found in our study which were 3.0% in both the groups. Thigpen *et al*[8] reported a total infectious morbidity rate of 20.1% in Group A and 11.7% in Group B, wound infection rates of 5.3% and 3.9% respectively, endometritis to be 14.7% in Group A and 7.8% in Group B. In their study NICU admission was found to be 5.3% in Group A and 9.1% in Group B and the incidence of neonatal sepsis was 4.6% in Group A and 4.5% in Group B.

CONCLUSION

Caesarean section is the most common surgical procedure performed now a day. It is associated with significantly higher risk of post operative infections than the vaginal birth. Antibiotic prophylaxis can reduce the risk of these infections. In addition to antibiotic, maintenance of asepsis by the staff and patient is also important

Evidence based studies do not recommend the use of multiple doses of antibiotic. Single dose of regimen is safe and cost effective. Cephalosporins are the drugs of choice for prophylaxis. The present study shows that there is no significant difference in administration of prophylactic antibiotic before skin incision or at the time of cord clamping in the rate of total maternal infectious morbidity a neonatal morbidity.

Further more in our study the sample size is small hence further studies with bigger sample size are required to make the recommendation.

References

1. Placek PJ, Taffel SM. Recent pattern of cesarean delivery in the United States. Obstetrics and gynaecology, clinic of north America, 1988, 15:607-27
2. Neilson TF, Hokegard KH, postoperative cesarean sections morbidity: a prospective study. American journal of obstetrics and gynaecology 1983, 146:911-6

3. Smaill F, Hofmeyr GJ. Antibiotic prophylaxis for cesarean section the Cochrane library, 2002, issue 1.
4. Cunningham FG, Leveno KJ, DePalma RT, Roark M, Rosenfeld CR. Perioperative antimicrobials for cesarean delivery: before or after cord clamping. obstet gynecol. 1983;62:151-154
5. Costantine MM, Rahman M, GhulmiyahL , *et al*. Timing of perioperative antibiotic for cesarean delivery: a metaanalysis. Am J Obstet Gynecol. 2008;199(3):301,e1-6
6. Witt A, Dononer M, petricevic L, *et al*. antibiotic prophylaxis before surgery vs after cord clamping in elective cesarean delivery: a double-blind, prospective, randomized, placebo-controlled trial. Arch surg2011;146:1404-9
7. Sullivan SA, smith T, Chang E, Hulsey T, Vandoster JP, Soper post cesarean infection morbidity a randomized controlled trial, AM J Obstet gynecol2007 :96:4545
8. Thigpen BD, Hood WA, Chauhan S, *et al*. Timing of prophylactic antibiotic administration in the uninfected laboring gravida: a randomized clinic trial. Am J obstet Gynrcol.2005;192(6):1864-8. Discussion 1868-71

How to cite this article:

Shazia Parveen, Priyanka Singh and Zehra Mohsin (2019) ' Timing of Prophylactic Antibiotic Administration in Women Undergoing Term Caesarean Section', *International Journal of Current Advanced Research,* 08(05), pp. 18770-18772.
DOI: http://dx.doi.org/10.24327/ijcar.2019.18772.3596

****