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Maternal and Fetal Outcome in Emergency versus Elective Caesarean Section

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ABSTRACT

Background: Caesarean section is one of the most performed surgical procedures all over the world. It is associated with high morbidity and mortality as compared to vaginal delivery. The present study was carried out to evaluate the maternal and neonatal outcome and complications in two groups of pregnant women who underwent elective and emergency cesarean section, so that measures can be taken to reduce morbidity and mortality in near future.

Methods: It was hospital based descriptive cross-sectional study carried out at Paropakar Maternity and Women's Hospital from October to December 2018. There were 340 patients enrolled in the study 170 in elective and 170 in emergency caesareans selected randomly. Ethical approval was obtained from the Institutional Review Board and informed consent was taken from the patients and patients' guardians. Data were collected daily from the Operation Theater.

Results: The rate of caesarean section in the hospital was 30.7%. Proportion of emergency caesarean section was 1324 (74.4%) and elective caesarean section was 456 (25.6%). Emergency Caesarean section was more common in younger age group and in primigravida while elective Caesarean section was more common in advanced age group and in multigravida. The most common indication for emergency Caesarean section was Fetal Distress and the most common indication for elective Caesarean section was previous cesarean with refused vaginal delivery after cesarean section. The maternal outcome in terms of post-operative wound infection, (post-partum hemorrhage, urinary tract infection need for blood transfusion, fever and need for maternal intensive care unit admission was significantly (p-value <0.05) higher in emergency Caesarean section than in elective Caesarean section .The fetal outcome in terms of birth asphyxia, meconium stained liquor and need for Neonatal ICU admission were significantly (p – value <0.05) higher in emergency Caesarean section than in elective Caesarean section.

Conclusions: Maternal and fetal complications were significantly higher in the emergency caesarean section as compared to elective caesarean section group.

Keywords: Fetal outcome; emergency cesarean section; elective cesarean section; maternal outcome.

INTRODUCTION

Caesarean delivery is the birth of a fetus through incisions in the abdominal wall and the uterine wall.[1] Cesarean section (CS) is one of the most commonly done procedures in obstetric practice now-a-days and is a life-saving surgery for mother as well as fetus.[2] World Health Organization suggested that caesarean rate should not exceed 15%[3], however the rate of cesarean section delivery are increasing.[4] Cesarean sections are associated with short- and long-term risks and affect the health of the woman, her child, and future pregnancies.[5-7]

Cesarean section performed as an emergency or elective procedure is entirely different entities according to measures taken, facilities and preparation done. Furthermore, the maternal and fetal conditions in two different circumstances do affect the ultimate outcome.[8,9] This study aimed to evaluate the maternal and neonatal outcome and complications in two groups of pregnant women who underwent elective and emergency cesarean section.

METHODS

This was the hospital based descriptive cross-sectional

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study, carried out in the Department of Obstetrics and Gynecology at Paropakar Maternity and Women's Hospital (PMWH), Thapathali, Nepal during October to December 2018. Ethical approval was obtained from the Institutional Review Board, National Academy of Medical Sciences and Paropakar Maternity and Women's Hospital. Singleton pregnancy, maternal age between 20-34 years, gestational age of 37 to 41 completed weeks who had underwent cesarean section during the study period were enrolled in the study whereas, classical cesarean section, previous two or more cesarean section, multiple pregnancies, systemic illnesses like diabetes mellitus, gestational hypertension, heart disease, chronic renal disease, psychiatric illness, and HIV positive were excluded from the study. Informed written consent was taken after explaining about the indication, risk and benefit of the procedure.

Participants were enrolled either from emergency or outpatient department. Detailed history including the patient's demographic status and related medical and surgical history, obstetric history, family history, drug history, and referral status, number of ante-natal visits and history of present pregnancy were recorded in the proforma sheet. The gestational age and estimated date of delivery was calculated from her last menstrual period and early ultrasonography if available. Patient's general condition and vital signs in terms of pulse rate, blood pressure in both arms in sitting position with an appropriate cuff, respiratory rate and temperature were recorded. Systemic and obstetric examination were done and recorded.

The data of maternal outcome including post-partum hemorrhage (PPH), post-operative fever, urinary tract infection (UTI), post-operative wound infection, need for blood transfusion, and need for Maternal ICU admission were recorded. All patients enrolled were followed up till discharge. The neonates were followed up in the Neonatal Intensive Care Unit (NICU) and in wards. Data for outcome of the neonate including APGAR Scoring at 1 minute and 5 minutes of birth, need of neonatal intensive care unit admission and meconium aspiration were recorded.

The maternal and fetal outcome of each case was entered in the pre-designed proforma. All data collected were entered in Microsoft Office Excel worksheet and statistical Analysis was done using Statistical Package for social science (SPSS) version 24.

RESULTS

Total 340 patients, who underwent cesarean section during the study period were enrolled in this study, these patients were divided in two groups, 170 in elective and 170 in emergency cesarean section. Total number of deliveries during study period was 5787. Total number of cesarean sections was 1780 and the rate of cesarean section was 30.7%. The proportion of emergency cesarean section was 74.4% and elective cesarean section was 25.6% (Table 1and 2).

Table 1. Rate of caesarean section during the study period at PMWH.

Total numbers of deliveries	Total numbers of cesarean sections	Rate of CS (%)	Emergency CS n (%)	Elective CS n(%)
5787	1780	30.7 %	1324 (74.4%)	456 (25.6%)

Table 2. Age distributions of women undergoing CS (n= 340).

Age (years)	Emergency cesarean section n (%)	Elective cesarean n (%)	P- value
<20 years	10 (5.8%)	10 (5.8 %)	0.56
20-25 years	100 (58.8%)	30 (17.6%)	0.03
26-30 years	50 (29.4%)	110 (64.7%)	0.02
>30 years	10 (5.8 %)	20 (11.7 %)	0.64

The most common indication for emergency CS was fetal distress table 3. and the most common indication for elective CS was previous cesarean with refused vaginal birth after cesarean section (VBAC) (Table 4).

Table 3.Distribution of emergency cesarean according to indications (n=170).

Indications	Emergency cesarean section (n)%
Fetal distress	98 (57.6 %)
Failed induction	18 (10.5 %)
Non-progress of labour	11(6.4 %)
Previous LSCS in labour	11(6.4%)
Malpresentation	9 (5.2%)
PROM with severe oligohydramnios	9 (5.2%)
Antepartum hemorrhage	6 (3.5%)
Eclampsia	5 (2.9%)
Prolong 2nd stage of labour	3 (1.7%)

Table 4. Distribution of elective cesarean according to indications (n=170).

Indications	Elective cesarean section
(n) %	
Previous CS with refused VBAC	114 (67.0%)
Malpresentation	26 (15.2%)

Cephalo-pelvic disproportion (CPD)	19 (11.1%)
Placenta previa	6 (3.5%)
Oligohydroamnios	5 (2.9%)

Table 5. Comparison of maternal outcome between elective and emergency Caesarean group.

Maternal outcome	Emergency cesarean section	Elective cesarean	P-value
%	Elective cesarean section		
Wound infection	57 (33.5%)	12 (7.0%)	0.02
PPH	32 (18.8%)	11 (6.4 %)	0.01
Urinary tract infection (UTI)	28 (16.4%)	4 (2.3%)	0.03
Need for blood transfusion	24 (14.1%)	13 (7.6%)	0.02
Fever	20 (11.7%)	6 (3.5%)	0.04
Need for MICU admission	18 (10.5%)	5 (2.9%)	0.01

Table 6. Comparison of fetal outcome in between emergency and elective CS.

Fetal outcome	Emergency cesarean section	Elective cesarean section	P value
Birth asphyxia	69 (40.5%)	21 (12.3%)	0.02
Meconium stained Liquor	78 (45.8%)	6 (3.5%)	0.01
Need for NICU admission	63 (37.0%)	20 (11.7%)	0.03

DISCUSSION

Pregnancy and parturition are events of considerable significance in the life cycle of women. When cesarean section is done appropriately it can improve the overall outcome of both the neonate and mother. However, when done inappropriately the potential harm may exceed the potential benefit of cesarean section.

During the study period the incidence of cesarean section in PMWH was 30.2% which exceeded the WHO recommendation. This hospital is a government tertiary care center where patients are referred from all over the country. This explains the high rate of CS than recommended by WHO. The result was similar to the study done by Thakur et al[10] in which cesarean delivery rate was 30.2%. The result was also comparable to the study by Suwal et al[11] in which the incidence of cesarean section was 254 (22.3%).

This study showed higher incidence of emergency CS in younger age group i.e. 20-25 years whereas incidence of elective CS was common in advanced age group i.e. 26-30 years, which was statistically significant (p value <0.05). This finding was similar to study by Thakur et al[10] in which 58.1% of emergency CS group were in 18-25 years. In emergency (58.1%) while 46.12 % in 26 - 30 years elective CS group, in contrast to this finding study by Ghazi et al[12] the age group in group emergency CS (98%) and elective CS group (92%) was highest between 20- 30 years.

In this study, majority of the patients in emergency CS group (73.5%) were primigravida whereas majority of patients in elective CS group (66.4%) were multigravida. This finding was comparable to the study done by Suwal et al[11], by Gurunule et al[13], Soren et al[14] in which maximum patients who underwent emergency CS were primigravida and most patients who had elective CS were second gravid.

In this study the most common indication for emergency CS was fetal distress and least common was prolonged second stage of labour, while most common indication for elective CS was previous CS with refused VBAC and least common was oligohydroamnios. This finding was similar to the studies by Benzouina et al[15], Suwal et al [11], Lulu et al[16], and Elvei-Ga et al.[17]

In our study maternal complications like post-operative wound infection, PPH, UTI, need for blood transfusion, post-operative fever in emergency CS were significantly higher than that in elective CS group (p- value < 0.05).[9,11,14,15,17-19]

In this study the fetal complications like meconium stained liquor, birth asphyxia, need for NICU admission were significantly higher than that of elective CS group (p- value < 0.05).[11,13,14,15,17]

CONCLUSIONS

Emergency cesarean delivery was associated with significantly higher maternal and fetal complications than elective caesarean sections. Timely decision for cesarean delivery and vigilant care in post-operative period decreased the fetal and maternal complications.

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