

COMPARISON OF MATERNAL AND PERINATAL OUTCOME IN ELECTIVE AND EMERGENCY CESAREAN SECTION IN A TERTIARY CARE CENTRE

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ARTICLE INFO

Article History

Received : 5 February, 2019

Accepted : 22 April, 2019

Published : 30 April, 2019

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ORA 101

DOI: <http://dx.doi.org/10.3126/bjhs.v4i1.23933>

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Citation

Subedi A, Shrestha J, Adhikari KM, Shrestha A, Gurung S. Comparison of Maternal and Perinatal Outcome in Elective and Emergency Cesarean Section in A Tertiary Care Centre. BJHS 2019;4(1)8: 616 - 620.

ABSTRACT

Introduction

Cesarean delivery is the birth of a fetus via laparotomy and then hysterotomy. There are increased maternal and fetal morbidities and mortalities associated with such delivery, more in emergency cesarean section. Various studies have shown increasing trend of this mode of delivery worldwide leading to an increase in its associated risks and cost to the patients.

Objective

The objective of the study was to compare the maternal and perinatal outcome in elective and emergency cesarean section.

Methodology

It was a prospective comparative study conducted in the department of obstetrics and gynecology, Manipal Teaching Hospital from March, 2018 to September, 2018. All the patients undergoing cesarean section either elective or emergency were enrolled in the study after their consent. After collecting data from patients, maternal and perinatal outcomes were analyzed by using SPSS software.

Results

There were total 1254 deliveries in the study duration, out of which 461(36.76%) were cesarean section (cs). The incidence of emergency cs was 86.5% and elective cs was 13.5%. Majority of women (75.7%) undergoing cs had no any antenatal visit. Around 81% of cases undergoing emergency cs were unbooked whereas only 48.4% of unbooked cases underwent elective cs (P-value 0.000). The most common indication for cs in both elective and emergency category was previous cs. There was no maternal complication in elective cs group but there were 8 cases (2%) in emergency cs (P value-0.293). In emergency cs group, 7 babies had poor Apgar score whereas all babies had good Apgar score in elective group (P-value-0.057). There was increased rate of NICU admission in emergency group than in elective group (3% vs 0%, P value-0.166).

Conclusion

The study showed that the incidence of cesarean section was high in our centre. The maternal and fetal risks were higher in emergency cs than in elective cs, but these were not statistically significant.

KEY WORDS

Cesarean section, pregnancy, perinatal, tertiary care centre



INTRODUCTION

Cesarean delivery is the birth of a fetus via laparotomy and then hysterotomy.¹ Depending upon the time of operation, it is divided into elective and emergency cesarean section (cs). Cesarean section is associated with increased risk of maternal and perinatal morbidity and mortality in comparison to vaginal delivery.² It is seen that morbidity and mortality are associated more with emergency cesarean sections than with elective ones.^{3,4}

According to WHO, the cs rate should be in between 10-15% as rate above this has not shown any improvement in the maternal and perinatal outcomes.⁵

Recently, there has been an alarming increase in the rate of cesarean section globally, predisposing women to increased risk and cost of the surgery. According to the latest data from 150 countries, currently 18.6% of all births occur by cesarean route, ranging from 6% to 27.2% in the least and most developed regions, respectively. Based on the data from 121 countries, the trend analysis showed that between 1990 and 2014, the global average cs rate increased 12.4% (from 6.7% to 19.1%) with an average annual rate of increase of 4.4%.⁶

In our centre, the cesarean rate is around 40% from the annual records and till now no studies have been done to evaluate the maternal and perinatal outcome. So this study aims to compare maternal and perinatal morbidities in elective and emergency cesarean sections in a tertiary care centre.

METHODOLOGY

It was a hospital based comparative study which was conducted in the Department of Obstetrics and Gynecology, Manipal Teaching Hospital, Pokhara. The study was conducted from March, 2018 to September, 2018. After taking approval from Institutional Review Committee, all the patients undergoing cesarean section either elective or emergency cesarean sections were enrolled in the study after their consent.

After the cases were enrolled, detailed history regarding age, parity, booking status, previous obstetric outcome, any significant past, family and personal history were taken and noted in a predesigned proforma. Booking status of the patient was defined as women having at least 3 antenatal visits in our centre. Indications for cesarean section, intra operative complications were noted. The cases were followed for 7 days postpartum and any puerperal complications like puerperal pyrexia, secondary postpartum hemorrhage (PPH), wound infection or maternal mortality were noted.

In cases of maternal mortality, further details were taken from the records of the deceased patients.

For evaluation of perinatal outcome, Apgar score at 5 minute, need of NICU admission, still birth and early neonatal death were recorded.

The data were entered and analyzed using SPSS software and results were expressed in terms of percentage, categorical data were compared using Chi square and means were compared using unpaired t test and P value <.05 was taken significant.

RESULTS

There were total 1254 deliveries in the study period. Total number of cesarean section was 461, the incidence being 36.76% of total deliveries. Among 461 cesarean section, 399 (86.5%) were emergency and 62 (13.5%) were elective cs.

The mean age in elective cs was 27.98±4.083 and emergency cs was 25.71±4.809 and this difference in mean age was statistically significant (P value=0.000) (Table 1).

Table 1: Age Distribution

	Type of cesarean section		P value
	Elective cs	Emergency cs	
Mean age	27.98±4.809	25.71±4.809	0.000

In elective cs group, 56.5% were booked and 43.5% were unbooked cases. In emergency cs, majority of cases (80.7%) were unbooked and only 19.3% cases were booked. So unbooked cases underwent more emergency cs than elective cs and this was statistically significant (Table 2).

Table 2: Booking status of patients

Booking status	Type of cesarean section		P_value
	Elective cs (n,%)	Emergency cs (n,%)	
Booked	35 (56.5)	77(19.3)	0.000
Unbooked	27 (43.5)	321(80.7)	

In the study, the most common indication for cesarean section in both elective and emergency cesarean groups was previous cs, accounting 43.54% in elective cases and 19.29% in emergency cases. The other common indications for cs in elective and emergency groups were cephalopelvic disproportion (CPD) (22.58% vs 11.58%) and breech (19.39% vs 5.26%). In emergency cases, the other common indications were oligohydraminos (17.54%), meconium stained liquor (17.04%), fetal heart rate abnormality (11.02%), non progress of labor (7.76%) and hypertensive disorders in pregnancy (5.76%).

Table 3: Indication of cesarean section

Indication of cs	Elective cs (62) N(%)	Emergency cs (399) N(%)
Previous cs	27 (43.54)	77(19.29)
Cephalopelvic proportion(CPD)	14(22.58)	46(11.58)
Breech	12(19.39)	21(5.26)
Oligohydraminos	1(1.61)	70(17.54)
Meconium stained liquor	0	68(17.04)
Fetal heart rate abnormality	0	44(11.02)
Non progress of labor	0	31(7.76)
Hypertensive disorder	1(1.61)	23(5.76)
Antepartum hemorrhage	0	5(1.25)
Bad obstetric history (BOH)	2(3.22)	0
Abnormal lie	2(3.22)	4(1.00)
Failed induction	0	4(1.00)
Failed vacuum	0	1(.25)
Heart disease	1(1.61)	1(.25)
Twin	0	3(.75)
Previous myomectomy	1(1.61)	0
Previous uterine rupture	1(1.61)	0
Sub fertility	0	1(.25)

The mean blood loss in elective cs was 236.29 ±74.2 ml and in emergency cs was 228.92±78.85 ml. The study showed higher blood loss in elective cases than in emergency ones; however this was not statistically significant (Table 4).

Table 4: Mean blood loss

	Type of cesarean section		P value
	Elective cs	Emergency cs	
Mean blood loss	236.29±74.2	228.92±78.85	0.442

There were no maternal complications in elective cesarean group. However, there were 8 cases of maternal complications in emergency cs, the incidence being 2%. The complications seen in emergency cs were 3(37.5%) cases of postpartum hemorrhage and 1(12.5%) case each of high spinal block, postpartum eclampsia, puerperal pyrexia, rectus sheath hematoma and wound infection. There were increased maternal complications in emergency group but it was not statistically significant (Table 5).

There were no cases of maternal mortality during the study period.

Table 5: Maternal complications

Maternal complications	Type of cesarean section		P value
	Elective cs (n=0)	Emergency cs(n=8,2%)	
Postpartum hemorrhage	0	3	0.293
Puerperal pyrexia	0	1	
Wound infection	0	1	
Rectus sheath hematoma	0	1	
Postpartum eclampsia	0	1	
High spinal block	0	1	

There were 7 cases of poor Apgar score in emergency cs. There were no cases of poor Apgar score in elective group. However this difference was not statistically significant (Table 6).

Table 6: Apgar score

Apgar score	Type of cesarean section		P value
	Elective cs	Emergency cs	
Poor	0	7	.0576
Good	62	392	

Regarding NICU admission, there were 12 cases of NICU admission in emergency cesarean section, the rate of admission being 3%. No newborn were admitted in NICU in elective group. And this difference in the rate of admission was not statistically significant (Table 7).

Table 7: NICU admission

NICU admission	Type of cesarean section		P value
	Elective cs	Emergency cs	
yes	0	12	.166
no	62	387	

There was no case of perinatal mortality during the study period.

DISCUSSION

Cesarean section is the most commonly performed life saving procedure in obstetrics; however it is associated with increased maternal and fetal complications.⁷

In our study, the rate of cesarean section was 36.76% of total deliveries. In the study conducted by Suwal A⁸ in tertiary level centre in Kathmandu, the incidence of cs was 22.3%. A retrospective study was conducted in Zambia by Sichundu et al⁹ in which cs rate was 26.72% and in a study at India by Daniel S et al,¹⁰ the rate of cs was 28.7%. The average global rate of cs is 18.6%.⁶ The higher rate of cs in our centre can be explained by the fact that it is the referral centre of Province no. 4 where we get a great ordeal of maternal and fetal complications, where usually the mode of delivery required is cesarean section.

The mean age in emergency group was less than in elective group in our study and this difference was statistically significant, and the result was similar to the studies done by Vesna Elvei-Gasparovic et al,¹¹ Renuka P¹² and Thakur V et al.¹³

Regarding booking status in our study, unbooked cases underwent emergency cs more than elective cs and this finding was statistically significant. The study by Diana V¹⁴ also showed that women with no antenatal care were supposed to have more chance of emergency cs. With no proper supervision during pregnancy, women tend to seek advice only when complications arise. Hence we may conclude that regular antenatal visit may play a significant role in lowering the emergency cesarean rate.

The most common indication of cs in both groups was previous cs. The other indications for emergency cs were mainly fetal indications like oligohydraminos, meconium stained liquor, cephalopelvic disproportion and fetal heart rate abnormalities in our study. Various other studies support our findings.¹⁴⁻¹⁷ So, we should all focus on reducing the primary cesarean rate to decrease the overall cesarean rate globally by revising our indications and standardizing instrumental delivery, which has become obsolete these days.

Maternal complications were seen in 2% of emergency cs whereas no complication was seen in elective group. However this difference was not statistically significant. Burshan et al¹⁸ also stated that emergency cs was associated with increased maternal morbidities and it was statistically significant in their study. This statistical insignificance in our study may be due to less number of patients in elective group. The complications like PPH, puerperal pyrexia, high spinal block, rectus sheath hematoma and wound infection were seen in emergency cesarean group in our study. Various studies showed different complications. In the study done by Ghazi et al¹⁹ in Pakistan, maternal complications were higher in cs group, the most common being postoperative anaemia. In the study by Santhanalakshmi et al²⁰, the most common maternal complications in emergency group were primary hemorrhage and bladder injury. This difference in the pattern of maternal complications in various studies may be due to difference in indications of cesarean section, level of care provided in different hospitals and designation of service provider.



There were no cases of maternal mortality in either group in our study. This may be due to efficient management of cases in our center, as well as short study duration. In the study by Gurunule AA,¹⁶ the incidence of maternal mortality in emergency cs was 0.3% and no mortality in elective group. Various studies showed that maternal mortality was higher in emergency group than in elective group.^{17,21,22} Such differences may be due to the fact that elective cases are performed on prearranged time with optimization of both maternal and fetal conditions whereas emergency ones are done due to unseen maternal and fetal risks, predisposing to increased risk of complications.

Regarding fetal outcome, emergency cesarean section was associated with poor Apgar score and increased NICU admission, as majority of emergency cs were done for fetal indications. However these findings were not significant statistically. In the study by Schindu P et al,⁹ 11.4% of emergency cs and 9.8% of cases in elective group had poor perinatal outcome but this finding was not significant. Similar results were depicted by other studies as well.^{11,17,23} There were no cases of perinatal mortality in our study.

CONCLUSION

The rate of cesarean section is high in a tertiary care centre. Emergency cesarean is always associated with increased maternal and perinatal complications than in elective cesarean ones.

RECOMMENDATIONS

Since we are aware of the fact that cesarean sections are always associated with increased maternal and perinatal

risks than vaginal delivery, this study recommends in reducing cesarean delivery in both the emergency or elective ones by revisiting our indications for cesarean sections, decreasing our fear of litigations, by standardizing the skills of instrumental delivery of the nursing staffs, doctors and also encouraging patients to have regular antenatal care so that any complications can be caught earlier and treated before it's too late.

LIMITATION OF STUDY

This study was done for a short duration of time. The sample size of study population was also small and there was significant difference in the number of patients in emergency and elective group. So the differences seen were not statistically significant in most of our findings. So the findings cannot be generalized.

ACKNOWLEDGEMENT

We would like to thank first the Institution Review Committee for granting us the permission to conduct the study. We would also like to express our gratitude to the hospital administration for allowing us to conduct the study in the department of Obstetrics and Gynecology of Manipal Teaching Hospital. We also like to acknowledge the help received from our students and residents.

CONFLICT OF INTEREST

We declare no conflict of interest.

FINANCIAL DISCLOSURE

None

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