A Comparative Study on Maternal Outcome in Emergency LSCS Versus Elective LSCS in a Tertiary Care Hospital in Karnataka

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ABSTRACT

Introduction: Caesarean section is the delivery of a baby, alive or dead, through an abdominal uterine incision after the period of viability. RCOG proposed a classification relating the degree of urgency to the presence or absence of maternal or fetal compromise. The nature of the caesarean section performed as emergency (category 1&2) or elective (category 3&4) is predicted depending on the indication. This study was conducted to study the indications and compare the maternal intrapartum and postpartum complications in both the groups.

Materials and Methodology: A prospective observational study on maternal outcome in an emergency (RCOG category 1&2) and elective (RCOG category 3&4) caesarean section was carried out in Yenepoya Medical College Hospital. Sample size was 100 with 50 participants in each group. Relevant antenatal, intranatal data, indications of LSCS, intraoperative and postoperative complications, were collected from the patients.

Results: Out of the 100 participants, primigravidae accounted for 24 % of the total caesarean sections & 46% of those who underwent emergency LSCS. Whereas gravida 2 comprised 41% of the total caesarean sections and 56% of those who underwent elective caesarean section. This difference in the obstetric score was highly significant ($p=0.000$).

The most common indication of LSCS in the elective group was previous 1 LSCS not willing for VBAC, accounting for 68%, whereas most common indication for emergency LSCS was fetal distress, accounting for 32%.

Conclusion: Primigravidae are more prone for emergency caesarean section. Fetal distress was the most common indication of emergency caesarean section mainly in primigravidae; meticulous labor management may help in decreasing the same. Elective caesarean section rates may be brought down by decreasing the rate of primary caesarean section, as most women in this group had undergone caesarean section due to previous LSCS.

Key Words: Caesarean complications, Caesarean outcome, Emergency LSCS, Elective LSCS, Maternal outcome, Previous caesarean section

INTRODUCTION

Caesarean section is the delivery of a baby, alive or dead, through an abdominal uterine incision after the period of viability.¹ RCOG² proposed a classification relating the degree of urgency to the presence or absence of maternal or fetal compromise.

Category 1: Immediate threat to life of woman or fetus; maternal or fetal compromise present.

Category 2: No immediate threat to life of woman or fetus, maternal or fetal compromise present.

Category 3: Requires early delivery; without maternal or fetal compromise.

Category 4: At a time to suit the woman and maternity services; absence of maternal or fetal compromise. The nature of the caesarean section performed as emergency (category 1 & 2) or elective (category 3 & 4) is predicted depending on the indication of the caesarean section. Emergency caesarean section is defined as when the procedure is performed due to unforeseen complications, arising either during pregnancy or during labor without wasting time following the decision. Some common indications of emergency caesarean section

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are fetal distress, secondary arrest of dilatation, failed induction, etc. Elective caesarean section means when the operation is done at a prearranged time during pregnancy to ensure the best quality of obstetrics, anaesthesia, neonatal resuscitation and nursing services prior to the onset of labor³ Common indications of elective caesarean section are malpresentation, previous multiple caesarean section, previous 1LSCS not willing for VBAC etc. This study was conducted to study the indications and compare the intrapartum and postpartum complications in mothers in both the groups.

MATERIALS AND METHODS

A prospective observational comparative study on maternal outcome in Emergency (RCOG category 1 & 2) and Elective (RCOG category 3 & 4) caesarean section was carried out in Yenepoya Medical College Hospital, Department of Obstetrics and Gynaecology, after obtaining clearance from the Institutional Ethics Committee.

Sampling method:

Convenience sampling method.

SAMPLE SIZE:

Sampling size calculation: Calculated using G – power software with level of significance.

Alpha= 5%, power 1- Beta = 80% with 95% confidence interval. The minimum sample size required in each group is 50. The total sample size is 100.

SPSS22 was used for statistical analysis.

Methodology:

Relevant antenatal, intranatal data, indications of LSCS, intraoperative and postoperative complications, were collected from the patients presenting to the Department of Obstetrics and Gynecology at Yenepoya Medical College Hospital as per the inclusion criteria. Written informed consent was taken.

In this study two groups of pregnant females were studied.

Group 1: Women undergoing elective caesarean sections. (RCOG Category 3&4)

Group 2: Women undergoing emergency caesarean section (RCOG Category 1 & 2)

Inclusion criteria:

1. All pregnant women with singleton pregnancy, irrespective of parity status
2. Without pregnancy associated complications
3. Without any medical risk.
4. Without surgical high risk

5. With any gestational age
6. Irrespective of their registration status (patients who are referred at the time of delivery and those registered in the antenatal period).

Exclusion criteria:

All high risk pregnancies

Multiple pregnancies

Placenta praevia

Abruptio placenta

Diabetes in pregnancy

Severe anaemia (haemoglobin <7g/dl)

Pre eclampsia,

PROM >24 hrs,

More than 2 previous LSCS

RESULTS

A total of 100 participants were included in the study. They were divided into two groups, those who had elective caesarean section (50) and those who had emergency caesarean section (50).

OBSTETRIC SCORE:

Out of the 100 participants, primigravidas accounted for 24 % of the total caesarean sections & 46% of those who underwent emergency LSCS. Whereas gravida 2 comprised 41 % of the total caesarean sections and 56% of those who underwent elective caesarean section. This difference in the obstetric score was highly significant (p= 0.000).

AGE DISTRIBUTION:

Age groups between 18 – 25 years accounted for 50% of the participants who underwent emergency LSCS. Whereas the age group between 26 – 30 years accounted for 54% of those who underwent elective caesarean section.

TYPE OF ANAESTHESIA:

Out of the 100 participants, 99 were done under spinal anaesthesia (SA). Only 1 participant was given general anaesthesia from the elective LSCS group, after attempts to give spinal anaesthesia failed in the participant.

INDICATIONS OF CAESAREAN SECTION:

The most common indication of LSCS in the elective group was previous 1 LSCS not willing for VBAC, accounting to 68%, whereas most common indication for emergency LSCS was fetal distress, accounting to 32%. This difference was statistically significant (p=0.000).

INTRAOPERATIVE COMPLICATIONS:

The most common complication was same in both the groups, i.e. primary hemorrhage > 500 ml with the use of additional oxytocic agents for management of uterine atony.

POSTOPERATIVE COMPLICATIONS:

Postoperative complications were more in emergency caesarean section group. This difference was not statistically significant ($p=0.400$). The most common complication in emergency caesarean section group was fever. In the elective caesarean section group, blood transfusion was needed in 2 patients accounting for 4% in the elective caesarean section group.

HOSPITAL STAY:

2 participants who belonged to the emergency caesarean section group had prolonged hospital stay due to fetal morbidity, i.e. Respiratory distress syndrome and sepsis.

DISCUSSION

In our study primigravidae accounted for 24% (24 participants) of the overall study population who underwent caesarean section out of which 95.8% (i.e. 23 participants) underwent emergency LSCS for various indications. Multigravidas comprised 76% of the study population, however 65% had previous caesarean section, (previous 1&2 LSCS) which was a major factor contributing to the repeat caesarean section, either

Emergency or Elective. Therefore the *primary caesarean section rate* in a primigravida was higher (24%), than a multigravida (11%). This was similar to the study conducted by Shrutee et al. ⁴ in which total 4981 deliveries were observed, of which 2179 were primigravida and 2802 were multigravida. The incidence of primary caesarean section was much higher in primigravida (21.80%) than multigravida (9.81%) (p -value <0.001). In another study, Shail⁵ observed 496 deliveries, of which 303 patients had

Table 1: Obstetric Score

		Type of caesarean section:					
		Elective		Emergency		Total	
Obstetric score		Count	%	Count	%	Count	%
1	Primigravida	1	2.0%	23	46.0%	24	24.0%
2	Gravida 2	28	56.0%	13	26.0%	41	41.0%
3	Gravida 3	18	36.0%	6	12.0%	24	24.0%
4	Gravida 4	2	4.0%	8	16.0%	10	10.0%
5	Gravida 5	1	2.0%	0	.0%	1	1.0%
	Total	50	100.0%	50	100.0%	100	100.0%

Table 2: Age Distribution

		Type of caesarean section:					
		Elective		Emergency		Total	
Anaesthesia		Count	%	Count	%	Count	%
Spinal anaesthesia		49	98.0%	50	100.0%	99	99.0%
General anaesthesia		1	2.0%	0	.0%	1	1.0%
Total		50	100.0%	50	100.0%	100	100.0%

Table 3: Type of Anaesthesia

		Type of caesarean section:					
		Elective	Emergency	Total			
AGE : (years)		Count	%	Count	%	Count	%
	18 – 25	15	30.0%	25	50.0%	40	40.0%
	26 – 30	27	54.0%	15	30.0%	42	42.0%
	31 - 35	6	12.0%	9	18.0%	15	15.0%
	>35	2	4.0%	1	2.0%	3	3.0%
	Total	50	100.0%	50	100.0%	100	100.0%

Table 4: Indications of LSCS

		Type of caesarean section:					
		Elective		Emergency		Total	
Indications		Count	%	Count	%	Count	%
1	Malpresentation	0	0.0%	1	2.0%	2	1.0%
2	Cephalo pelvic disproportion	1	2.0%	5	10.0%	6	6.0%
3	Fetal distress	0	.0%	16	32.0%	16	16.0%
4	Secondary arrest of dilatation	0	.0%	6	12.0%	6	6.0%
5	Deep transverse arrest(DTA)	0	.0%	2	4.0%	2	2.0%
6	Prev.2 LSCS	15	30.0%	4	8.0%	19	19.0%
7	Prev 1 LSCS not willing for VBAC	34	68.0%	13	26.0%	47	47.0%
8	Failed induction	0	.0%	3	6.0%	3	3.0%
Total		50	100.0%	50	100.0%	100	100.0%

Table 5: Intraoperative Complications:

		Type of caesarean section:					
		Elective		Emergency		Total	
Intra operative complications		Count	%	Count	%	Count	%
1	Primary hemorrhage > 500 ml	2	4.0%	2	4.0%	4	4.0%
2	Primary hemorrhage >500ml & additional oxytocics use	4	8.0%	3	6.0%	7	7.0%
3	Primary hemorrhage > 500ml, extension of uterine scar, use of additional oxytocics	0	.0%	1	2.0%	1	1.0%
4	Primary hemorrhage > 500ml, extension of uterine scar	0	.0%	1	2.0%	1	1.0%
5	Additional oxytocics use	2	4.0%	3	6.0%	5	5.0%
6	Additional oxytocics use, bladder injury	1	2.0%	0	.0%	1	1.0%
7	Extension of uterine scar	0	.0%	1	2.0%	1	1.0%
8	Nil complications	41	82.0%	39	78.0%	80	80.0%
Total		50	100.0%	50	100.0%	100	100.0%

Table 6: Postoperative Complications.

		Type of caesarean section:					
		Elective		Emergency		Total	
Postoperative complications		Count	%	Count	%	Count	%
Fever		0	0%	2	4.0%	2	2.0%
Need for blood transfusion		2	4.0%	0	0%	2	2.0%
Paralytic ileus		0	0%	1	2.0%	1	1.0%
Fever, need for blood transfusion & paralytic ileus		0	0%	1	2%	1	1%
Wound infection		0	0%	1	2%	1	1%
Nil complication		48	96.0%	45	90.0%	93	93.0%
Total		50	100.0%	50	100.0%	100	100.0%

a vaginal delivery and 193 underwent a caesarean section. Of the patients undergoing a section, 76 patients(39.37% of total caesarean sections) were primigravida and of the remaining 117 patients, only 23 patients were multi gravida

with a primary section (11.91% of all sections). 76 cases (15.3% of all deliveries) were primary caesarean section in primigravida and 23 (4.63% of all deliveries) were primary section in parous women.

Table 7: Hospital Stay

Hospital stay	Type of caesarean section					
	Elective	Emergency	Total			
	Count	%	Count	%	Count	%
Prolonged	0	0%	2	4.0%	2	2.0%
Normal	50	100.0%	48	96.0%	98	98.0%
Total	50	100.0%	50	100.0%	100	100.0%

Also, in our study primigravida comprised 46% in the emergency caesarean section group and gravida 2 comprised 56% in the elective caesarean section group.

Rani Soren et al.⁶ also had similar findings in their study; among the participants who underwent emergency caesarean section, 50.21% were primigravida and 47.60% who underwent elective caesarean section were 2nd gravida.

Anupama et al.⁷ did a study and maximum patients who underwent emergency caesarean section were primigravida 65.2% and most patients who had elective caesarean section were second gravida 43.6%; which is also similar to our study.

In this study only 1 participant was given general anaesthesia due to failed attempts at spinal anaesthesia in the elective caesarean section group. All others were administered spinal anaesthesia as per the discretion of the anaesthetist.

In a study, Sean et al.⁸, concluded that regional anaesthesia may be regarded as superior to general anaesthesia for caesarean section for both the mother and the baby.

Regional anaesthesia is administered even for the most urgent cases.⁹

The most common indication of LSCS in the elective group was previous 1 LSCS not willing for VBAC, accounting to 68%, whereas most common indication for emergency LSCS was found to be fetal distress, accounting to 32%.

Gurunule et al.¹⁰ did a study in which the results were similar, fetal distress was the most common indication in the emergency LSCS group (32.3%) followed by meconium stained amniotic fluid (20%). The most common indication for elective LSCS was previous LSCS not willing for vaginal birth (26.6%) with a (p=0.0033).

Thakur V et al.¹¹ in their study also found similar results showing that, in elective caesarean section group, previous caesarean section was the main reason for caesarean section accounting for 78%. In emergency caesarean section group fetal distress was the main reason for caesarean section, accounting for 30.3%.

In this study the intra operative complication was 18% in elective caesarean and 22%

in the emergency caesarean section group, with a p-value of 0.617 which was not statistically significant. The most common complication was same in both the groups,

i.e. primary haemorrhage >500 ml with the use of additional oxytocics for management of uterine atony.

In study by K Gandhi et al.¹², intra operative complications were 10.25% and 4% respectively in emergency caesarean section group and elective caesarean section group. Haemorrhage was most common intra operative complication of both the groups, which was similar to our study.

Postoperative complications were 4% in elective caesarean section group and 10% in emergency caesarean section group in our study. The most common complication in emergency caesarean section group was fever, which in total comprised 6% of the total complication rate in emergency caesarean section. Blood transfusion was required in 2 patients accounting for 4% in the elective caesarean section group.

However this difference was not statistically significant.

K Gandhi et al.¹² found in their study that postoperative complications were also more in emergency caesarean sections (33.4%) than elective cases (21.6%). Fever was observed in 10.51% and 7.2% in emergency and elective caesarean sections respectively.

Partha P et al.¹³, observed in their study that overall, maternal morbidities were more in the emergency caesarean section (82/773,10.60%) than planned caesarean section (15/230,6.52%) with p= 0.066. Pyrexia and blood transfusion were significant (p=0.000) in the emergency caesarean section group.

There were no cases of maternal mortality in our study.

A study conducted by Subeidi et al.¹⁴, also did not report any incidence of maternal mortality in their study.

Of the 100 participants 99 % had usual hospital stay (5-7 days). However, 2 participants (4%) had prolonged hospital in the emergency caesarean section group. This was not statistically significant.

Al Nuaim et al.¹⁵ reported that 36.5% of emergency group stayed for more than 7 days and 39.8% of elective cases stayed for more than 7 days also, which was not statistically significant.

CONCLUSION

Primigravidae are more prone for emergency caesarean section. Since fetal distress was the most common indication of emergency LSCS mainly in primigravidae; meticulous labor management may help in decreasing the same. Elective caesarean section rates may be brought down by decreasing the rate of primary caesarean section, as most women in this group had undergone caesarean section due to previous caesarean section.

Regional anaesthesia is appropriate for emergency caesarean sections, including fetal distress.

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