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 labor. Common indications of elective caesarean section are malpresentation, previous multiple caesarean section, previous LSCS 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
Abruption 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 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.

Table 1: Obstetric Score

| Obstetric score | Type of caesarean section: | Total |
|-----------------|----------------------------|-------|
| Primigravida    | Elective                   |       |
| 1               | Count                      | %     | Count | %  | Count | %   |
| 1               | 1                          | 2.0%  | 23    | 46.0% | 24    | 24.0% |
| 2               | 28                         | 56.0% | 13    | 26.0% | 41    | 41.0% |
| 3               | 18                         | 36.0% | 6     | 12.0% | 24    | 24.0% |
| 4               | 2                          | 4.0%  | 8     | 16.0% | 10    | 10.0% |
| 5               | 1                          | 2.0%  | 0     | 0.0%  | 1     | 1.0%  |
| Total           | 50                         | 100.0%| 50    | 100.0%| 100   | 100.0%|

Table 2: Age Distribution

| Anaesthesia          | Elective | Type of caesarean section: | Total |
|----------------------|----------|----------------------------|-------|
|                      |          | Elective                   |       |
| Spinal anaesthesia   |          | Count                      | %     | Count | %  | Count | %   |
| 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

| AGE : (years) | Elective | Emergency | Type of caesarean section: | Total |
|---------------|----------|-----------|----------------------------|-------|
|               | 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%|

DISCUSSION

In our study primigravidas 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. 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, Shail observed 496 deliveries, of which 303 patients had...
Table 4: Indications of LSCS

| Type of caesarean section: | Elective Count | Emergency Count | Total Count | % | % | % |
|---------------------------|----------------|-----------------|-------------|---|---|---|
| Malpresentation            | 0              | 1               | 2           | 1.0% |
| Cephalo pelvic disproportion| 1              | 5               | 6           | 6.0% |
| Fetal distress            | 0              | 16              | 16          | 16.0% |
| Secondary arrest of dilatation| 0              | 6               | 6           | 6.0% |
| Deep transverse arrest(DTA)| 0              | 2               | 2           | 2.0% |
| Prev 2 LSCS               | 15             | 4               | 19          | 19.0% |
| Prev 1 LSCS not willing for VBAC | 34          | 13              | 47          | 47.0% |
| Failed induction          | 0              | 3               | 3           | 3.0% |
| Total                     | 50             | 50              | 100         | 100.0% |

Table 5: Intraoperative Complications:

| Intra operative complications | Elective Count | Emergency Count | Total Count | % | % | % |
|-------------------------------|----------------|-----------------|-------------|---|---|---|
| Primary hemorrhage > 500 ml   | 2              | 2               | 4           | 4.0% |
| Primary hemorrhage > 500 ml & additional oxytocics use | 4 | 3 | 7 | 7.0% |
| Primary hemorrhage > 500 ml, extension of uterine scar, use of additional oxytocics | 0 | 1 | 1 | 1.0% |
| Primary hemorrhage > 500 ml, extension of uterine scar | 0 | 1 | 1 | 1.0% |
| Additional oxytocics use      | 2              | 3               | 5           | 5.0% |
| Additional oxytocics use, bladder injury | 1 | 0 | 1 | 1.0% |
| Extension of uterine scar     | 0              | 1               | 1           | 1.0% |
| Nil complications             | 41             | 39              | 80          | 80.0% |
| Total                         | 50             | 50              | 100         | 100.0% |

Table 6: Postoperative Complications.

| Postoperative complications      | Elective Count | Emergency Count | Total Count | % | % | % |
|----------------------------------|----------------|-----------------|-------------|---|---|---|
| Fever                            | 0              | 2               | 2           | 2.0% |
| Need for blood transfusion       | 2              | 0               | 2           | 2.0% |
| Paralytic ileus                  | 0              | 1               | 1           | 1.0% |
| Fever, need for blood transfusion & paralytic ileus | 0 | 1 | 1 | 1% |
| Wound infection                  | 0              | 1               | 1           | 1% |
| Nil complication                 | 48             | 45              | 93          | 93.0% |
| Total                            | 50             | 50              | 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.
Also, in our study primigravida comprised 46% in the emergency caesarean section group and gravidia 2 comprised 56% in the elective caesarean section group.

Rani Soren et al. 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. 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., 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. The most common indication of LSCS in the elective group was previous 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. 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. 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%

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