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Original Research Article

Primary Caesarean Section in Multiparous Women – A Prospective Study in the Tertiary Care Centre

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Abstract

Background: Caesarean section (CS) rates have been increasing worldwide over the past few decades. The World Health Organization recommended rate of CS is about 15% of all the deliveries. NFHS-5 found that CS rate in India is 21.5% against last year NFHS-4 it was 17.2%. This is higher than WHO recommended limit. The increasing rate of CS is a matter of international public health concern as it increases the caesarean related maternal morbidity and fetal complications. Aim of this study was to evaluate the indications of primary CS in multiparous women & also to evaluate the feto-maternal outcomes.

Objective: To study the indication, maternal & perinatal outcome in multiparous women undergoing primary CS.

Materials and Methods: The present study was observational prospective study conducted in the Department of Obstetrics and Gynaecology, Kempegowda Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka. It was conducted over a period of 12 months (January 2024 to December 2024). Multiparous women undergoing primary CS who consented were included in the study.

Results: A total of 40 multiparous women with previous vaginal deliveries underwent primary CS. Majority of cases belonged to 26-30years age group. Emergency CS was done in 90% cases. The most common indication was meconium-stained liquor with fetal distress (20%), followed by severe pre-eclampsia (17.5%) and non-reassuring non-stress test (NR-NST) and breech presentation, both at 15% in our study.

Conclusion: From the above study it is certain that unforeseen complication can be seen in women who have had previous vaginal delivery. Proper antenatal evaluation with early detection and management of high-risk multiparous women can reduce the likelihood of maternal and fetal complications.

Keywords: Primary CS, Multipara, Maternal outcome, fetal outcome.

Introduction

Caesarean section (CS) rates have been increasing worldwide over the past few decades. The World Health Organization recommended rate of CS is about 15% of all the deliveries. [1] NFHS-5 found that CS rate in India is 21.5% against last year NFHS-4 it was 17.2%. [2] This is higher than WHO recommended limit.

The increasing rate of CS is a matter of international public health concern as it increases the caesarean related maternal morbidity and fetal complications as well as the cost of health care as compared to normal delivery. Primary CS in multipara means first caesarean section done in a woman who had one or more previous vaginal delivery. Mainly the fetus & placenta are responsible for CS in multipara. [1] Defensive medicine is also another cause for high CS rates.

Multiparity is usually associated with poverty, illiteracy, ignorance, lack of knowledge of the available antenatal care(ANC) and family planning methods. [3] Aim of this study was to evaluate the indications of primary CS in multiparous women & also to evaluate the feto-maternal outcomes.

Objective of the Study: To study the indication, maternal & perinatal outcome in multiparous women undergoing primary CS.

Methods and Materials

The present study was a Observational Prospective Study conducted in the Department of Obstetrics and Gynaecology, Kempegowda Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka. It was conducted over a period of 12 months (January 2024 to December 2024). Multiparous women undergoing primary CS were included in the study. Sampling method was Purposive Sampling.

Inclusion Criteria:

- women who consented for the study
- multipara with previous vaginal delivery

Exclusion Criteria:

- multipara with previous caesarean section/ previous uterine surgeries
- gestational age less than 28 weeks/ before viability period
- women with multiple pregnancy

Method of data collection: The study was done after obtaining ethical approval from the Institutional Ethics Committee of Kempegowda Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka. The information about demographic data, detailed history including obstetric history, complete clinical examination, and indication for caesarean section, maternal and perinatal outcome was recorded and noted in the pre-structured proforma. The data was collected and entered in Microsoft Excel sheet. Data was summarized and presented in percentage and proportions.

Results

Total number of deliveries during the study period of 1 year was 763 and the total number of CS was 457 with a caesarean section rate of 59.8% in the present study. A total of 40 multiparous women with previous vaginal deliveries underwent primary CS.

Table 1: Age wise distribution

Age	Number	Percentage (%)
<20 years	1	2.5
21-25 years	10	25
26-30 years	15	37.5
31-35 years	6	15
>35 years	8	20

The Table 1 shows the age wise distribution of the multipara who underwent primary CS. Amongst 40 women 37.5% were of the age group between 26-30years and 25% between 21-25years age group.

Table 2: Distribution of study population according to Gravida

Gravida	Number	Percentage (%)
2	16	40
3	11	27.5
4	10	25
5	03	7.5

The Table 2 shows that majority of the study population i.e. 16(40%) were gravida 2 and 11(27.5%) were gravida 3.

Table 3: Distribution of study population according to Parity

Parity	Number	Percentage (%)
1	24	60
2	10	25
3	6	15

The Table 3 presents the distribution of the study population based on parity. The majority of the participants (60%) had parity index of 1, making them the largest group in the study. A smaller proportion (25%) had parity index of 2, while only 15% had parity index of 3. The declining trend in numbers as parity increases may reflect various factors, such as family planning choices, health considerations or demographic characteristics of the study group. The majority of participants (72.5%) had one living child. A smaller proportion (17.5%) had two living children, while 10% had no living children. The presence of participants with no living children may suggest factors such as infant mortality, pregnancy complications, or other health-related concerns.

Table 4: Distribution of study population according to Gestational Age

Gestational Age	Number	Percentage (%)
28 - 29+6 weeks	1	2.5
30 - 30+6 weeks	14	35
37 - 39+6 weeks	22	55
40 - 41+6 weeks	3	7.5

The Table 4 presents the distribution of the study population based on gestational age. The majority of participants (55%) belonged to 37 to 39+6 weeks category, which is considered full-term. A significant proportion (35%) fell within the 30 to 30+6 weeks range, suggesting a considerable number of preterm pregnancies. Only 2.5% of participants had a gestational age of 28 to 29+6 weeks, representing very early preterm cases. Additionally, 7.5% of the study population had pregnancies extending to 40 to 41+6 weeks, while no cases exceeded 42 weeks.

Table 5: Indications for CS

Indication	Number	Percentage (%)
Severe oligohydramnios	2	5
Breech presentation	6	15
Meconium-stained liquor with fetal distress	8	20
Non-reactive NST	6	15
DCDA twins with bicornuate uterus	1	2.5
Severe Pre-eclampsia	7	17.5
Fetal mesentric lymphoma	1	2.5
Fistula in ano (maternal)	1	2.5
Placenta previa (grade 4)	1	2.5
Abruptio placentae	1	2.5
Failed Indication of Labour	3	7.5
CPD	1	2.5
CDMR	2	5

The Table 5 presents the distribution of feto-maternal indications for CS among the study population. The most common indication was meconium-stained liquor with fetal distress (20%), followed by severe pre-eclampsia (17.5%) and non-reassuring non-stress test (NR-NST) and breech presentation, both at 15%.

Severe oligohydramnios and CS on maternal request (CDMR) accounted for 5% each, while failed induction of labour contributed to 7.5% of cases. Less frequent indications included placenta previa (grade 4), abruption, cephalopelvic disproportion (CPD), fetal mesenteric lymphoma, fistula in ano, and a bicornuate uterus in a dichorionic diamniotic (DCDA) twin pregnancy, each representing 2.5% of cases. The data highlights that fetal distress and hypertensive disorders are leading contributors to CS, emphasizing the need for careful fetal and maternal monitoring during pregnancy.

The majority of cases (90%) underwent emergency CS, indicating that most surgeries were performed due to urgent maternal or fetal complications requiring immediate intervention. In contrast, only 10% of the cases were elective CS, which are typically planned in advance for medical or personal reasons. The high percentage of emergency CS suggests that many pregnancies in the study experienced unforeseen complications, reinforcing the importance of timely prenatal monitoring and intervention to ensure maternal and fetal well-being.

Table 6: Intra-operative findings

Intra-operative findings	Number	Percentage (%)
Extension of uterine incision	1	2.5
Cord around the neck	4	10
PPH - Medical management	3	7.5
PPH - Uterine artery ligation	1	2.5
True knot	2	5
Abruption	1	2.5
Placenta Previa	1	2.5

The Table 6 presents the distribution of intra-operative findings during CS. The most common finding was the presence of the umbilical cord around the neck, which occurred in 10% of cases. Other significant intra-operative findings included postpartum haemorrhage (PPH) managed medically (7.5%) and the presence of a true knot in the umbilical cord (5%). Additionally, 2.5% of cases involved more severe complications such as an extension of the uterine incision, uterine artery ligation for PPH, abruption, and placenta previa.

The most common post-operative complication was wound infection (12.5%) and fever (10%), suggesting that these issues may require attention in the post-operative care of caesarean patients. Urinary tract infection (UTI) and the need for blood transfusions each occurred in 5% of cases. Notably, there were no reported cases of secondary PPH, ICU admission or venous thromboembolism (VTE), indicating that these more severe complications were absent in the study population.

The majority of newborns (35%) weighed between 2.6 and 3 kg, which falls within the normal birth weight range. Additionally, 25% of newborns had a birth weight between 2.1 and 2.5 kg, and 20% weighed between 3.1 and 3.5 kg. A smaller proportion of newborns (7.5%) had a birth weight between 3.6 and 4 kg, while only 2.5% exceeded 4 kg. On the lower end, 5% of newborns had a very low birth weight (<1.5 kg), and another 5% weighed between 1.5 and 2 kg.

The distribution indicates that while most newborns had a healthy birth weight, a notable proportion had low birth weight, which may suggest the need for further evaluation of maternal health, nutrition, and prenatal care. The majority of newborns (85%) had an Apgar score between 7 and 10, indicating good overall health with minimal to no immediate complications.

The most common reason for NICU admission were pre-term care (10%) and meconium aspiration syndrome (7.5%), followed by hyperbilirubinemia (7.5%) and meconium aspiration syndrome (7.5%). Other indications included transient tachypnoea of the newborn (TTNB) and hypoglycaemia, each accounting for 5% of NICU admissions. Respiratory distress syndrome and sepsis were less frequent, each representing 2.5% of cases.

Discussion

The study was conducted in the department of obstetrics and gynecology at Kempegowda Institute of Medical Sciences for a period of 1 year from January 2024 to December 2024. A total of 40 women were eligible for the study. Himabindu et al found a comparable caesarean section rate of 40% in their study. [4] The high caesarean section rate in our institution was because it is a tertiary referral center having a wide catchment area. Distribution of patients according to gravida shows that most of the patients (40%) were gravida- 2 followed by gravida-3 (27.5%). It reflects that in the last few years family size has been shifted from 5-6 children per couple to 2-3 children per couple. Grand multiparity has been significantly reduced in the past few years. Sethi et al also reported the similar results 35% gravida-2, 30% of gravida-3 parity status. [7]

Most of the patients (55%) belong to gestational period of 37-39+6 weeks followed by (37.5%) period of <37 weeks. Rowaily et al reported in their study on primary caesarean section in multigravida that most the patients (78.8%) belong to gestational age of 37-42 weeks followed by 18.2% patients in gestational age of 80% patients. [8] Most of the patients 36 (90%) underwent Emergency caesarean section and only 4 (10%) had elective caesarean section. Study done by Sethi et al in 100 patients showed almost similar results showing 91% emergency operative and only 9% were electively operated. [7]

In our study, most common indication for caesarean section was meconium-stained liquor with fetal distress (20%) followed by severe preeclampsia in 7 (17.5%), NR NST in 6 (15%), malpresentation in 6 (15%), failed induction in 3 cases (7.5%) and cepahalopelvic disproportion in 1 (2.5%). Himabindu et al reported fetal distress (24.7%) as the most common indication for caesarean section in their study he also showed that most common abnormal presentation was breech for which caesarean section was done. [4] Desai et al also reported fetal distress (25.58%), APH (22.09%), CPD (19.77%) and abnormal presentations (17.44%) as the most common indications for caesarean sections in their study. [9] Rao et al also reported abnormal presentations (32.5%), APH (19.5%), fetal distress (17%), obstructed labour (18.5%) in their study. [10]

Out of 40 patients, 13 (17.5%) patients had different complications. Most common maternal complication was Wound infection in 5 (12.5%) patients followed by pyrexia in 4 (10%) patients, UTI in 2 (5%), PPH in 2 (5%) patients. Rao et al has shown almost similar results in his study. [10] In the present study, there was no maternal mortality observed. This may be because of availability of better antibiotics, blood and blood product transfusion facilities, safe methods of anesthesia, timely intervention, better surgical techniques and operative skill of obstetrician.

In our study baby weight was 2.6-3.0 kg in 14 (35%) cases and 14 (35%) babies were below 2.5 kg, out of which 4 (10%) babies were very low birth weight. 8(20%) babies had weight 3.1-3.5 kg. Only 4 (10%) babies were above 3.5 kg. Rowaily et

al in his study done on 4307 patients reported that most of the babies (61.7%) born were having weight of 2500-3500 kg followed by 21.6% babies who had body weight of >3500 grams. [8] In our study, NICU admissions were present in 16 (40%) neonates.

Most common reasons were due to preterm in 4 (10%) neonates followed by RDS in 1(2.5%) neonate, sepsis in 1 (2.5%) and MAS in 3 (7.5%) neonates. Sethi et al analysed perinatal morbidity and reported birth asphyxia in 4%, sepsis and pyrexia in 4%, meconium aspiration syndrome in 3%, convulsion in 3% and RDS in 3% babies. [7]

Conclusion:

From the above study it is certain that unforeseen complication can be seen in women who have had previous vaginal delivery. All multigravida women should be reinformed for institutional deliveries irrespective of previous vaginal delivery in order to avoid maternal and neonatal complications. While vaginal delivery is said to be safer than CS, perinatal and neonatal mortality and morbidity is comparatively lesser in elective CS than difficult or obstructed vaginal deliveries. It's recommended that all pregnant women must have regular and proper antenatal care to achieve the goal of healthy mother and a heathy baby.

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Ethical Clearance: Ethical committee clearance was taken before the commencement of the study from Kempegowda Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka.

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