

Comparative Study of Pregnancy Outcome of Primary Caesarean Section in Primigravida Versus Multiparous Women

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ABSTRACT

This study compares the pregnancy outcomes of primary caesarean sections in primigravida and multiparous women to better understand differences in maternal and fetal health between the two groups. We conducted a retrospective observational study in the Department of Obstetrics and Gynecology at a tertiary care hospital. The study included 200 participants, 150 primigravida and 50 multiparous undergoing their first caesarean section. Data on patient characteristics, indications for surgery, maternal complications, and neonatal outcomes were analyzed using SPSS version 31.0. The majority of primigravida were aged 26 to 30 years, while most multiparous women were between 31 and 35 years. Fetal distress emerged as the most common indication for caesarean section in both groups, followed by pre-eclampsia and non-progress of labour. Gestational diabetes and antepartum hemorrhage were more frequent among multiparous women. Postpartum hemorrhage occurred more often in multiparous women, whereas the need for blood transfusion was higher among primigravida. Neonates born to primigravida mothers had better APGAR score, while those born to multiparous mothers required more frequent NICU admissions. Although multiparous women are traditionally considered low risk, this study highlights that they face significant obstetric and neonatal complications. We conclude that strengthening antenatal care and providing timely obstetric intervention for multiparous women can help reduce adverse outcomes and improve maternal and neonatal well-being.

Keywords: Primary Caesarean Section, Primigravida, Multiparous Women, Maternal Outcome, Fetal Outcome, NICU Admissions.

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Introduction

Caesarean section is the most commonly performed surgical procedure in obstetrics and can be lifesaving for the child, the mother or both [1]. One of the most dramatic features of modern obstetrics is the increase in the caesarean section rate both in developed and developing countries. Reasons for the global increase in the caesarean section rate are increased safety of procedure, fetal distress, liberal use of caesarean section for breech presentation, multiple gestation, intrauterine growth restriction, fear of litigation and maternal request. WHO recommends 10-15% ideal rate for caesarean section [2-3].

However, in June 2010, WHO officially withdrew its previous recommended rate of 15% and stated that it should be done based on medical needs for women rather than striving to achieve a specific rate [4-5]. Of particular interest, in light of increased incidence of abdominal delivery throughout the country and in the world is the validity of this procedure when used for the first time in the multipara [6-8].

Multiparous women who had previous normal delivery are considered as low-risk group but in practice we observe the adverse obstetric outcome even in these women [9-10]. The present study was conducted at a tertiary health

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care center to assess the Pregnancy outcome in both groups and thereafter evaluate where we can intervene to improve the same, and hence reduce maternal morbidity and improve fetal outcome.

Aim and Objectives

To study the Pregnancy outcome in both groups and there after evaluate where we can intervene to improve the same, and hence reduce maternal morbidity and improve fetal outcomes.

Methods

Study Design

Retro -prospective observational study

Study Site

Department of Obstetrics and Gynecology at a tertiary healthcare center.

Data Source

Patients admitted in Hospital, undergoing primary Cesarean Section

Inclusion Criteria:

- Multiparous women with previous vaginal delivery
- All primigravida above 28 weeks
- Without previous uterine surgeries

Exclusion Criteria:

- Patient Refusal
- Previous LSCS
- Previous Hysterotomy
- Previous Myomectomy
- With Previous Uterine Surgery

Sample Size Estimation: Based on data of the last 2 years (July 2019- June 2021) there were 480 primary Cesarean sections. Out of them 357 were primary cesarean section in primigravida and 123 were primary cesarean section in multigravida.

Taking the 95% CI sample size to be studied were 200. Out of this 150 were primigravida and 50 were multigravida. This has been calculated using epi info with star cal.

Methods:

- It was a retro-prospective study carried out in our hospital, Department of Obstetrics and Gynecology.
- Retrospective case selection and data was collected from the MRD section of the Hospital with proper waiver consent.
- Cases were selected after the decision for cesarean section was made and were divided into primigravida (150) and multigravida (50).
- Patients who had a primary cesarean (cesarean section for the very first time) section were taken as cases.
- Thorough history was obtained and complete examination was conducted and simultaneously consent for participating in study was taken before shifting to OT.
- Those patients who were admitted for elective LSCS were admitted in ANC ward and their history taking and examination was conducted in Antenatal ward before shifting to OT.

- For cesarean section, the findings were noted before operation and any intraoperative and post operative complications were observed and noted till discharge of the patient from hospital.
- On admission, a thorough clinical examination was done. Blood investigations including CBC, RBS, RFT, LFT were evaluated.
- Postoperatively: temperature, pulse, BP, abdominal girth, input output monitoring, Breast examination, cesarean wound examination was conducted.

Indications Compared:

- Meconium-stained amniotic fluid
- Non progress of labour
- Fetal distress
- Malpresentation
- Placenta previa
- Abruptio placentae
- Deep transverse arrest

Complications Compared:

- Intraop need of transfusion
- Bowel bladder injury
- Postpartum hemorrhage
- Anesthesia complications

Fetal Outcomes:

- Sex
- Weight APGAR
- Incidence of NICU admission
- Indications of NICU admission, duration of stay in nicu, and outcome were compared between either study groups.

Statistical Analysis:

- The data was collected with the help of standard, pre-validated CRF.
- The data was coded and entered using Excel software.
- SPSS version 22 was used for statistical analysis.
- Descriptive analysis was carried out by mean and SD for quantitative variables, frequency and proportion for categorical variables.
- Both the study groups were compared with respect to all the potential confounding baseline variables.
- The mean differences along with their 95% CI were presented.
- Independent sample t-test to study association between quantitative variables.
- The association between explanatory variables and categorical outcomes was assessed by cross tabulation and comparison of percentages. Chi square test was used to test statistical significance. P value < 0.05 was considered statistically significant.

Results

We observed that the majority of the study subjects in the primigravida group belonged to the age group of 26 to 30 years (42.67%), followed by less than 25 years (34%), and 31 to 35 years (16%). Whereas majority of the subjects from multigravida group belonged to the age group of 31 to 35 years (42%), 36 to 40 years (26%), and 26 to 30 years (24%). This has been summarised in Table 1.

Table 1: Age Distribution among the Two Groups

Age distribution	Primigravida		Multigravida	
	Number	Percent	Number	Percent
Less than 25 years	51	34.00	4	8.00
26 to 30 years	64	42.67	12	24.00
31 to 35 years	24	16.00	21	42.00
36 to 40 years	9	6.00	13	26.00
More than 40 years	2	1.33	4	8.00
Total	150	100.00	50	100.00
Significance	The chi-square statistic is 41.3078. The p-value is < 0.00001			

Among the indications for C section, we observed that fetal distress was the commonest indication (50.67% and 36% in either group), followed by Pre-eclampsia (16% and 36% in either group), Non progression of labour (14.67% and 10% resp), Abruptio placenta (4.67% & 10%), IUGR (5.33% & 10%), and Malpresentation among 7.33% and 16% in either study groups respectively. Figure 1 summarizes this.

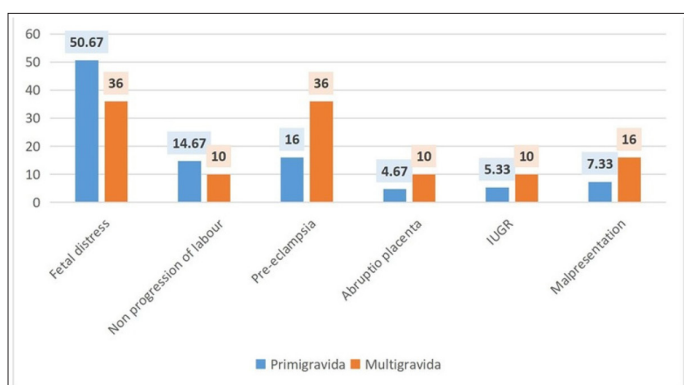


Figure 1: Indications for C-section

Among them eternal risk factors, we observed that gestational diabetes mellitus was reported among 8% and 22% subjects in either study groups, followed by hypothyroidism among 5.33% and 10% subjects in either group, PROM was reported among 6% and 14% subjects, whereas APH was noted among 4.67% and 12% study subjects in Primigravida and Multigravida groups respectively. For maternal outcomes, we observed that Postpartum hemorrhage was noted comparatively greater in multigravida a group (22%), as compared to primigravida group (8.67%), followed by need for blood transfusion was comparatively greater in primigravida group (14.67%) as compared to multigravida group (8%). The primigravida group neonate shad significantly larger reporting of APGAR scores more than 6 (81.33%), as compared to multigravida group (68%). (The chi-square statistics 3.885. The p-value is (0.048719.) Figure 2 summarizes this.

The need for NICU admission was significantly greater among multigravida group (42%), as compared to primigravida group neonates (26.67%). (The chi-square statistic is 4.1593. The p-value is 0.041407). Figure 3 summarizes this.

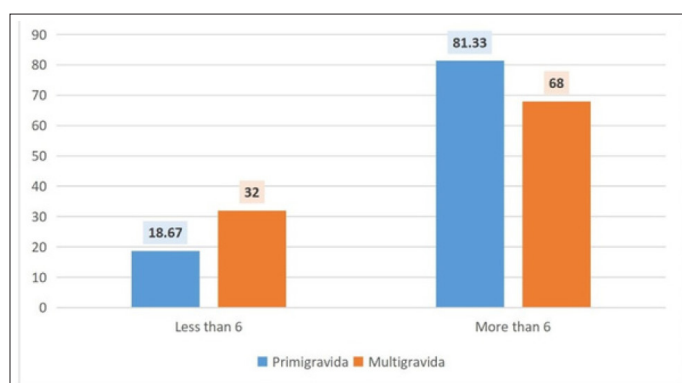


Figure 2: APGAR Score

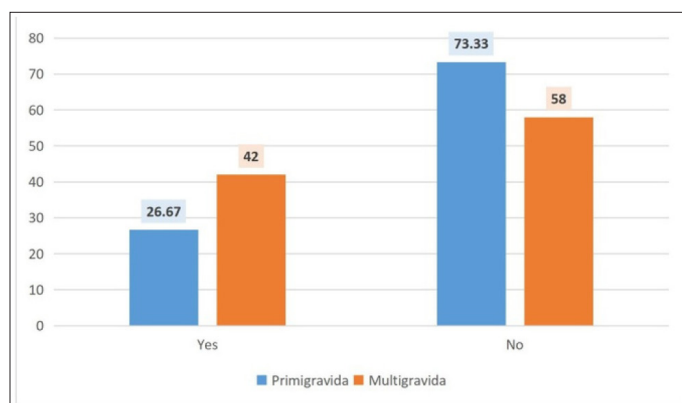


Figure 3: Need of NICU Admission

The majority of the neonates had birth weight more than 2.5 kg (46% and 48% in either study group respectively), followed by 1.5 to 2.5kg among 24% study subjects in each group, 1 to 1.5kg among 27.33 and 26% study subjects in either group respectively.

Discussion

In the present study we assessed Age distribution among the study subjects. We observed that the majority of the study subjects in the primigravida group belonged to the age group of 26 to 30 years (42.67%), followed by less than 25 years (34%), and 31 to 35 years (16%). Whereas majority of the subjects from multigravida group belonged to the age group of 31 to 35 years (42%), 36 to 40 years (26%), and 26 to 30 years (24%). Hangarga US et al in their study observed that the majority of patients were from the age group of 22 to 27 yrs (70%) [11]. Mohan SS et al in their study observed that Most of the women undergoing primary cesarean sections were in 30-34 years age group (36.6%) and the lowest number were in above 40 years (2%) [12]. Somalwar S et al in their study observed that majority of the women, 52.5% were in the age group of 25-29 years [13]. We observed that fetal distress was the commonest indication for caesarian section (50.67% and 36% in either group). Other indications in the present study were Pre-eclampsia (16% and 36% in either group), Non progression of labour (14.67% and 10% resp), Abruptio placenta (4.67% & 10%), IUGR (5.33% & 10%). Hangarga US et al., [11]. in their study observed that Indications for cesarean section were severe oligohydramnios (22%), fetal distress (15.4%), and breech presentation (14%), premature rupture of membrane (12%). Mohan SS et al., in their study observed that the indications were post term pregnancy

(3 cases), gestational DM (2 cases), breech presentation. Malpresentations (23.3%), CPD (20%), antepartum hemorrhage (19.3%) and fetal distress (12%) were the major indications for primary caesarean section. Among the antepartum hemorrhage placenta previa is more common than abruptio placenta [12].

Malpresentation among 7.33% and 16% in either study groups respectively which was comparable with the study by Jacob et al, it was high when compared to Sen et al. The incidence of transverse lies increases with parity occurring 10 times more frequently in patients of parity four or more than in a primigravida. Relaxation of the abdominal wall with a pendulous abdomen allows the uterus to fall forwards, deflecting the long axis of the birth canal into an oblique or transverse position. "Pelvic contraction" and placenta previa act similarly by preventing engagement. which was higher than that shown in studies by Praag et al., Vashishta et al, Jacob et al., and Palanichamy et al., [14-17].

In a study by Praag et al also, central placenta previa was common with an incidence of 38.24% and 28 patients with placenta previa and 16 patients with abruptio placentae received blood transfusions, 3 patients with abruptio placentae underwent cesarean hysterectomy [14].

We observed that gestational diabetes mellitus was reported among 8% and 22% subjects in either study groups, followed by hypothyroidism among 5.33% and 10% subjects in either group, PROM was reported among 6% and 14% subjects, whereas APH was noted among 4.67% and 12% study subjects in Primigravida and Multigravida groups respectively.

Somalwar S et al in their study observed that 25.5% women had bad obstetric history, 20% had anemia, 18% had PIH and 15% had Premature Rupture of Membrane (PROM) [13].

In the present study we assessed Maternal outcomes among the study subjects. We observed that post-partum hemorrhage was noted comparatively greater in multigravida group (22%), as compared to primigravida group (8.67%), followed by need for blood transfusion was comparatively greater in primigravida group (14.67%) as compared to multigravida group (8%), Wound sepsis and fever was reported among 6.67% and 8% study subjects in either group.

Hangarga US et al., in their study observed that out of 84 cases, 48 cases needed intra operative or immediate post-operative blood transfusion. The post-operative morbidity was present in 6 cases i.e paralytic ileus, puerperal fever, urinary tract infection and wound gaping [11]. Mohan SS et al in their study observed that Around 19 patients had intraoperative complications with an incidence of around 12.6%. These complications were commonly seen in patients with obstructed labour, and in patients with antepartum hemorrhage [12].

In a study by Praag et al, 16 patients with abruptio placentae received blood transfusions, 3 patients with abruptio placentae underwent cesarean hysterectomy [14].

In the present study we assessed APGAR score among the neonates. We observed that primigravida group neonates had

significantly larger reporting of APGAR scores more than 6 (81.33%), as compared to multigravida group (68%). (The chi-square statistic is 3.885. The p-value is 0.048719.). Somalwar S et al., in their study observed that about 93.2% of babies had Apgar score >7 [13].

In the present study we assessed the need for NICU admission among the neonates. We observed that the need for NICU admission was significantly greater among multigravida group (42%), as compared to primigravida group neonates (26.67%). (The chi-square statistic is 4.1593. The p-value is 0.041407).

Mohan SS et al in their study observed that out of 148 live births 26 babies were admitted in NICU and majority of them were for meconium aspiration syndrome and birth asphyxia [12]. Somalwar S et al., in their study observed that Seventy (34.14%) babies had NICU admission [13].

In the present study we assessed birth weight among the neonates. We observed that the majority of the neonates had birth weight more than 2.5 kg (46% and 48% in either study group respectively), followed by 1.5 to 2.5kg among 24% study subjects in each group, 1 to 1.5kg among 27.33 and 26% study subjects in either group respectively. Hangarga US et al., in their study observed that the majority of babies weighed in the range of 2-3kgs (55%). Somalwar S et al., in their study observed that 64.9% of babies had birth weight between 2.1-3 kg [11,13].

Summary and Conclusions

- The majority of the study subjects in the primigravida group belonged to the age group of 26 to 30 years (42.67%), followed by less than 25 years (34%). Whereas majority of the subjects from multigravida group belonged to the age group of 31 to 35 years (42%).
- Fetal distress was the commonest indication for caesarian section (50.67% and 36% in either group), followed by Pre-eclampsia (16% and 36% in either group), Non progression of labour (14.67% and 10% resp), Abruptio placenta (4.67% & 10%), IUGR (5.33% & 10%), and Malpresentation among 7.33% and 16% in either study groups respectively.
- Gestational diabetes mellitus was reported among 8% and 22% subjects in either study groups, followed by hypothyroidism among 5.33% and 10% subjects in either group, PROM was reported among 6% and 14% subjects, whereas APH was noted among 4.67% and 12% study subjects in Primigravida and Multigravida groups respectively.
- Post-partum hemorrhage was noted comparatively greater in multigravida group (22%), as compared to primigravida group (8.67%), followed by need for blood transfusion was comparatively greater in primigravida group (14.67%) as compared to multigravida group (8%),
- Primigravida group neonates had significantly larger reporting of APGAR scores more than 6 (81.33%), as compared to multigravida group (68%)
- Need for NICU admission was significantly greater among multigravida group (42%), as compared to primigravida group neonates (26.67%).
- Majority of the neonates had birth weight more than 2.5 kg (46% and 48% in either study group respectively), followed

by 1.5 to 2.5kg among 24% study subjects in each group, 1 to 1.5kg among 27.33 and 26% study subjects in either group respectively.

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