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Comparative Study of Incidence, Indications and Fetomaternal Outcome of Primary Caesarian Section in Primigravida and Multigravida Patients at A Tertiary Hospital

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Abstract

The first caesarian section performed in a patient is known as primary caesarian section, subsequent ones are referred to as repeat caesarian section. The two groups primigravida and multigravida show significant variations in terms of indications of primary caesarian section and require separate evaluation. Present study was aimed to compare incidence, indications and fetomaternal outcome of primary caesarian section in primigravida and multigravida patients at a tertiary hospital. Material and Present study was single-center, prospective, comparative study, conducted women between 18-25 years age, primigravida (or) multigravida with >28 weeks gestation, without previous uterine surgeries, underwent LSCS. Mean age in primigravida group was 23.07 ± 3.09 and in multipara group was 25.16 ± 3.15 , difference was statistically significant. ($P < 0.001$). Fetal distress in primi is seen in 30% and in multipara seen in 10% of study group. Non progress of labour is seen in 7% primi (v/s) 40% in multi gravida which is statistically significant ($P < 0.001$). Cephalopelvic disproportion was seen in 40% of primi group (v/s) 8% in multigravida which is statistically significant (P Value < 0.001). Hemorrhage due to uterine atony/laceration is observed in 47% of multigravida and in only 15% of primigravida which is statistically significant ($P < 0.001$). APGAR Score of >7 is seen in 94% primigravida and in 60% of multigravida. APGAR Score of new born <7 is seen in 6% of primigravida and in 40% of multigravida ($P < 0.001$). NICU admissions of new born is observed in 25% of primigravida and in 51% of multigravida ($P < 0.001$). Cephalopelvic disproportion followed by fetal distress & failed induction were common indications for LSCS in primigravida, while non progressive of labour followed by failed induction and malpresentation were common indications for LSCS in multigravida.

INTRODUCTION

The incidence of caesarean section has doubled or tripled all over the world in last 15 years. This has been attributed to an increase in the identification of high-risk pregnancies. Though modern technologies and facilities has made this procedure relatively safe but still caesarian section is associated with increased risk of maternal mortality and morbidity as compared to vaginal delivery^[1,2].

The two groups primigravida and multigravida show significant variations in terms of indications of primary caesarian section and require separate evaluation. The relative ease with which some multiparous women deliver in the presence of malposition and malpresentation may account for false sense of security. Due to those factors the multiparous women pass through the stage of pregnancy and labour in a subnormal stage of health with a potential risk, when caesarian section has to be performed^[3,4].

The first caesarian section performed in a patient is known as primary caesarian section, subsequent ones are referred to as repeat caesarian section. The most common indication for primary caesarean section in multiparous women were fetopelvic disproportion, malpresentations and positions, placenta previa, fetal distress, cord prolapsed, BOH^[3,4,5]. Present study was aimed to compare incidence, indications and fetomaternal outcome of primary caesarian section in primigravida and multigravida patients at a tertiary hospital.

MATERIALS AND METHODS

Present study was single-center, prospective, comparative study conducted at Government Medical College, Ongole, Prakasam District, Andhra Pradesh. Study period 6 months from October 2023-March 2024. Study approval was obtained from institutional ethical committee.

Inclusion criteria:

- Women between 18-25 years age, primigravida (or) multigravida with >28 weeks gestation, without previous uterine surgeries, underwent LSCS, willing to participate in present study

Exclusion Criteria:

- Patient refusal
- Previous LSCS
- Previous hysterotomy
- Previous myomectomy
- Any known or current deterioration of renal/liver function

Study was explained to patients in local language and written consent was taken for participation and

study. 200 patients aged 18-30 years pregnancy >28wks undergoing primary caesarian section (100 will be primigravida and 100 will be multigravida) were included.

- **Group 1:** 100 primigravida undergoing caesarean section
- **Group 2:** 100 multigravidas undergoing primi caesarean section

On admission, thorough clinical examination including general physical examination, built, nourishment, height, weight, BP, pulse along with pallor, pedal edema was noted. CVS, RS examination done. Abdominal examination done for height of uterus in weeks, lie of the fetus, presentation, position of the fetus, fetal heart rate. Blood investigations including CBC, RBS, RFT, LFT, urine routine evaluated. USG done for fetal well being. Preoperatively and postoperatively maternal vitals were monitored.

Gravida, Age, Indications like fetal distress, CPO, Malpresentation, Placenta previa, failed induction. Non progression of labour, obstructed labour was compared. Intra / Postoperative complications like hemorrhage, injury to the abdominal viscera, anaesthesia related complications like spinal headache due to long duration of anaesthesia and past partum death were compared. Maternal outcomes like PPH, post OP Blood transfusions, DVT, puerperal infection and new born APGAR and NICU admissions are considered as outcome variable.

Data was entered in MS-Excel and analyzed in SPSS V24. Descriptive statistics were represented with percentages, mean with SD. Shapiro wilk test was applied to find normality. Chi-square test, fisher exact test was applied $P < 0.05$ was considered as statistically significant.

RESULTS AND DISCUSSIONS

In present study, majority patients were from 21-25 years age group (54 % in both groups). Mean age in primigravida group was 23.07 ± 3.09 and in multipara group was 25.16 ± 3.15 , difference was statistically significant. ($P < 0.001$)

Fetal distress in primi is seen in 30% and in multipara seen in 10% of study group. Non progress of labour is seen in 7% primi (v/s) 40% in multi gravida which is statistically significant ($P < 0.001$). Cephalopelvic disproportion was seen in 40% of primi group (v/s) 8% in multigravida which is statistically significant ($P < 0.001$). Malpresentation, antepartum hemorrhage, failed induction and obstructed labour are not of much significant.

Hemorrhage due to uterine atony/laceration is observed in 47% of multigravida and in only 15% of primigravida which is statistically significant ($P < 0.001$). No complications observed in 80% of primigravida

Table 1: Age of patients

Age	Gravida				P-value
	Primi Count	percentage	Multi Count	percentage	
18-20	27	27.0	6	6.0	<0.001
21-25	54	54.0	54	54.0	
26-30	19	19.0	40	40.0	
Mean age (mean \pm SD)	23.07 \pm 3.09		25.16 \pm 3.15		<0.001

Table 2: Indications of LSCS

Indication of Caesarian Section	Gravida				P-value
	Primi Count	percentage	Multi Count	percentage	
Cephalopelvic Disproportion	40	40.0	8	8.0	<0.001
Fetal Distress	30	30.0	10	10.0	0.0003
Failed Induction	10	10.0	20	20.0	0.04
Non-Progress of Labour	7	7.0	40	40.0	<0.001
Malpresentation	5	5.0	15	15.0	0.02
Antepartum Hemorrhage	3	3.0	2	2.0	0.5
Obstructed Labour	5	5.0	5	5.0	0.63

Table 3: Intraoperative / post operative complications

Intra operative /Post-operative Complications	Gravida				P-value
	Primi Count	percentage	Multi Count	percentage	
None	80	80.0	50	50.0%	<0.001
Hemorrhage due to Uterine Atony / Uterovesical laceration	15	15.0	47	47.0	
Anaesthesia Related	3	3.0	3	3.0	
Spinal Headache	2	2.0	0	0.00	

Table 4: Maternal outcomes

Maternal Outcome	Gravida				P-value
	Primi Count	percentage	Multi Count	percentage	
Normal	92	92.0%	19	19.0%	<0.001
Postpartum Hemorrhage	0	0.0%	31	31.0%	
Puerperal Infection	3	3.0%	10	10.0%	
Post Operative Blood Transfusion	5	5.0%	40	40.0%	

Table 5: APGAR score

Fetal Outcome (APGAR SCORE)	Gravida				P-value
	Primi Count	percentage	Multi Count	percentage	
>7	94	94.0%	60	60.0%	<0.001
<7	6	6.0%	40	40.0%	

Table 6: NICU admissions

NICU Admissions	Gravida				P-value
	Primi Count	percentage	Multi Count	percentage	
No	75	75.0%	49	49.0%	<0.001
Yes	25	25.0%	51	51.0%	

while in only 5% of multigravida which is statistically significant ($P<0.001$)

Post operative blood transfusion needed in 40% of multigravida and in 5% of primigravida which statistically significant ($P<0.001$).

Post partum hemorrhage due to uterine atony and lacerations is observed in 31% of multigravida (due to caesarian section in 2nd stage labour) and in 0% of primigravida in study group which is statistically significant ($P<0.001$). Puerperal infection is seen in 10% of multigravida and 3% of primigravida. No complications observed in 92% primigravida and in 19% multigravida.

APGAR Score of >7 is seen in 94% primigravida and in 60% of multigravida. APGAR Score of new born <7 is seen in 6% of primigravida and in 40% of multigravida which is considered statistically significant ($P<0.001$)

NICU admissions of new born is observed in 25% of primigravida and in 51% of multigravida which is statistically significant ($P<0.001$)

Age distribution in this study group, mean age of primigravidas were 23.7 and in multigravidas mean age were in 25.16. Those who were <25 years are prone for adolescent health problems like anaemia, whereas multigravidas are prone for age related disease like hypertensive disorders, diabetes mellitus, obesity,

incidence of big baby, spondylolisthesis of joints. These age-related problems are risk factors for caesarean section^[6,7].

In our study 63% of multigravida and 21% of primigravida belong to lower class in sociodemographic profile indicating multigravida group of patients having lower class which doesn't permit them to have adequate balanced diet which the pregnancy state demands leading to adverse maternal and fetal outcomes in this group.

Indications and fetomaternal outcomes were compared in both groups. In this study, among the indications, most common was CPD in primigravida and NPOL in multigravida. Caesarean section done for non-progress of labour was significantly high in multigravida compared to primigravida. Analyzing the most common indication in primigravida, we found that CPD was the first common indication.

Non progression of labour is one of the most common indications of caesarean section. It could be due to prolonged latent phase, arrest of active phase of dilatation or arrest of descent in the active phase arrest. It may be due to inadequate power of labour or else any abnormalities in the passage^[8,9].

In our study NPOL is observed more in multigravida. Cephalopelvic disproportion as an indication of caesarean section occurred in 40% of primigravida and 8% of multigravida which is of significant difference ($P < 0.001$). Bony deformities of pelvis are seen in disease effecting bone and joints, developmental abnormalities, vertebral column defects, lower limb deformity CPD constitutes absolute indication of caesarean section mostly observed in primigravida^[10].

In this study fetal distress as an indication of caesarean delivery in 40 patients 30% in primigravida and 10% in multigravida. Study of primary caesarean section in multipara by Himabindu^[11] on primary caesarean section on multipara had fetal distress in 24.7% cases. Desai^[12] revealed fetal distress as the most common indication (25.58%) and APH was an indication in 22.09% cases.

In our study failed induction as an indication of C.S is occurred in 30 patients, in 10% of primigravida but in 20% of multigravida. Hence there is a need to find or develop predictive tools to identify those women who are exposed to IOL induction of Labour, but may not react the active phase of labour.

Our study is comparable to Toril et al. (2003) study in relation to indications. Rao JH^[13] found 22.2% of cesarean sections being done for fetal distress, simulates with our study where fetal distress accounts for 20% of indications. Our study showed lesser

incidence of urinary tract infection and atelectasis and no incidence of deep vein thrombosis due to early ambulation of patients and good antibiotic coverage. But blood transfusion was needed due to underlying anemia aggravated by antepartum hemorrhage and PPH.

While observing maternal outcomes 92% of primigravida were having normal maternal outcomes attributed probably to lower middle class group, regular follow-ups and early induction of labour associated with continues and effective fetal monitoring.

The maternal outcome was measured in terms of PPH, wound sepsis. PPH was most common in multigravida 31% due to the obvious reason of atony being commoner in multi, and also our observation that non-progress 40% being the most common indication in multi, there was more chances of extension of LSCS incisions due to thinned out lower segment and more atonicity in the second stage of labour^[14,15].

Postoperative blood transfusion requirement observed in 40% of multigravida because of over postpartum hemorrhage 31% in this study group. This can be reduced by earlier admission and earlier referrals. The incidence of wound infection is 3% in primi and in 10% of multigravida which is significant. Fetal APGAR of >7 is observed in 94% of primigravida and in 40% multigravida fetal APGAR is <7 attribute to patients presenting in second stage labour and fetal distress in this group. Regarding the fetal outcomes, the NICU admissions were more in the multigravida 51%. Our inference is that, this is due to nonprogress of labour being more common in the multi meaning that delayed decision for caesarean in these patients were the cause for NICU admissions being more in this group. Though the primi group was taken up more for fetal distress the APGAR scores and NICU admissions were better in them.

CONCLUSION

Cephalopelvic disproportion followed by fetal distress and failed induction were common indications for LSCS in primigravida, while non progressive of labour followed by failed induction and malpresentation were common indications for LSCS in multigravida. Present study shows that intra op complications were significantly more frequent when caesarean section was done in the second stage of labour because higher rates of uterine atony, extension of uterine incision and cystotomy.

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