

A study to compare the incidence, indications and maternal outcome of primary caesarean section in primigravida and multigravida in a tertiary care centre

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Abstract

Objective: To compare the incidence, indications and maternal outcome of primary caesarean section in primigravida and multipara.

Material & method: It was a prospective comparative observational study conducted at the caesarean postnatal ward in the Department of Obstetrics and Gynaecology of Burdwan Medical College and Hospital from January 2017 to June 2018. Participants were postnatal women who underwent caesarean section for the first time irrespective of parity. Comparative analysis was done regarding incidence, indications and outcome of caesarean sections among primigravida and multigravida.

Results: Out of total 140 women studied 86 (61.43%) were primi and 54 (38.57%) were multigravida. Malpresentation and dystocia (each 16.67%) are common indications of CS in multi and meconium stained liquor and hypertensive disorder (each 11.63%) are most common indication of CS in primigravida. 23 primi (26.74%) and 16 multigravida (29.63%) had different form of post-op complications.

Conclusion: Multigravida as compared to primigravida undergo lesser primary CS. Meconium stained liquor, hypertensive disorder with induction failure, malpresentation, dystocia, oligohydramnios, PROM are common indications of CS in primigravida as well as multigravida. Multigravida suffered from more post-operative complications than primigravida.

Keywords: Primigravida, Multigravida, Primary Caesarean Section, Maternal outcome.

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*Article History:

Received: 02/08/2019
Revised: 01/09/2019
Accepted: 01/09/2019
DOI: <https://doi.org/10.7439/ijbar.v10i9.5248>

QR Code



How to cite: Mandi D, Ghosh A and Goswami V. A study to compare the incidence, indications and maternal outcome of primary caesarean section in primigravida and multigravida in a tertiary care centre. *International Journal of Biomedical and Advance Research* 2019; 10(9): e5248. Doi: 10.7439/ijbar.v10i9.5248 Available from: <https://ssjournals.com/index.php/ijbar/article/view/5248>

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1. Introduction

Primary CS when it is done in a woman for the first time, where repeat CS when done in a woman who had atleast one prior caesarean birth. Primary caesarean section in a multigravida means first caesarean section done in mothers who had delivered vaginally once or more. It has become popular as a part of obstetric practice in later part of the nineteenth century and the sole aim is to decrease fetomaternal morbidity and mortality which was on higher side previously due to home deliveries conducted by untrained birth attendant, difficult vaginal birth for obstructed labour, destructive procedures, deep pelvic and perineal injuries due to difficult high forceps application, limited availability of

safe anaesthesia and high postoperative complications because of limited supply of broad spectrum antibiotics. WHO (world health organization) has proposed an incidence of CS between 10%-15% as a target to ensure optimum maternal and neonatal outcome [3]. More than 85 % of CS performed for four main indications; previous CS (44%), dystocia (10%), fetal compromise (10%) and abnormal fetal presentation (3%). Caesarean section on maternal request is a rising new indication that accounts for 1-7% [4]. Present study compares the incidence, indications and outcome of caesarean section done in primigravida and multigravida.

2. Materials and Method

It was a prospective comparative observational study conducted at Burdwan Medical College & Hospital for a period extending from Jan 2017 to June 2018 after receiving ethical clearance from the Clinical Research Ethics Committee. Total 140 mothers admitted in the postnatal ward who have undergone caesarean section for the first time irrespective of parity were included in the study after taking informed consent from them. Comparative analysis was done regarding incidence, indications, complications and various other aspects of primary caesarean section done in primigravida and multigravida.

2.1 Objective: To compare incidence, indications and outcomes of primary caesarean sections done in primigravida and multipara.

3. Results & Analysis

Statistical analysis was done by frequency and percentage. Out of 140 primary CS, primigravida accounted for 86 cases (61.43%) and multigravida for 54 cases (38.57%) suggesting that primary caesarean section was more common in primigravida.

In primigravida most common indication was fetal distress (11.63%) and hypertensive disorders with induction failure (11.63%), followed by malpresentation, dystocia, oligohydramnios, PROM with unfavourable cervix each of which were equally causative in 10.46% cases, followed by hypertensive disorders with unfavourable cervix (8.14%), cephalopelvic disproportion (5.81%), postdated pregnancy with unfavourable cervix (5.81%), less fetal movement (4.65%) and antepartum haemorrhage (3.5%). Valuable pregnancy, IUGR, postdated pregnancy with induction failure each accounted for 2.33% of the cases. In multigravida indications were as follows: malpresentation

and dystocia each 16.67%, fetal distress, oligohydramnios, hypertensive disorder with unfavourable cervix each 11.11% followed by antepartum haemorrhage and PROM each 7.4%, cephalopelvic disproportion, valuable pregnancy and postdated pregnancy with unfavourable cervix 5.6%, less fetal movement (1.85%). Overall in both the groups malpresentation and dystocia were the commonest (12.86%) followed by fetal distress (11.43%), oligohydramnios (10.71%), hypertensive disorder and PROM with unfavourable cervix (9.29% each), hypertensive disorder with induction failure (7.14%), cephalopelvic disproportion and postdated pregnancy with unfavourable cervix (each 5.71%), antepartum haemorrhage (5%), less fetal movement and valuable pregnancy (each 3.57%). IUGR and postdated pregnancy accounted for less than 1.5% of cases. This is elaborated in Table 2.

Postoperative complications developed in 29.63% of multigravida and 26.74% of primigravida. Overall 27.85% suffered from various postoperative complications whereas 72.15% had uneventful postoperative period. In primigravida most common complication was respiratory tract infection followed by paralytic ileus. In multigravida most common was paralytic ileus followed by wound infection and respiratory tract infection. UTI, spinal headache, thromboembolism was seen in none of both sets of women. Puerperal pyrexia, postpartum haemorrhage, postpartum eclampsia were less common complications in both the groups. It indicates that overall complication rate was higher in multigravida. This is illustrated in Table 3.

Table 1: Incidence of primary CS (Frequency & %) in primi and multigravida

Primary CS	No	%
Primigravida	86	61.63
Multigravida	54	38.57
Total	140	100%

Table 2: Indications of CS in primigravida and multigravida

Indications of CS	Primigravida		Multipara		Total	
	No	%	No	%	No	%
Antepartum haemorrhage	3	3.49	4	7.4	7	5
Malpresentation	9	10.56	9	16.67	18	12.86
Dystocia/Non progress of labour	9	10.56	9	16.67	18	12.86
Cephalopelvic disproportion	5	5.81	3	5.56	8	5.71
Meconium stained liquor (MSL)	10	11.63	6	11.11	16	11.43
Less fetal movement	4	4.65	1	1.85	5	3.57
Oligohydramnios	9	10.46	6	11.11	15	10.71
Unfavourable Cervix						
1. With hypertensive disorder	7	8.14	6	11.11	13	9.29
2. With postdated pregnancy	5	5.81	3	5.56	8	5.71
3. With PROM	9	10.46	4	7.40	13	9.29
Induction failure						
1. With hypertensive disorder	10	11.63	0	0	10	7.14
2. With PROM	2	2.33	0	0	2	1.43
Valuable pregnancy	2	2.33	3	5.56	5	3.57
Intrauterine growth restriction	2	2.33	0	0	2	1.43
Total	86	100	54	100	140	100

Table 3: Complications of Primary LUCS in primi and multigravida

Types of Post-operative Complications		Puerperal pyrexia	Paralytic ileus	Wound infection	Resp infection	PPH	Post Partum Eclampsia	UTI	Spinal head ache	Thrombo-embolism	No Complication	Total
Primi gravida	No	2	5	3	6	2	5	0	0	0	63	86
		23										
	%	26.74										
Multi gravida	No	1	6	4	4	0	1	0	0	0	38	54
		16										
	%	29.63										
Total	No	39									101	140
	%	27.85									72.15	100

4. Discussion

Caesarean section (CS) means birth of a foetus through an abdominal incision and then via uterine incision [1]. Primary CS when it is done in a woman for the first time, where repeat CS when done in a woman who had already atleast one prior caesarean birth. Primary caesarean section in a multigravida means first caesarean section done in the patients who had delivered vaginally once or more. It is the commonest major surgical procedure and accounts for more than one million major operations done yearly all over the world. It has become popular as a part of obstetric practice in later part of the nineteenth century and the sole aim is to decrease fetomaternal morbidity and mortality which was on higher side previously due to home deliveries conducted by untrained birth attendant, difficult vaginal birth for obstructed labour, destructive procedures, deep pelvic and perineal injuries due to difficult high forceps application, limited availability of safe anaesthesia and high postoperative complications because of limited supply of broad spectrum antibiotics. CS can effectively prevent fetomaternal morbidity and mortality when used for appropriate reasons within threshold limit [2]. So positive fetomaternal outcome is crucial rather than putting a limit for CS rates. High rates of CS are associated with substantial health care costs. WHO (world health organization) has proposed an incidence of CS between 10%-15% as a target to ensure optimum maternal and neonatal outcome [3]. More than 85 % of CS performed for four main indications; previous CS (44%), dystocia (10%), fetal compromise (10%) and abnormal fetal presentation (3%). Caesarean section on maternal request is a rising new indication accounts for 1-7% [4]. Factors leading to rise in CS rates are complex which includes changes in characteristics of the population, increase in prevalence of obesity and of multiple pregnancies, nulliparous older age women. Besides Other nonclinical factors such as women increasingly wanting to determine how and when their child is born, generational shifts in work, physician factors,

increasing fear of medical litigation, as well as organizational, economic, social, ethical factors which have added to the list of indications leading to alarmingly high rate of CS all over the world making it a major public health concern [5]. As with any surgery CS has both maternal intraoperative and postoperative short and long-term risks as well as neonatal risks but these are balanced between lower rates of perineal trauma, pelvic floor dysfunction, neonatal birth trauma and still birth rate. Complications are more common in referred emergent CS [6]. These can extend many years beyond the current delivery and affect the health of the women, the child and future pregnancies. It increases likelihood of short term issues such as requiring a blood transfusion, risk of anaesthesia complications, organ injury, infection, thromboembolism; neonatal respiratory distress as well as long term in subsequent pregnancies like ruptures uterus, placenta accreta, placenta previa, ectopic pregnancy, infertility, hysterectomy, intraabdominal adhesions and increased risk of asthma and obesity in children [3]. Surgical techniques do not differ widely and minor variation is the rule around the globe. The incidence of CS has doubled or tripled all over the world in the last 15 years although modern technology and facilities have made this surgery remarkably safe, yet CS is associated with increased risk of maternal morbidity and mortality as compared to vaginal delivery as well as it also complicates the management of subsequent pregnancies[7]. This increase in caesarean rate has not contributed significantly to the simultaneous observed reduction in perinatal mortality, so the primary CS performed on a woman is of much obstetric significance and needs a detailed study.

In this study, primigravida mothers account for 61.43% and multigravida accounts for 38.57% of primary caesarean sections, which is concordant with studies by Birla *et al*[8] (63.33% primi, 36.67% multi), Desai *et al*[9] (61.08% primi, 38.91% multi) and Moni *et al*[10] (83% primi and 17% multi).

Indication of CS in our study and other related studies are as follows:

Indication of CS in primi	Our Study (%)	Naheed et al [14] (%)	Desai et al [9] (%)	Birla et al [8] (%)
MSL	11.63	60.8	36.3	-
Induction failure	13.96	2.8	-	6.1
Malpresentation	10.46	20	9.63	15.57
Dystocia	10.46	4.8	14.81	20.37
Oligohydramnios	10.46	-	-	6.53
PROM with unfavourable Cx	10.46	-	7.4	2.1
Cephalopelvic disproportion	5.81	-	27.4	13.4
APH	3.49	1.6	3.7	1.89
Valuable pregnancy	2.33	-	-	-
IUGR	2.33	0.4	-	6.31

Indication of CS In Multi	Our study (%)	Himabindu et al [13] (%)	Desai et al [9] (%)	Birla et al [8] (%)	Rajput et al [11] (%)
MSL	11.11	24.7	25.58	-	18.39
Induction failure	-	5.9	-	3.64	-
Malpresentation	16.67	19.3	17.44	19.26	29.79
Dystocia	16.67	11.8	4.65	16	8.55
Oligohydramnios	11.11	-	-	7.64	-
PROM with unfavourable Cx	7.4	9.6	6.98	4.73	-
Cephalopelvic disproportion	5.56	3.2	19.77	13.82	9.32
APH	7.4	11.2	22.09	21.46	18.39
Valuable pregnancy	5.56	3.2	-	11.27	-
IUGR	-	-	-	4.73	-

Proportion of different postoperative complications of primary CS in primigravida and multigravida is compared with findings of other studies and mentioned in the following table:

Proportion of postoperative complications in primigravida in decreasing order

Our study	Respiratory tract infection>Paralytic ileus> Postpartum eclampsia> Wound infection> PPH= Puerperal pyrexia
Birla et al [8]	Respiratory tract infection= PPH> UTI> Wound infection

Proportion of postoperative complications in multigravida in decreasing order

Our study	Paralytic ileus> Respiratory tract infection> Wound infection> Puerperal pyrexia= Postpartum hypertension
Birla et al [8]	PPH> Respiratory tract infection> Wound infection> UTI> Abdominal distension
Desai et al [9]	Abdominal distension> Puerperal pyrexia> Wound infection> PPH> UTI> Puerperal psychosis
Himabindu et al [13]	Puerperal pyrexia> PPH> UTI> Respiratory tract infection> Wound infection> Abdominal distension
Rajput et al [11]	Puerperal pyrexia> Respiratory tract infection> Wound infection> Abdominal distension> PPH

Birla et al [8] conducted a study in Umaid Hospital, Dept. of Obstetrics and Gynecology, attached to Dr. S. N. Medical College, Jodhpur on 4981 women of which 2179 were primi and 2802 were multigravida. 475 primi and 275 multi underwent primary cs. Incidence of primary CS was higher in primigravida. Fetal distress and CPD were most common indications in both primi and multigravida. Incidence of Antepartum Eclampsia was higher in primi and incidence of Antepartum Haemorrhage was higher in multigravida. Incidence of blood transfusion and wound gaping were higher in multigravida.

Desai et al [9] conducted a study of caesarean section performed on multiparous women at Dhiraj General Hospital, Gujarat, Dept. of Obstetrics and Gynaecology for 1.5 years. It was observed that total number of primary CS in multipara was 86 (29.05%), in nullipara was 135 (45.61%). Fetal distress (25.58%), APH (22.09%) and CPD

(19.77%) were most common indications of CS in multipara and fetal distress (36.30%), CPD (27.40%) and prolonged labour (14.81%) were most common indications in nullipara. Main forms of maternal complications were abdominal distension (13.95%), pyrexia (11.63%), wound sepsis (10.47%).

Moni et al [10] performed a study on 150 women who underwent primary CS in Dr. SMCSI Medical College, Trivandrum, Kerala from July 2012 to July 2013. Compared to multigravida primigravida underwent more number of CS (83%). Leading indications of primary CS were fetal distress (30%), non-progress of labour (22%), CPD (17%), Breech (16%).

From above discussion, it is evident that the result of our study is similar to the results of aforementioned studies.

5. Conclusion

From our study, it is concluded that rate of primary CS is higher in primi than multigravida. Meconium stained liquor, hypertensive disorder with induction failure, malpresentation, dystocia, oligohydramnios, PROM are common indications of CS in primigravida as well as multigravida. Overall respiratory tract infection, paralytic ileus and wound infection are more common post-operative complications and complication rate is higher in multigravida.

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