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Original Research Article

A comparative study of perinatal outcome in primary caesarean in multiparous women to that in nulliparous women

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ABSTRACT

Background: To compare indication, incidence, complication, fetal and maternal morbidity and mortality in primary caesarean section in multiparous women and nulliparous women. Objective of this study was to compare perinatal outcome of caesarean section in multiparous women to that in nulliparous women.
Methods: It is a prospective observational study conducted in a tertiary care centre during April 2017 to April 2018. All patients who delivered vaginally and abdominally were noted during study period. All patients undergoing primary caesarean section were noted. Their indication, incidence and complication throughout stay were noted. Statistics were calculated separately for multiparous women and primiparous women. Statistical analysis was done using chi square test.
Results: Total 150 primary caesarean section in primiparous women and 100 primary caesarean section in multiparous women were done. Fetal distress and meconium stained amniotic fluid forms the most common indication in study. Birth weight of babies was more in multiparous women. Need of blood and blood products was more in multiparous women compared to nulliparous women. Complications like postpartum fever and wound gape was more in multiparous women.
Conclusions: In the study population significant difference was seen between the indication and complication between multiparous and nulliparous women.

Keywords: Caesarean section, Multiparous, Nulliparous

INTRODUCTION

Pregnancy and delivery are one of most important and crucial periods in life of women and her family. Having a healthy antepartum, intrapartum and postpartum period plays important role in subsequent pregnancy outcomes in every woman's life. Goal 3 of sustainable development goals 2015 is to reduce maternal mortality to less than 70 per 100000 live birth.[1] Maternal mortality rate decreased by 37% between 2000 to 2015. There were 3,30,000 maternal mortality worldwide in 2015 due to preventable causes.[2] With the introduction of modern technology in the labor wards and neonatology units, there was a further rise in caesarean section. The study intents to study incidence, indication and complication of primary caesarean section in multiparous women and nulliparous women.

METHODS

A prospective observational comparative study conducted at tertiary care hospital from April 2017 to April 2018.

All nulliparous and multiparous pregnant women > 34 weeks in a labor ward of tertiary care center undergoing primary caesarean section were consecutively included.

As per hospital records data of 2016, 153 primiparous and 91 multiparous caesareans were done. Hence for sample size an approximate minimum 150 primiparous and 100 multiparous primary caesarean section will be included by Total Enumeration Method. Here sample size cannot be calculated by statistical formula because the patients coming to tertiary care center of present study are being referred from various places and this center does not serve any particular population base from which sample can be drawn.

Inclusion criteria

- Nulliparous and multiparous pregnant women of gestational age more than 34 weeks who had undergone cesarean section for the first time
- Singleton pregnancy.
- Those patients who give written informed consent to participate in study.

Exclusion criteria

- Gestational age <34 weeks
- Multiple gestations
- Patients with non-viable pregnancy.

Discontinuation and withdrawal criteria

If participant is too distressed during the interview due to sensitive nature of the questions asked or due to any other reason, she could withdraw from the study at any time.

RESULTS

In this study, 150 primiparous and 100 multiparous women with primary caesarean section were included in study. In primiparous women, 90% of primary caesarean were emergency whereas 98% of multiparous caesarean section were emergency section.

Table 1: The division of emergency and elective caesarean section in study population.

LSCS	Primiparous	Multiparous
Total primary caesarean section	150	100
Emergency	98%	90%
Elective	2%	10%

In the study, 62% primiparous and 73% multiparous women were in term of gestation, where rest were preterm (p=0.071).

Most common indication of caesarean section in primiparous and multiparous was meconium stained amniotic fluid comprising 17.3% and 16% in primiparous and multiparous respectively. Other indications being oligohydramnios (11.3%, 13%), fetal distress (10%, 9%), failure of indication, cephalopelvic disproportion and breech presentation.

Table 2: Weeks wise distribution of study population.

Gestation	Primiparous	Multiparous	Total
38-42 weeks	62%	73%	66.4%
<37 weeks	38%	27%	33.6%
>42 weeks	0	0	0
p=0.071			

Babies born >3.5 kg were 12% in multiparous and 6% in primiparous women during study whereas 22% between weight 3-3.5 kg in multiparous women compared to 11.7% in primiparous women (p=0.001).

Table 3: Indication of LSCS in study population.

indication of LSCS	Gravid status		Total
	Primipara	Multipara	
Breech	11	6	17
	7.30%	6.00%	6.80%
CPD with BOH	6	6	12
	4.00%	6.00%	4.00%
Failure of induction	11	5	16
	7.30%	5%	6.40%
Fetal distress	15	9	24
	10%	9%	9.60%
Meconium stained liquor	26	16	42
	17.30%	16%	16.80%
Oligohydramnios	17	13	30
	11.30%	13%	12%
Others	40	20	60
	26.70%	20%	24%
Placenta previa	7	11	18
	4.70%	11%	7.20%
PROM	6	4	10
	4%	4%	4%
Severe PIH	11	10	21
	7.30%	10%	8.40%
Total	150	100	250
	100%	100%	100%
p=0.794			

During the study, 84.7% and 82% of primiparous women and multiparous women have hospital stay of <1 week, but 8.7% of primiparous and 8% of multiparous women have stay >15 days (p=0.633).

Need of blood and blood products, was more in multiparous women (25%) compared to 17.3% in primiparous women (p<0.05).

When considering the complications, total primiparous and multiparous having fever were 7.1% and 11% respectively (p>0.05) and mortality comprised 5% and 8% respectively (p>0.05). Rest complications considered

are wound gape, wound discharge, PNMR, paralytic iILeus, and other being bladder injury, eclampsia, obstetric hysterectomy, postpartum convulsion, PRES syndrome.

Table 4: Distribution of birth weight in study population.

Birth weight	Gravid status		Total
	Primipara	Multipara	
<1.5 kg	19	3	22
	12.70%	3%	8.80%
1.6-2 kg	31	11	42
	20.70%	11.00%	16.80%
2.1-2.5 kg	36	16	52
	24%	16%	20.80%
2.6-3 kg	38	36	74
	25.30%	36%	29.60%
3.1-3.5 kg	17	22	39
	11.30%	22.00%	15.60%
>3.5 kg	9	12	21
	6%	12%	8.40%
Total	150	100	250
	100%	100%	100%
p=0.001			

Table 5: Duration of stay of study population.

Duration of stay	Gravid status		Total
	Primiparous	Multiparous	
1 week or less	127	82	209
	84.70%	82.00%	83.60%
8-14 days	10	10	20
	6.70%	10.00%	8.00%
>14 days	13	8	21
	8.70%	8%	8.40%
Total	150	100	250
	100%	100%	100%
p=0.633			

Table 6: Utilization of blood and blood products in study population.

Gravid status			
Blood and blood product	Primi-parous	Multi-parous	Total
Yes	26	25	51
	17.30%	25%	20.40%
No	124	75	199
	82.70%	75%	79.60%
p=0.141			

Table 7: Complications in study populations.

Complication	Factor present or absent	Gravid status			Chi square
		Primiparous	Multiparous	Total	
Wound gape	Yes	3	5	8	0.187
		2%	5.00%	3.20%	
	No	147	95	242	
		98%	95%	96.80%	
Wound discharge	Yes	13	8	21	0.852
		8.70%	8%	8.40%	
	No	137	92	229	
		91.30%	92%	91.60%	
Fever	Yes	11	11	22	0.439
		7.30%	11%	8.80%	
	No	139	89	228	
		92.70%	89.00%	91.20%	
PNMR	Yes	16	11	27	0.852
		10.70%	11%	10.80%	
	No	134	89	222	
		89.30%	89%	89.20%	
Mortality	Yes	6	8	14	0.286
		4%	8%	5.60%	
	No	144	92	236	
		96%	92%	94.40%	
Illeus	Yes	15	11	26	0.8
		10%	11%	10.40%	
	No	135	89	224	
		90%	89%	89.60%	

DISCUSSION

In the study, during duration of 1 year, 150 PCS in nulliparous and 100 PCS in multiparous were noted.

Table 1 shows that out of 150 PCS in primiparous (90%) were emergency cases and only 10% were elective cases. Similarly, in multiparous women, 98% cases were emergency and only 2% cases were elective LSCS. The results were comparable to study done by Sharmila et al on multigravida.[3] Another study done by Rao J et al on primary caesarean section in multiparous, emergency caesarean delivery performed in 96% of cases and 4% were elective.[4]

Table 2 on comparison of completion of term among primi and multiparous women, only 62% primi came within 38 to 42 weeks gestation whereas 73% multiparous came within 38-42 weeks, however the difference was not significant. Rowaily MA et al, reported similar results in his study on primary cesarean section in multigravida found that most the patients (78.8%) belong to gestational age of 37-42 weeks followed by 18.2% patients in gestational age of <37 weeks.[5]

In present study, meconium stained liquor with fetal distress was most common indication contributing for 27.3% primary LSCS among primiparous women and 25% multiparous women. Similarly breech presentation (7.3%) and failure of induction (7.3%) and oligohydramnios (11%) was seen more in primi gravida as compared to Multi parous women where proportion of breech presentation, Failure of Induction and oligohydramnios was 6%, 5% and 13% respectively. Similarly, other indication was placenta previa and severe PIH, cephalo pelvic disproportion with Bad obstetric history was also higher in multiparous. Similarly, in study done by Birla S et al, on comparing the indications of cesarean section in two groups fetal distress accounted for 32.21% cases in primigravida while it was an indication for 17.45% cases in multigravida (p value <0.001).[6] study done by Sobande AA et al, and Kolawole AOD et al, showed fetal distress most common cause in nulliparous (28%) as well as grand multiparous (25%).[7,8] The present study had similar results to Desai et al, which also had fetal distress as the most common indication (25.58% cases).[9]

In present study, breech presentation, oligohydramnios and failure of induction was more common in primiparous women. The findings were comparable to study done by Birla S et al.[6] However, in the present study abruptio placenta was an indication in only 1.89% of cases in primigravida whereas in multigravida it led to cesarean section in 12.73% cases (p value <0.001). Also, placenta previa was an indication in 8.73% cases in multigravida (p value <0.001). This result was comparable to study done by Sobande AA et al and Kolawole AOD et al, where APH contributed to 6.8% and 13.9% in nulliparous and grand multiparous respectively.

The risk of antepartum hemorrhage increases with increase in previous pregnancy. Hence, In primigravida a proper antenatal checkup, antenatal advise on contraception, proper intranatal management, and adequate management of antenatal high risks like hypertension and diabetes should decrease need of caesarean sections. Whereas in multiparous women, timely identification of high-risk factors, appropriate nutritional supplementation, adequate antenatal checkup and timely referrals if needed, and appropriate family planning measures to prevent further pregnancy should be considered.

In the present study, need of blood and its product is higher in multiparous women (25%) as compared to primiparous women (17.5%) the findings are comparable with the study done by Birla S et al.[6] Multigravida required blood transfusions in 15.27% cases of primary caesarean as compared 2.94% cases needed blood transfusion in primigravida (p value <0.001). Study by Himabindu et al, had blood transfusion in 29% cases of primary caesarean section on multigravida.[10] Anemia is a national problem in our country. Shortly spaced pregnancy, nutritional malnourishment and increase blood loss during menstruation can all contribute to long standing anemia. To add up, antepartum hemorrhage and postpartum blood loss can lead to more blood and blood product needed in multiparous women.

In present study postoperative complications among multiparous and primiparous women shows that mortality was higher among multiparous women (8%) as compared to primigravida (4%). Similarly, wound gap (5%) and fever (11%) is seen more in multiparous women as compared to primiparous women where wound gap and fever is present in 7.3% and 2% cases respectively. The other complication included wound discharge, PNMR and paralytic ileus which are comparable in both groups. this result is comparable to study done by Birla S et al, incidence of wound gape is significantly higher in multigravida (6.18%) compared to primigravida (2.53%) This again points towards the poor preoperative maternal condition like anemia and malnutrition more prevalent in multigravida.

Advantage of this study is that being a prospective study and all primary cesarean section are included, there is no selection bias.

CONCLUSION

In concluding, the rate of primary caesarean section is on rise. According to WHO, the rate of caesarean section should be <15%. To avoid increase in caesarean section, appropriate management of pregnant women during antenatal visit like monitoring blood pressure, sugar monitoring, early identification of high-risk factor and its

appropriate treatment. During the intranatal period, fetal heart rate monitoring, techniques like fetal scalp electrode monitoring and timely decision of termination of normal trial of labor should help to decrease fetal and maternal morbidity and mortality.

Labor rooms and hospitals should be equipped with proper protocols of managing complications in labor.

Family planning measures should be emphasized to all women, antenatal and postnatally to decrease rate of childbirth and thus associated complications associated with multiparous women. Appropriate and timely obstetric measures will lead to decrease in maternal and fetal mortality and morbidity.

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