Research Article

Comparison of obstetric and neonatal outcome between first and second stage caesarean sections in Tertiary Hospital, MMC & RI, Mysore

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Abstract

Aim: To determine maternal and neonatal outcome associated with caesarean section done in women at term in second stage of labour, and to compare them with outcomes in first stage caesarean sections. **Materials and Methods:** A retrospective cohort study, comparing two groups, Group I: 60 women who underwent caesarean section in second stage and Group II: 60 women who underwent caesarean section in first stage of labour. The study was done at Department of Obstetrics and Gynaecology at Cheluvamba Hospital, MMC and RI Mysore between June 2013 to June 2014. Data was collected from parturition register and from medical records of the patient. **Results:** Out of 10,190 deliveries, they were 3,752 caesarean deliveries with a rate of 36.8 %.The rate of second stage caesarean section was 1.6%. Group I patients had higher maternal and perinatal morbidity like uterine angle extension (28.3%), atonic PPH(50%), Prolonged bladder catheterisation(51.7%), wound infection (6.7%) and postpartum fever (26.7%) while only complication in first stage caesarean sections was atonic PPH (5%). They were more NICU admission in Group I(68.3% VS 30%) than in Group II. There were 10 perinatal deaths in Group 1 and 2 in Group II. Mean birth weight of babies in Group I (3.03 kg VS 2.8 kg) ($P<0.05$). **Conclusion:** Second stage caesarean sections are associated with significant intra-operative and neonatal morbidity. Higher birth weight is a risk factor for second stage caesarean sections.
Keywords: second stage, caesarean section, outcome.

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INTRODUCTION

Caesarean deliveries done in second stage of labour account for one-fourth of all primary caesarean sections.[1] One of the greatest challenges in obstetric practice is taking a decision for cesarean section in the second stage of labour.The rates of cesarean sections have risen steadily in the past two decades and so is rise in second stage of cesarean section. Inspite of the rapid rise of cesarean section, little attention has been paid to the rise of emergency cesarean section in the second stage of labour. Caesarean section at full dilatation of cervix with an impacted fetal head can be technically difficult and associated with increased trauma to the lower uterine segment and adjacent structures as well as increased haemorrhage and infection.[2-3] Neonatal mortality and morbidity due to hypoxia and fetal trauma remains to be one of the major issue regarding the caesarean section performed in the second stage of labour.[4-5] The maternal risks of second stage caesareans include major haemorrhage, longer hospital stay, greater risk of bladder trauma, and extension tears of the uterine angle leading to broad ligament haematoma.

AIMS AND OBJECTIVES

This study was carried out to determine the maternal and neonatal outcome associated with cesarean delivery in the second stage of labour and compare it with outcome in women undergoing cesarean delivery in first stage of labour.

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MATERIALS AND METHODS

This was a retrospective cohort study between june 2013 to June 2014, in Department of Obstetrics and Gynaecology at Cheluvamba Hospital, MMC and RI Mysore. This study compared cesarean sections done in the second stage of labour (Cases, Group I) with cesarean sections in the first stage of labour (Controls, Group II). Singleton live pregnancy of 37 weeks or more gestation. Women with previous cesarean section were excluded. Information was collected in structured format and included demographic data, relevant obstetric data, indications for cesarean section, maternal and neonatal complications.Statistical analysis was performed on SPSS software.Differences in the outcome, frequencies were analysed using mean and Standard deviation and P values of less than 0.05 were accepted as indicating statistical significance.

RESULTS

During the study period, there were 10,190 deliveries, with 3,752 cesarean deliveries with a rate of 36.8 %. There were 60 second stage cesarean sections. The rate of second stage cesarean section was 1.6 %. Deep transverse arrest (61.6 %) and Obstructed labour (25%) were the most common indications for the cesarean section in the second stage. Fetal distress (46.6 %) and failed induction (45 %) were the most common indications in the first stage cesarean sections.

Table 1: Demographic data of mother in both the groups

Age	Second stage	First stage
Under 20	30	28.3
21-30	69	66.6
31-40	1.6	5

1b: Parity

	Primi	Multi
Second stage	45	15
First stage	31	29

Variable	Second stage (Group I)	First stage (Group II)	P value
Age(years)			
Under 20	18 (30%)	17 (28%)	
21-30	42 (70%)	40 (66.7%)	0.215
31-40	0 (0 %)	3 (5%)	
Parity			
Primigravida	45 (75%)	31 (51.7 %)	0.008
Multigavida	15 (25%)	29 (48.3%	0.08
BMI	26.6	24.6	0.000

Table 2

	Second stage	First stage
Decision delivery interval	48	98
Total operation time	69	40

Table 3: Intra operative complications

	Second stage	First stage
Uterine angle extension	28.3	5
Difficult extraction	40	5
PPH	50	11.7
Bladder injury	41.6	8.3

Table 4: Comparison of maternal intraoperatve – complications

Maternal morbidity	Second stage (Group I)	First stage (Group II)	P value
Decision delivery interval	48 minutes	98 minutes	0.00 5
Uterine angle extension	17 (28.3 %)	3 (5%)	0.001
PPH	30 (50%)	7 (11.7 %)	0.001
Bladder injury	31 (51.7 %)	5 (8.3%)	0.001
Total operation time	**69 minutes**	**40 minutes**	**0.00**

Table 5: Neonatal Outcome

	Second stage	First stage
5 ' APGAR < 7	30	16.7
NICU admissions	68.3	16.7
Neonatal death	16.7	3.4

Table 6

Neonatal morbidity	Second stage (Group I)	First stage (Group II)	P value
Birth weight	3.03	2.81	0.016
5' min APGAR score (<7)	18 (30%)	10 (16.7 %)	0.084
NICU admissions	41 (68.3 %)	18 (30 %)	0.000
Neonatal death	10 (16.7 %)	2 (3.4 %)	0.014

Table 7

Neonatal morbidity	Second stage (Group I)	First stage (Group II)	P value
Birth weight	3.03	2.81	0.016
5' min APGAR score (<7)	18 (30%)	10 (16.7 %)	0.084
NICU admissions	41 (68.3 %)	18 (30 %)	0.000
Neonatal death	10 (16.7 %)	2 (3.4 %)	0.014

Table 8: Post operative maternal complications

	Second stage	First stage	P value
Fever	26.7	5	0.001
Prolonged catheterisation	51.7	8.3	0.000
Paralytic ileus	3.3	0	0.000
Wound infection	6.7	1.7	0.17
Chorioamnitis	1	0	0
Blood transfusion	25	10	0.31

DISCUSSION

Recent data from various studies suggests that cesarean delivery in labour is associated with increased maternal morbidity compared with cesarean delivery with no labour.The second stage interventions are associated with increased maternal and neonatal morbidity and mortality.Our hospital is a major referral hospital and caters the referrals from neighbouring 5 districts.Majority of patients were unbooked and were referred late from different hospitals after getting failed trial of labour or being mismanaged in labour. The maternal morbidities can be due to the difficulty in handling the faetus impacted to the maternal pelvis. The unfavourable neonatal outcomes are probably due to prolonged labour which leads to hypoxia. In our study, second stage cesarean section was more common among primigravidas and in the age group of 21-30 years. This could be due to high rate of mismanagement and cephalopelvic disproportion. Increase in the rate of primary cesarean section is a consequence of changes in maternal characteristics and obstetric practice, such as increase in maternal age, weight, weight gain during pregnancy, labour induction rates. BMI of the women requiring CS at the second stage of labour was significantly higher, suggesting that obesity is not only an operative but an obstetric risk as well. In our study average BMI in group1 is 26.6 and group 2 is 24.6. our study also shows that there is increased operative complications in second stage section like increased risk of uterine angle extension, post partum hemorrhage, bladder injury when compared with first stage section and was statistically significant similar to a study done by Swapan das *et al.* and W.R.Cohen *et al*.[6-7] Neonatal morbidity was significant in Second stage study group, more than half of the infants requiring NICU admissions.Intraoperative foetal hypoxia was therefore the most common and serious complication associated with second stage cesarean sections. The higher fetal morbidity could be because of prolonged labour and manipulation by different birth attendants before coming to our hospital. In our study, there is significant difference in the birth weight among second stage cesarean section (3.03kg) with that of first stage cesarean section (2.81kg).[8-9] Similar results have been seen in studies done by Murphy Dj *et al.* and Myles TD *et al.*

CONCLUSION

The second stage interventions in our set up seem high and are associated with increased maternal and foetal morbidity. The common risk factors found were un-booked status, Primigravidas, mismanaged labour by inexperienced personnel and late referral. The rate of complications could have been avoided by improvement of antenatal care, assessment in early labour by experienced obstetricians and timely intervention.

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