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## Comparison of fetomaternal outcome between women undergoing caesarean section at stage 2 of labor vs caesarean section during stage 1 (active phase) of labor: A prospective observational study

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### Abstract

**Objectives:** Caesarean section has many implications for maternal and neonatal morbidity as well as in subsequent pregnancy outcomes. Our study compared neonatal and maternal outcomes of the caesarean sections performed in the first stage versus the second stage of labor.

**Methods:** This is a 6-month prospective observational study conducted at a tertiary care hospital. 200 patients drawn in 2 groups – A & B with 100 patients in each group. Group A consisted of patients who underwent caesarean at full dilatation and group B comprised of 100 patients who underwent caesarean during stage 1 (active phase) of labour.

**Results:** 85% cases were primigravidae in Group A vs 91% in group B. Both the groups were comparable in terms of parity. In Group A, stitch line soakage was seen in 4% of cases vs 1% in Group B patients, statistically comparable ( $p < .174$ ), distension was seen in 18% of cases in Group A vs 10% in Group B patients, again statistically comparable ( $p = .103$ ).

For neonates in group A, out of 54, 42 (78%) admissions were because of RDS and rest 12 (22%) were because of early neonatal sepsis. In Group B, 11 (87%) admissions were because of RDS while the rest 2 (13%) were because of early neonatal sepsis. There was no significant difference in age between cases and controls.

**Conclusion:** Cesarean delivery performed in the second stage was associated with increased maternal morbidity such as difficulty in head delivery, haemorrhage, uterine angle extension, and the results were statistically significant between cases and controls.

**Keywords:** Primigravidae, caesarean delivery, maternal morbidity, patients

### Introduction

Worldwide nearly 10-20% of deliveries require intervention which is frequently caesarean section. It is the most commonly performed major abdominal surgery in women all over the world. 1 World Health Organisation has recommended an ideal caesarean section rate between 10% and 15%.

As per the latest Indian data (National Family Health Survey 2015-2016, NFHS-4), the caesarean rate at the population level seems to be ranging between 17.2% - 20%.<sup>3</sup> The rate of caesarean delivery continues to increase despite efforts to constrain operative abdominal deliveries. This is a cause for concern because the caesarean section is associated with a higher likelihood of adverse outcomes for both mother and fetus as compared to vaginal delivery.<sup>4</sup> Most common indications for cesarian section are mainly; foetal compromise, “failure to progress” in labour, repeat CS (caesarean section), and breech.

The current most common reason given performing the CS has changed, and now it is reported to be “maternal request.”<sup>5</sup> The escalating rates of caesarean are worrying and the risk it poses to the overall health of the women is alarming. Additionally, an emergency caesarean section in the course of labour is related to poor maternal satisfaction and bonding with her newborn.<sup>6</sup> One important factor is the timing of the caesarean section when it is performed, i.e., elective, a first stage, or a second stage. Although the morbidity of caesarean in the second stage of labour has been described by many studies, comparison with caesarean delivery in the first stage of labour is less well known. Very few studies in literature are there to compare the two different timings of caesarean section and its effects on mother and baby; hence, the present study was conducted to

bridge this gap and provide data by comparing fetomaternal outcomes of cesarean delivery performed in the first and second stage of labour at the tertiary care centre.

### Materials and Methods

Prospective study which was conducted in the department of obstetrics & gynecology, Government Medical College Jammu from 1st January 2022 to 31st August 2022. 200 patients drawn in 2 groups – A & B with 100 patients in each group. Group A consisted of patients who underwent caesarean at full dilatation and group B comprised of 100 patients who underwent caesarean during stage 1 (active phase) of labor. Both groups were analyzed for indication of Caesarean, and various parameters of fetomaternal outcome. Subsequently the parameters were compared between 2 groups and inferences drawn.

### Results and Discussion

#### Comparison in terms of parity

**Table 1:** 85% cases were primigravidae in Group A vs 91% in group B. Both the groups were comparable in terms of parity

Variable	Group a (%) mean	Group b (%) mean
Age 18-25	45%(22.24)	38%(22.18)
26-30	40%(27.6)	50%(27.6)
>31	15%(32.73)	12%(32.75)

In Group A, 57% cases were unbooked whereas in Group B 50% were unbooked. Both the groups were comparable on this aspect

#### Comparison In Terms Of Post-Op Complications

In Group A, stitch line soakage was seen in 4% of cases vs 1% in Group B patients, statistically comparable (p.174), distension was seen in 18% of cases in Group A vs 10% in Group B patients, again statistically comparable (p.103)

#### Comparison over urological complications

In Group A, 30% patients were kept catheterized for the purpose of bladder rest for more than 24 hours vs 14% in Group B patients which was statistically significant (p 0.006311). Group a patients had significantly higher rates of pre-op hematuria vs Group B patients which was 11% vs none.

#### Comparison over hospital stay and antibiotics for sepsis

16% patients in Group A had to be put on higher antibiotics for established sepsis or prevention of sepsis vs 3% in patients in Group B again statistically significant (p 0.001718). 56% of patients in Group A were discharged on 4th day and beyond vs 27% in Group B patients (p 0.000032)

**Comparison over post-partum haemorrhage** In Group A, 22% patients had pph vs 2% in Group B patients, again statistically significant (p 0.000013)

**Fetal Parameters and Outcome:** In 55% of cases in Group A, fetal weight was above 3 kgs with average fetal weight being  $3.075 \pm 0.48$  kgs. In Group B, the average fetal weight was  $2.91 \pm 0.46$  kgs.

**Comparison over apgar score:** In Group A – 48% of neonates had apgar score of 10/10 at one minute and 52% neonates had apgar score 8/10 or less. In Group B, 66% neonates had A/S 10/10 and rest 34% had A/S 8/10 or less. The p value being 0.010143 which is significant.

#### Comparison over NICU admission

In group A, 54% of babies required nicu admission vs 13% in Group B, statistically significant ( $p < 0.00001$ ). In group A, out of 54, 42 (78%) admissions were because of rds and rest 12 (22%) were because of early neonatal sepsis. In Group B, 11 (87%) admissions were because of RDS while the rest 2 (13%) were because of early neonatal sepsis.

**Comparison over neonatal mortality:** Neonatal mortality was 14% in Group A vs 4% in Group B, statistically significant (p 0.01348).

#### Comparison over techniques of fetal delivery

Group A required statistically significant higher and complex manoeuvres for delivery of fetus conventional manoeuvre being vertex delivery. In group a, 42% fetuses were taken out by Patwardhan technique, 1% by reverse breech extraction and rest were taken out by vertex. In Group B, 94% fetuses were taken out by vertex and the rest 6% were taken out by breech extraction.

#### Comparison over cause of caesarean

In Group A, the most common cause of caesarean was non descent of head 70% vs acute fetal distress in Group B – 49%. A further sub-analysis was done in Group A, where the fetal outcome was compared between time duration of full dilatation to time at caesarean section with fetal mortality.

In relation with time interval from full dilatation to caesarean, apgar score at one minute if caesarean done within 1 hour of full dilatation was 10/10 in 20% and 8/10 or less in 12%. Mortality in this group was 7.142%. Apgar score at one minute if caesarean done after 1 hour but within 2 hours of full dilatation was 10/10 in 6% cases and 8/10 or less - 8%. Mortality in this group was 21.428%. Apgar score at one minute if caesarean done after 2 hours of full dilatation – 10/10 in 22% vs 8/10 or less in 32%. Mortality in this group was 71.428%.

### Conclusion

Caesarean section in the second stage of labor is associated with significantly increased neonatal morbidity and mortality as well as increased maternal morbidity and post-op complications. Mortality was seen increasing with relation to time from full dilatation to caesarean section and Apgar score was not good predictor of fetal outcome

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