



A PROSPECTIVE STUDY TO EVALUATE MATERNAL OUTCOME IN WOMEN WITH SEVERE PRE-ECLAMPSIA WITH RESPECT TO MODE OF DELIVERY

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ABSTRACT

Introduction: Pre-eclampsia increases the risk of undesirable as well as lethal outcomes for both the mother and the fetus including preterm labor. Women with severe pre-eclampsia are at risk of developing life-threatening or life-altering complications. The route of delivery should be based on obstetric factors, including cervical status, obstetric history, and both maternal and fetal conditions. **Aim and Objective:** To evaluate maternal outcome in the women with severe pre-eclampsia with respect to mode of delivery. **Material and Methods:** This was a hospital based prospective study conducted at Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur. The study group comprise of 185 pregnant women admitted in labour room with severe pre-eclampsia as per inclusion and exclusion criteria. **Results:** Out of 185 pregnant women with severe pre-eclampsia, 43.24% (80) delivered vaginally, while 56.75% (105) underwent Cesarean section. The mean systolic and diastolic blood pressures for Cesarean deliveries were 174.9 mm Hg and 117.7 mm Hg, respectively, compared to 169.0 mm Hg and 111.6 mm Hg in vaginal deliveries. Among the Cesarean group, 42 women experienced vomiting, 17 had epigastric pain, 13 had visual disturbances, and 3 reported headaches. In the vaginal delivery group, 39 women had vomiting, 32 experienced headaches, 9 had epigastric pain, and 7 reported visual disturbances. **Conclusion:** Most pregnant women with severe pre-eclampsia in our study underwent cesarean section, which was associated with fewer maternal complications compared to vaginal delivery. Given these findings, cesarean section appears to be the safer delivery mode for women with severe pre-eclampsia.

KEYWORDS : Pre-Eclampsia, Maternal Outcome, Cesarean Section, Vaginal Delivery.**INTRODUCTION**

Pre-eclampsia is defined as blood pressure when it is greater than 140 mmHg systolic https://en.wikipedia.org/wiki/Systolic_blood_pressure or 90 mmHg diastolic on two separate times, four hours apart with proteinuria in a woman after twenty weeks of pregnancy.¹ Pre-eclampsia increases the risk of undesirable as well as lethal outcomes for both the mother and the fetus including preterm labor.¹ If left untreated, it may result in seizures at which point it is known as eclampsia.²

Systolic blood pressure ≥ 160 or diastolic blood pressure ≥ 110 and/or proteinuria $>3g$ in a 24-hour period is indicative of severe pre-eclampsia.³ Clinically, individuals with severe pre-eclampsia may also present with epigastric/right upper quadrant abdominal pain, headaches, and vomiting.⁴ Severe pre-eclampsia is a significant risk factor for intrauterine fetal death. Management of severe pre-eclampsia typically involves three major options. Immediate delivery is preferred for cases at 34 weeks' gestation or later.⁵ For pregnancies between 27 and 34 weeks, delivery within 48 hours after evaluating and stabilizing the maternal condition, along with corticosteroid treatment, is generally recommended. In cases before 27 weeks' gestation, expectant (conservative) management for more than 48–72 hours may be considered, often with corticosteroid treatment, although regimens can vary.

Women with severe pre-eclampsia are at risk of developing life-threatening or life-altering complications. The route of delivery should be based on obstetric factors, including cervical status, obstetric history, and both maternal and fetal conditions.⁶ If the cervix is unfavorable for labor induction, cervical ripening should be prioritized. Before 34 weeks' gestation, delivery is indicated if the maternal condition cannot be rapidly controlled, worsens, or if signs of fetal distress appear. Immediate delivery is warranted for maternal indications such as blood pressure $>160/110$ mmHg despite antihypertensive treatment, worsening clinical symptoms, deteriorating renal function, severe ascites, abruptio placentae, oliguria, pulmonary edema, or eclampsia. In these cases, Cesarean section is often preferred by clinicians.

Objective of our study was to find out the optimum mode of delivery in case of severe pre-eclampsia, so that the best maternal outcome can be obtained.

MATERIAL AND METHODS

This was a Hospital based prospective study conducted at Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur. The study group comprise of 185 pregnant women admitted in labour room with severe pre-eclampsia as per inclusion and exclusion criteria.

INCLUSION CRITERIA:

1. Women with singleton live pregnancy with severe pre-eclampsia (Systolic Blood Pressure ≥ 160 mmHg and Diastolic Blood Pressure ≥ 110 mmHg).
2. Pregnant women understanding and willing to participate in the study and ready to give informed consent.
3. Not a part of any other study.

EXCLUSION CRITERIA:

1. Congenital malformations of fetus
2. Women with other medical disorder.

METHODOLOGY

This prospective study was conducted in the Department of Obstetrics and Gynaecology at SMS Medical College, Jaipur. Women were enrolled based on specific inclusion and exclusion criteria and divided into two groups: Group-A (caesarean section) and Group-B (normal vaginal delivery). Maternal outcomes were compared between the two groups, focusing on postpartum eclampsia, acute renal failure, disseminated intravascular coagulation (DIC), postpartum hemorrhage, pulmonary edema, and maternal death. Data was compiled and analyzed statistically.

STATISTICAL ANALYSIS

Continuous variables was summarized as mean and was analyzed by using unpaired 't' test. Nominal/ categorical variables was summarized as proportions and was analyzed by using chi-square/ Fischer exact test. p-value <0.05 was taken as significant.

RESULT AND OBSERVATIONS

In the present study, as presented in table 1, out of 185 pregnant women with severe pre-eclampsia, 80 delivered vaginally, accounting for 43.24% of the total; and 105 were Cesarean deliveries, accounting for 56.75%.

TABLE 1- DISTRIBUTION OF WOMEN ACCORDING TO MODE OF DELIVERY WITH SEVERE PRE-ECLAMPSIA

Mode of Delivery	Number	Percentage
LSCS (Group-A)	105	56.75%
NVD (Group-B)	80	43.24%

In the present study there was no significant effect of age distribution on mode of delivery in severe pre-eclampsia. Maximum women who delivered vaginally and LSCS were of age group 26 to 30 years. Majority (51.4%) of women were belong to lower socioeconomic class. There was no significant difference in religion of women in severe pre-eclampsia with respect of mode of delivery.

TABLE 2- DISTRIBUTION OF WOMEN BASED ON AVERAGE

SYSTOLIC AND DIASTOLIC BP AT THE TIME OF ADMISSION IN LABOUR ROOM

	AVERAGE SYSTOLIC BP	AVERAGE DIASTOLIC BP
GROUP A (n=105)	174.9±11.4	117.7±9.2
GROUP B (n=80)	169.0±10.3	111.6±8.9
χ^2	7.9	8.1
p value	0.43	0.54

In table 2, At the time of admission to the labour room, women who underwent LSCS had a mean systolic blood pressure (SBP) of 174.9 mm Hg and a mean diastolic blood pressure (DBP) of 117.7 mm Hg. Women who underwent normal vaginal delivery (NVD) had a mean SBP of 169.0 mm Hg and a mean DBP of 111.6 mm Hg. The mean differences in both DBP and SBP between the two groups were not significant ($p>0.05$).

In the present study, there was significant difference in SGPT (p-value = 0.021), SGOT (p-value = 0.032), ALP (p-value=0.0164) and mean platelet counts (p-value = 0.0387) in both groups. In LSCS group the values were significantly more deranged.

Table 3: DISTRIBUTION OF WOMEN BASED ON URINE DIPSTICK AT THE TIME OF ADMISSION IN LABOUR

Urine dipstick	GROUP A (n=105)	GROUP B (n=80)	Total (n=185)
Nil/ traces	8 (7.6%)	6 (7.5%)	14 (7.5%)
1+	56(53.3%)	46 (57.5%)	102 (55.1%)
2+	27 (25.7%)	17 (21.2%)	44 (23.8%)
3+	14 (13.3%)	11 (13.8%)	25 (13.5%)

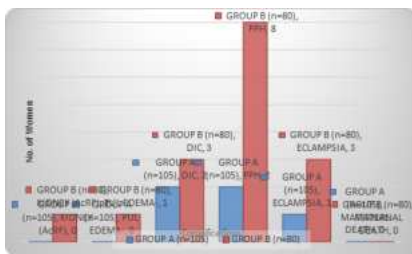
As shown in table 3, In Group-A 53.30% women who underwent LSCS had urine albumin 1+. In Group-B 57.50% women who underwent vaginal delivery had urine albumin 1+.

TABLE 4:-DISTRIBUTION OF WOMEN BASED ON SYMPTOMS OF SEVERE PRE-ECLAMPSIA OR IMPENDING ECLAMPSIA

SYMPTOMS	GROUP A (n=105)	GROUP B (n=80)
No SYMPTOMS	61	35
Vomiting	42	39
Headache	34	32
Visual disturbances	13	7
Epigastric pain	17	9

As shown in table 4, In Group-A (caesarean section), 3 women had headaches, 42 experienced vomiting, 13 had visual disturbances, and 17 reported epigastric pain. In Group-B (normal vaginal delivery), 39 women had vomiting, 32 experienced headaches, 9 had epigastric pain, and 7 reported visual disturbances.

Figure 5:-DISTRIBUTION OF WOMEN BASED ON COMPLICATIONS



As shown in figure 5, In Group A (n=105), the occurrences were as follows: acute renal failure (0), pulmonary edema (0), disseminated intravascular coagulation (DIC) (2), postpartum hemorrhage (PPH) (2), eclampsia (1), and no maternal deaths. In Group B (n=80), the occurrences were: acute renal failure (1), pulmonary edema (1), DIC (3), postpartum hemorrhage (PPH) (8), eclampsia (3), and no maternal deaths.

DISCUSSION

In our study, 105 out of 185 pregnant women with severe pre-eclampsia underwent cesarean deliveries, representing 56.7%, while 80 delivered vaginally, accounting for 43.2%. Similarly, Lokeshwari et al.¹ (2021) reported a cesarean section rate of 63.2% and a normal

vaginal delivery (NVD) rate of 36.8%. Irene K et al.² (2021) found a cesarean section rate of 64.71% and an NVD rate of 45.28%. Wu SW et al.³ (2021) reported a higher cesarean section rate of 84.9% in cases of severe pre-eclampsia.

In our study, women who underwent LSCS had a mean systolic blood pressure (SBP) of 174.9 mmHg and a mean diastolic blood pressure (DBP) of 117.7 mmHg. Women who underwent NVD had a mean SBP of 169.0 mmHg and a mean DBP of 111.6 mmHg. The differences in SBP and DBP between the two groups were not significant ($p>0.05$). Similarly, Irene K et al.² (2021) found no association between maternal blood pressure and the mode of delivery in severe pre-eclampsia, and Wu SW et al.³ (2021) reported comparable results.

In our study, there were significant differences between the two groups for SGOT ($p=0.032$), SGPT ($p=0.021$), ALP ($p=0.0164$), and mean platelet count ($p=0.0387$), with values being significantly higher in the LSCS group compared to the NVD group. Conversely, Irene K et al.² (2021) found that laboratory test results were not associated with differences in the mode of delivery for women with severe pre-eclampsia.

In our study, intrapartum and postpartum complications were significantly lower in women with severe pre-eclampsia who underwent LSCS compared to those who had NVD. In the LSCS group, postpartum hemorrhage (PPH) occurred in 2 women, eclampsia in 1, and disseminated intravascular coagulation (DIC) in 2. In contrast, the NVD group experienced PPH in 8 women, eclampsia in 3, and DIC in 3. Additionally, acute renal failure (AcRF) and pulmonary edema were present in 1 woman each in the NVD group but absent in the LSCS group. Lokeshwari et al.¹ (2021) similarly found that maternal outcomes were better with cesarean delivery compared to vaginal delivery, noting fewer complications such as HELLP syndrome, abruption, and DIC in the LSCS group. However, pulmonary edema was reported equally in both groups. Maternal death was observed in 1 woman in the LSCS group and 2 women in the NVD group. Conversely, Irene K et al.² (2021) found that maternal complications such as HELLP syndrome and acute renal failure were not associated with the mode of delivery in severe pre-eclampsia.

CONCLUSION

In our study, most pregnant women with severe pre-eclampsia underwent cesarean section, which was associated with fewer maternal complications compared to vaginal delivery. Specifically, cesarean section resulted in lower rates of postpartum hemorrhage, eclampsia, and disseminated intravascular coagulation. This suggests that cesarean delivery may offer a safer approach for managing severe pre-eclampsia by mitigating risks to both the mother and the fetus. Given these findings, cesarean section should be considered a preferred mode of delivery for women with severe pre-eclampsia, particularly when the maternal condition indicates a higher risk of complications with vaginal delivery.

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