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# PERINATAL OUTCOME IN PATIENTS WITH SEVERE PRE-ECLAMPSIA IN PEMH

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**Abstract**

***Introduction:*** *Maternal, fetal, and neonatal death and morbidity are mostly caused by preeclampsia and other hypertension disorders of pregnancy. Early detection is crucial, and treatment options include antihypertensive medication, seizure prevention, and, in more serious situations, prompt delivery. The availability of specialized care during labor and after delivery, timely referral to a tertiary care facility, early disease detection, routine prenatal checkups, and timely mode of delivery decisions can all help to improve adverse maternal and perinatal outcomes.*

***Study design:*** *Descriptive study.*

***Methodology:*** *There were 163 women between the ages of 20 and 45 who had late-onset pre-eclampsia. Individuals with preexisting liver disease, kidney disease, diabetes, heart disease, or chronic hypertension without proteinuria were not included. Eclampsia, abruptio placenta, cesarean section, acute renal failure, apgar score <7 at 1-minute, preterm birth, IUGR, and low birth weight (yes/no) were all examples of fetamaternal outcomes.*

***Results:*** *Among pre-eclamptic women in this study, 91 (55.83%) had a cesarean delivery, 18 (11.04%) had eclampsia, 13 (7.98%) had abruption placenta, and 13 (7.98%) had acute renal failure. The results showed that 41 (25.15%) had IUGR, 63 (38.5%) had preterm birth, 69 (42.33%) had an apgar score of less than 7 at 1 minute, and 49 (30.06%) had low birth weight babies.*

***Conclusion:*** *This study came to the conclusion that in order to lower the morbidity and mortality rates for both the mother and the fetus, appropriate protocols for prenatal monitoring and management plans should be created for these high-risk patients.*

## INTRODUCTION

Approximately 10% of pregnancies globally are complicated by hypertensive problems. A significant portion of maternal morbidity and mortality is caused by the fatal trio of hypertension, hemorrhage, and infection.[1] According to the World Health Organization's systematic study of maternal mortality worldwide, hypertensive diseases are

responsible for 16% of maternal deaths in developed nations.[2]

A condition unique to pregnancy, preeclampsia can affect almost every organ system. The distinction between early-onset preeclampsia, which appears before 34 weeks of pregnancy, and late-onset preeclampsia, which appears at 34 weeks or later, is increasingly recognized.[1] It is also found that the two diseases have different pathophysiologies. A few papers have discussed the clinical and laboratory features of the two types of pre-eclampsia, as well as the associated maternal morbidities and perinatal outcomes.[2] In a population, both types are typically represented, with the majority exhibiting the late onset type and the minority exhibiting the early onset type.[3] Despite the possibility of some risk factors and overlapping presenting symptoms, it has been found that early-onset and late-onset pre-eclampsia have distinct effects on the mother and newborn.[4]

One of the main causes of maternal, fetal, and neonatal mortality and morbidity is preeclampsia and associated hypertension disorders of pregnancy.[5] Early detection is crucial, and treatment options include hypertension medication, seizure prevention, and, in extreme situations, prompt delivery.[6] Regular prenatal visits, early disease detection, prompt referral to a tertiary care facility, prompt mode of delivery decision, and access to specialized care throughout labor and postpartum can all help improve adverse maternal and perinatal outcomes.[7] Numerous issues are known to arise, such as fetal growth retardation, HELLP syndrome, disseminated intravascular coagulation (DIC), eclampsia, and maternal and fetal mortality.[8] In pre-eclamptic women, the maternal result was abrupt placenta 0.0%, acute renal failure 0.0%, eclampsia 11.1%, and cesarean birth 71.1%. The results showed that the fetal outcome was IUGR 20.0%, preterm birth 8.9%, NICU admission 22.2%, and apgar score <7 at one minute 11.1%.[9] According to a different study, the maternal outcomes for pre-eclamptic women were as follows: 50.0% had a cesarean delivery, 13.3% had eclampsia, 7.3% had abrupt placenta, and 2.7% had acute renal failure. The fetal outcome was NICU admission 2.5%, low birth weight 55.4%, IUGR 38.2%, and apgar score <7 at one minute 3.2%.[10]

This information suggests that the short- and long-term effects of preeclampsia make women who have experienced it during pregnancy a unique group. Healthcare practitioners should pay special attention to these women's needs. They can readily conduct their outpatient follow-up while offering them preventive healthcare if they are aware of the incidence and result of late-onset pre-eclampsia. Our goal was to determine the prevalence of fetomaternal outcomes in women with late-onset pre-eclampsia. In addition to offering the problem's local statistics, this study will contribute to the body of existing literature. To lower the fetus's morbidity and mortality, a suitable protocol for prenatal surveillance and appropriate therapy plans can also be created for these high-risk patients.

## MATERIALS AND METHODS:

163 patients aged 20–45 years with severe pre-eclampsia (blood pressure greater than or equivalent to 160/110 mmHg after 20 weeks of gestation and proteinuria ≥300 mg/24 hours or ≥3+ in dipstick) took part in this descriptive study between September 1, 2024, and February 28, 2025. Using the WHO calculator, a sample size of 163 instances was determined with a 95% confidence level, a 4% margin of error, and an estimated percentage of abruption placenta of 7.3%.[9] Chronic hypertension without proteinuria, preexisting liver illness, preexisting renal disease, preexisting diabetes, and preexisting cardiac disease were not included.

Before the trial began, the hospital's ethics and research board gave its approval. All of the women involved in the study also provided written, informed consent. Standard laboratory tests were conducted in accordance with prenatal procedures. Initially, all of these women were admitted for a thorough workup and stabilization.

Women who required delivery due to fetomaternal indications were either caesarean sections or induced. Discharge was granted to those who were stable and deemed to be conservatively managed. Weekly active follow-up was conducted on these patients until their re-admission and delivery. Every follow-up visit included a thorough clinical evaluation, an ultrasound evaluation, and a laboratory work-up. According to the operational definition, perinatal outcomes such as eclampsia, abruptio placenta, cesarean delivery, acute renal failure, apgar score <7 at 1 minute, premature birth, IUGR, and low birth weight (yes/no) were recorded. A custom created proforma was used to record all of the data, including demographic data.

Software called SPSS version 25.0 was used to evaluate the data that was gathered. The mean and SD for age, gestational age, apgar score, and birth weight were displayed. Fetomaternal outcomes, such as eclampsia, abruptio placenta, cesarean section, acute renal failure, apgar score <7 at 1 minute, preterm birth, IUGR, NICU admission, and low birth weight (yes/no), were displayed as frequency and percentage along with parity (primiparous/multiparous), place of residence (rural/urban), and educational status (uneducated/educated).

**RESULTS:**

The mean age in this study was 28.85 ± 4.17 years, with a range of 20 to 45 years. Sixty-three percent of the 100 patients were in the 20–30 age range. The average gestational age was 35.37 +/- 1.32 weeks. Table I displays the distribution of patients by various characteristics.

The maternal outcomes in this study for pre-eclamptic women were acute renal failure in 13 (7.98%), abruption placenta in 13 (7.98%), eclampsia in 18 (11.04%), and cesarean birth in 91 (55.83%). According to Table II, fetal outcomes included low birth weight babies (49, 30.06%), preterm birth (63, 38.65%), IUGR in 41 (25.15%), and apgar score <7 at 1 minute in 69 (42.33%).

**Table I: Distribution of patients according to confounding variables (n=163)**

| Confounding variables | | Frequency | %age |
|---|---|---|---|
| **Age (years)** | 20-30 | 100 | 61.35 |
| | 31-45 | 63 | 38.65 |
| **Gestational age (weeks)** | ≤32 | 119 | 73.01 |
| | >32 | 44 | 26.99 |
| **Parity** | Primiparous | 57 | 34.97 |
| | Multiparous | 106 | 65.03 |
| **Residence** | Rural | 100 | 61.35 |
| | Urban | 63 | 38.65 |
| **Education** | Uneducated | 67 | 41.10 |
| | Educated | 96 | 58.90 |

**Table II: Frequency of Perinatal outcome in severe pre-eclamptic women**

| Outcome | Frequency (%) | |
|---|---|---|
| | yes | no |
| **Eclampsia** | 18 (11.04%) | 145 (88.96%) |
| **Abruptio placenta** | 13 (7.98%) | 150 (92.02%) |
| **Cesarean section** | 91 (55.83%) | 72 (44.17%) |
| **Acute renal failure** | 13 (7.98%) | 150 (92.02%) |
| **Apgar score <7 at 1 min** | 69 (42.33%) | 94 (57.67%) |
| **Preterm delivery** | 63 (38.65%) | 100 (61.35%) |
| **Low birth weight babies** | 49 (30.06%) | 114 (69.94%) |

| | | |
|---|---|---|
| IUGR | 41 (25.15%) | 122 (74.85%) |

**DISCUSSION:**

Particularly in developing countries like Pakistan, preeclampsia is a serious threat to maternal and perinatal health and greatly contributes to unfavorable outcomes for both mothers and their babies.[11] This study also emphasizes how preeclamptic women are more susceptible to unfavorable obstetric and neonatal outcomes.

Cesarean delivery was the most common delivery method in our study (55.83%). According to the findings of their studies, LSCS was the most prevalent delivery method when compared to vaginal delivery (64.54%) and (48.42 to 71.2%), according to Pillai SS et al.[12] and Akaba et al.[13]

Eclampsia affected 18 (11.04%) of the pre-eclamptic women in our study, while abruption placenta affected 13 (7.98%), acute renal failure affected 13 (7.98%), and cesarean birth affected 91 (55.73%). Our study's abruption rate was 9.82%, while a study by Gawde et al. reported an 8.9% rate,[14] a study by Patel et al. reported a 5% rate,[15] investigations reported a 5.4% rate, Tolu LB et al.[16] reported a 5.4% rate, Ahmed et al. reported a 1.6% rate,[17] investigations reported a 5.6% rate,[18] investigations reported a 5.37% rate, and investigations reported a 1.4% rate of eclampsia.[19] However, according to a research by Patel et al.[15], it is incredibly high—up to 36%. Another study by Gawali S et al.[20] reported maternal problems such as eclampsia (9.72%), postpartum hemorrhage (8.80%), abruptio placentae (7.87%), partial HELLP (6.94%), HELLP (1.39%), renal dysfunction (2.78%), DIC (2.32%), and pulmonary edema (0.93%). The highest prevalence of antepartum eclampsia in our sample was 45.45%, followed by intrapartum (18.18%) and postpartum (36.36%).

One was more likely to experience at least one unfavorable obstetric outcome if preeclampsia was present. Additionally, compared to neonates delivered to normotensive mothers, those born to preeclamptic women were more likely to experience low birth weight, birth asphyxia, premature birth, and perinatal death. According to this study, women with preeclampsia had greater rates of antepartum hemorrhage, postpartum hemorrhage, and blood transfusions. Similar results were found in a variety of geographical locations, such as Brazil[21], Kenya[22], Ethiopia[23], and India.[24]

Similarly, women with preeclampsia had a higher chance of having at least one unfavorable obstetric outcome. These results are consistent with previous research carried out in Ethiopia.[25,26] The proportions of these issues varied between the research, though. Changes in the study design may be the cause of this disparity. Variances may also result from modifications to the standards and procedures used in various healthcare facilities to diagnose postpartum hemorrhage or assess the necessity for blood transfusions. Taken together, these results paint a concerning picture of the serious health issues that preeclampsia causes for mothers.

Additionally, the study discovered that preeclamptic individuals had higher rates of perinatal death, low birth weight, preterm birth, and composite poor perinatal outcomes. This conclusion is consistent with previous studies conducted in Ethiopia[27,28], Nigeria[29], India[30], Haiti[31], Bahrain[32], and Ghana.[33] The increased emphasis on improving newborn and perinatal care may be the reason for the observed neonatal complications, which is consistent with national and international efforts to reduce neonatal mortality and morbidity and achieve the Sustainable Development Goals. It is crucial to implement specific interventions to improve neonatal care, such as the creation or bolstering of neonatal intensive care units.

Low birth weight was shown to be more likely among newborns born to preeclamptic mothers. This result is consistent with research done in southern Ethiopia.[28] Additionally, this study found that preterm birth, perinatal asphyxia, and perinatal death

were all considerably more likely to occur in neonates born to preeclamptic mothers. Low birth weight and associated complications are caused by impaired fetal growth, which is linked to preeclampsia.[34]

Low birth weight, a primary consequence of preeclampsia, is caused by inadequate uteroplacental vascular function, which results in inadequate feeding of the fetus. This syndrome leads to growth retardation and an elevated risk of fetal morbidity, including premature birth and death.[35,36] Consistent data from a range of settings indicates that preeclampsia prevention, early detection, and thorough therapy must be prioritized as a crucial component of mother and infant health.

This study's main drawback is that it was conducted in a single location, which would have limited how broadly the results can be applied in different healthcare environments. Additionally, only women who attended medical facilities were included in this study. The obstetric and neonatal outcomes of women with and without preeclampsia in the community in nations with low healthcare-seeking behavior may thus not be represented by the findings of this study.

## CONCLUSION:

In this study, women with severe preeclampsia experienced unfavorable obstetric and neonatal outcomes. Preterm birth, hypoxia, and low birth weight were all substantially linked to severe preeclampsia. Governments must make reducing the negative effects of preeclampsia in mothers and newborns a top priority if they hope to meet the Sustainable Development Goals. Promoting early detection, timely intervention, and prevention of preeclampsia is a critical function of healthcare providers.

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