

Impact of Severe Pre-eclampsia and Eclampsia on Fetomaternal Outcomes: A retrospective study

Gloria María ¹, Ricardo Cardon²,

Abstract

Introduction: Severe pre-eclampsia and eclampsia are life-threatening complications of pregnancy that significantly impact maternal and fetal health. This study aimed to evaluate the feto-maternal outcomes of pregnant women diagnosed with these conditions. **Material and Methods:** A retrospective study was conducted at a tertiary care hospital, including 90 pregnant women diagnosed with severe pre-eclampsia or eclampsia. Inclusion criteria were singleton pregnancies ≥ 20 weeks gestation with a confirmed diagnosis of severe pre-eclampsia or eclampsia. Exclusion criteria included multiple pregnancies, chronic hypertension, and other major medical comorbidities. Data on maternal and neonatal outcomes were collected and analyzed. **Results:** The study revealed high rates of adverse maternal outcomes, including placental abruption (13.3%), HELLP syndrome (8.9%), and maternal mortality (2.2%). Neonatal outcomes included preterm birth (46.7%), low birth weight (41.1%), and neonatal intensive care unit (NICU) admission (33.3%). **Conclusion:** Severe pre-eclampsia and eclampsia are associated with significant maternal and neonatal morbidity and mortality. Early diagnosis, timely intervention, and multidisciplinary care are essential to improve outcomes.

Keywords:

¹ University of Antioquiad

³ University of Antioquiad



INTRODUCTION

Hypertensive disorders of pregnancy, particularly severe pre-eclampsia and eclampsia, remain leading causes of maternal and perinatal morbidity and mortality worldwide¹. Pre-eclampsia affects approximately 5-8% of pregnancies, while eclampsia occurs in about 1-2% of cases, with higher prevalence in low- and middle-income countries². These conditions are characterized by new-onset hypertension and proteinuria after 20 weeks of gestation, often accompanied by multi-organ dysfunction³. Severe pre-eclampsia is defined by severe hypertension ($\geq 160/110$ mmHg) and signs of end-organ damage, while eclampsia is the occurrence of seizures in a woman with pre-eclampsia⁴.

The pathophysiology of pre-eclampsia involves abnormal placentation, endothelial dysfunction, and systemic inflammation, leading to widespread vascular damage and organ dysfunction⁵. These changes not only jeopardize maternal health but also compromise fetal well-being, resulting in intrauterine growth restriction (IUGR), preterm birth, and stillbirth⁶. Despite advances in obstetric care, severe pre-eclampsia and eclampsia continue to pose significant challenges, particularly in resource-limited settings where access to timely and effective care is often limited⁷.

Understanding the fetomaternal outcomes of these conditions is critical for developing targeted interventions to reduce morbidity and mortality. This study aims to evaluate the maternal and neonatal outcomes of pregnant women with severe pre-eclampsia and eclampsia, with a focus on identifying risk factors and improving clinical management strategies.

MATERIALS AND METHODS

Study Design and Setting

This retrospective study was conducted at a tertiary care hospital over a 12-month period. The hospital serves a large population and handles a high volume of high-risk pregnancies, making it an ideal setting for studying severe pre-eclampsia and eclampsia.

Study Population

The study included 90 pregnant women diagnosed with severe pre-eclampsia or eclampsia. The diagnosis was based on standard criteria: severe hypertension ($\geq 160/110$ mmHg), proteinuria (≥ 300 mg/24 hours or $\geq 2+$ on dipstick), and/or signs of end-organ dysfunction (e.g., thrombocytopenia, impaired liver function, renal insufficiency)⁸. Eclampsia was diagnosed in women with pre-eclampsia who experienced seizures not attributable to other causes⁹.

Inclusion Criteria

Singleton pregnancies ≥ 20 weeks gestation.
Confirmed diagnosis of severe pre-eclampsia or eclampsia.
Availability of complete medical records.

Exclusion Criteria

Multiple pregnancies.
Chronic hypertension or pre-existing medical conditions (e.g., diabetes, renal disease).
Incomplete medical records.

Data Collection

Data were collected from hospital records, including:
Demographic details (age, parity, gestational age).
Clinical parameters (blood pressure, proteinuria, laboratory findings).
Maternal outcomes (placental abruption, HELLP syndrome, maternal mortality).
Neonatal outcomes (birth weight, gestational age at delivery, NICU admission).

Statistical Analysis

Data were analyzed using SPSS version 25. Descriptive statistics were used to

summarize the data, and chi-square tests were used to assess associations between variables. A p-value <0.05 was considered statistically significant.

RESULTS

Table 1: Demographic Characteristics of Study Participants

Characteristic	Number (n=90)	Percentage (%)
Maternal Age (years)		
20–25	35	38.9
26–30	40	44.4
>30	15	16.7
Parity		
Primigravida	50	55.6
Multigravida	40	44.4

Table 2: Maternal Outcomes

Outcome	Number (n=90)	Percentage (%)
Placental Abruption	12	13.3
HELLP Syndrome	8	8.9
Maternal Mortality	2	2.2

Table 3: Neonatal Outcomes

Outcome	Number (n=90)	Percentage (%)
Preterm Birth	42	46.7
Low Birth Weight	37	41.1
NICU Admission	30	33.3

Table 4: Mode of Delivery

Mode of Delivery	Number (n=90)	Percentage (%)
Vaginal Delivery	40	44.4
Cesarean Section	50	55.6

Table 5: Association Between Maternal Age and Adverse Outcomes

Maternal Age (years)	Adverse Outcomes (%)	p-value
20–25	30.0	0.02
26–30	25.0	
>30	40.0	

Elaborate Discussion

The findings of this study underscore the significant burden of severe pre-eclampsia and eclampsia on maternal and neonatal health. The high rates of placental abruption (13.3%) and HELLP syndrome (8.9%) are consistent with previous studies, highlighting the systemic nature of these conditions and their potential for severe complications¹⁰⁻¹¹. Maternal mortality in this study was 2.2%, which, although lower than in some low-resource settings, remains a critical concern¹².

Neonatal outcomes were equally concerning, with nearly half of the babies born preterm (46.7%) and a significant proportion having low birth weight (41.1%). These findings align with global data showing that pre-eclampsia and eclampsia are major contributors to preterm birth and neonatal morbidity¹³. The high rate of NICU admissions (33.3%) further emphasizes the need for specialized neonatal care in these cases.

The association between maternal age and adverse outcomes is noteworthy, with women over 30 years experiencing the highest rates of complications. This finding is consistent with studies suggesting that advanced maternal age is a risk factor for severe pre-eclampsia and its complications¹⁴.

The predominance of cesarean deliveries (55.6%) in this study reflects the clinical challenges associated with managing severe pre-eclampsia and eclampsia. Cesarean sections are often necessary to expedite delivery and mitigate risks to both mother and baby, but they also carry their own set of complications, including postpartum hemorrhage and infection¹⁵.

CONCLUSION

Severe pre-eclampsia and eclampsia are

associated with significant maternal and neonatal morbidity and mortality. Early diagnosis, timely intervention, and multidisciplinary care are essential to improve outcomes. Public health initiatives should focus on improving access to antenatal care, early detection of hypertensive disorders, and strengthening neonatal care facilities.

REFERENCES

1. World Health Organization. (2018). Maternal Mortality.
2. American College of Obstetricians and Gynecologists. (2020). Hypertension in Pregnancy.
3. Sibai, B. M. (2005). Pre-eclampsia. *The Lancet*, 365(9461), 785-799.
4. Steegers, E. A., et al. (2010). Pre-eclampsia. *The Lancet*, 376(9741), 631-644.
5. Roberts, J. M., & Cooper, D. W. (2001). Pathogenesis and Genetics of Pre-eclampsia. *The Lancet*, 357(9249), 53-56.
6. Abalos, E., et al. (2014). Global and Regional Estimates of Pre-eclampsia and Eclampsia. *BJOG*, 121(1), 5-13.
7. von Dadelszen, P., et al. (2003). Fall in Mean Arterial Pressure and Fetal Growth Restriction in Pregnancy Hypertension. *The Lancet*, 361(9358), 87-92.
8. Sibai, B. M., et al. (1993). Maternal and Perinatal Outcome of Conservative Management of Severe Pre-eclampsia. *American Journal of Obstetrics and Gynecology*, 168(3), 864-872.
9. Khan, K. S., et al. (2006). WHO Analysis of Causes of Maternal Death. *The Lancet*, 367(9516), 1066-1074.
10. Goldenberg, R. L., et al. (2008). Epidemiology and Causes of Preterm Birth. *The Lancet*, 371(9606), 75-84.
11. Duckitt, K., & Harrington, D. (2005). Risk Factors for Pre-eclampsia at Antenatal Booking. *BMJ*, 330(7491), 565-567.