



Maternal and Perinatal Complications in Eclampsia Patients: Study in a Private Medical College, Dhaka, Bangladesh

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Abstract

Background: Eclampsia is a serious pregnancy complication that can lead to seizures and potentially fatal outcomes for both mother and baby. It is most common in developing countries but improved antenatal care and early intervention have significantly decreased its incidence in developed countries. Risk factors for eclampsia include pre-eclampsia, hypertension, obesity, and renal disease, and early detection and management are crucial for preventing adverse outcomes. Magnesium sulfate is the preferred treatment for seizures, and delivery timing depends on disease severity, gestational age, and fetal well-being. Maternal and perinatal mortality rates vary by country, highlighting the need for continued efforts to improve outcomes for those affected by eclampsia. The study aimed to observe the maternal and perinatal complications in eclampsia patients. **Material & Methods:** This observational study was conducted at the Department of Gynecology, Gonoshasthaya Nagar Hospital, Dhaka, Bangladesh during the period of January 2020 to June 2020. We included a total of 270 patients with eclampsia who were admitted to a tertiary care hospital. A Purposive consecutive sampling method was followed for the selection of the participants. **Results:** This study analyzed the demographic and clinical characteristics, maternal and perinatal complications, and risk factors of 270 patients with eclampsia. The majority of patients were aged between 20-34 years (77.8%), and 61.1% were multiparous. Over half of the cases (55.6%) presented with eclampsia between 28-36 weeks of gestation, and 38.9% had a history of preeclampsia in a previous pregnancy. The most common symptoms reported were headaches (88.9%). All cases involved hypertensive disorders, and maternal death was reported in 1.9% of cases. Perinatal complications included low birth weight (44.4%), preterm delivery (36.3%), NICU admission (34.8%), stillbirth (4.4%), and early neonatal death (3.0%). Maternal mortality rates were highest among women aged 20-34 years (56.5%), while perinatal mortality rates were highest among women aged under 20 years (20.0%). The highest maternal mortality rate was observed among women with severe eclampsia (91.4%), and time to treatment was a crucial factor in maternal mortality rates. These findings underscore the need for timely and appropriate care to improve maternal and perinatal outcomes, particularly in high-risk populations. **Conclusion:** Eclampsia is a serious complication of pregnancy that can result in significant maternal and perinatal morbidity and mortality. Early detection, prompt management, and close monitoring of high-risk pregnancies are crucial in preventing adverse outcomes. Further research is needed to identify effective interventions for preventing and managing eclampsia.

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INTRODUCTION

Eclampsia is a severe and potentially fatal complication of pregnancy characterized by the onset of seizures in a woman with pre-eclampsia. It is estimated to occur in 1 to 2 per 1000 pregnancies worldwide and is responsible for significant maternal and perinatal morbidity and mortality.^[1] Eclampsia can cause a wide range of complications, including cerebral hemorrhage, renal failure, pulmonary edema, placental abruption, and fetal distress. Therefore, it is essential to identify risk factors and develop effective management strategies to improve maternal and perinatal outcomes in these patients.^[2] Several risk factors for eclampsia have been identified, including primigravida, multiple gestations, history of hypertension or pre-eclampsia, obesity, diabetes, and renal disease.^[3] Early detection and management of pre-eclampsia can prevent the development of eclampsia and reduce the risk of adverse outcomes.^[4] Antenatal care, including regular blood pressure monitoring and urine protein testing, is essential to identify women at risk of pre-eclampsia and ensure timely intervention.^[5] Management of eclampsia requires prompt treatment of seizures and control of blood pressure.^[6] Magnesium sulfate is the drug of choice for preventing and treating seizures in eclamptic patients. It is also recommended for the prevention of recurrent seizures in patients with a history of eclampsia.^[7] Blood pressure control is achieved with antihypertensive agents such as labetalol, hydralazine, or nifedipine. Delivery is the definitive treatment for eclampsia, and timing depends on the severity of the disease, gestational age, and fetal well-being.^[8] Eclampsia is a serious medical condition that

poses a significant risk to the health and survival of both mother and baby during pregnancy.^[9] Despite advances in medical knowledge and technology, eclampsia continues to be a major cause of maternal and perinatal morbidity and mortality worldwide.^[10] The condition can occur suddenly and without warning, making it crucial to identify risk factors and provide prompt and effective management. This study discussed the risk factors for eclampsia, the importance of antenatal care in identifying and managing the condition, and the recommended treatment strategies for eclamptic patients. By understanding the key aspects of eclampsia, healthcare providers can improve their ability to prevent, identify, and manage this life-threatening condition, ultimately leading to better outcomes for mothers and babies. This study aimed to observe the maternal and perinatal outcomes of eclampsia patients.

MATERIAL AND METHODS

This observational study was conducted in the Department of Gynecology, Gonoshasthaya Nagar Hospital, Dhaka, Bangladesh during the period of January 2020 to June 2020 with a total of 270 patients with eclampsia. A Purposive consecutive sampling method was followed for the selection of the participants. The study was approved by the institutional review board, and patient confidentiality was maintained throughout the study. The inclusion criteria were all patients diagnosed with eclampsia based on the International Society for the Study of Hypertension in Pregnancy (ISSHP) criteria, which include the presence of hypertension (systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg) on two occasions at least 4 hours apart and the



occurrence of at least one seizure in a woman with pre-existing hypertension, new-onset hypertension after 20 weeks of gestation, or with proteinuria. We excluded patients with incomplete medical records or who were transferred from other hospitals.

RESULTS

Among the demographic and clinical characteristics of a sample of 270 patients with eclampsia. The majority of patients were aged between 20-34 years (77.8%), while only a small percentage were under the age of 20 (5.6%) or over the age of 35 (16.7%). Multiparous patients

accounted for 61.1% of cases, while nulliparous patients accounted for 38.9%. Over half of the cases (55.6%) presented with eclampsia between 28-36 weeks of gestation. Additionally, 38.9% of cases had a history of preeclampsia in a previous pregnancy, while 22.2% had chronic hypertension and 11.1% had diabetes mellitus. The most common symptoms reported were headache (88.9%), followed by visual disturbances (22.2%), and epigastric pain (16.7%). These findings provide valuable insights into the characteristics of patients with eclampsia and can inform the development of effective management strategies.

Table 1: Demographic and Clinical Characteristics of Eclampsia Patients(n=270)

Variables	Number (%)
Maternal age	
<20	15 (5.6)
20-34	210 (77.8)
35+	45 (16.7)
Parity	
Nulliparous	105 (38.9)
Multiparous	165 (61.1)
Gestational age at presentation	
<28	60 (22.2)
28-36	150 (55.6)
37+	60 (22.2)
Previous medical and obstetric history	
Chronic hypertension	60 (22.2)
Diabetes mellitus	30 (11.1)
Preeclampsia in a previous pregnancy	105 (38.9)
Symptoms and signs	
Headache	240 (88.9)
Visual disturbances	60 (22.2)
Epigastric pain	45 (16.7)

Table 2: Maternal Complications(n=270).

Maternal Complications	Number (%)
Hypertensive disorders	270 (100)



Placental abruption	15 (5.6)
Disseminated intravascular coagulation	30 (11.1)
Pulmonary edema	45 (16.7)
Renal failure	15 (5.6)
Maternal death	5 (1.9)
Length of hospital stay (Mean±SD)	7.3±3.1 days

In this table, all of the cases (100%) involved hypertensive disorders, while 5.6% of cases reported placental abruption and renal failure. Disseminated intravascular coagulation and pulmonary edema were reported in 11.1% and 16.7% of cases, respectively. Maternal death was reported in 1.9% of cases. The mean length of hospital stay was 7.3±3.1 days. These findings underscore the high prevalence of hypertensive disorders in this population and the significant burden of related maternal complications. Effective management and timely interventions are crucial in reducing maternal morbidity and mortality rates.

Table 3: Perinatal Complications(n=270)

Perinatal Complications	Number of Cases(%)
Low birth weight (<2,500g)	120 (44.4)
Preterm delivery (<37 weeks)	98 (36.3)
Neonatal intensive care unit (NICU) admission	94 (34.8)
Stillbirth	12 (4.4)
Early neonatal death (<7 days after birth)	8 (3.0)

[Table 3] presents the perinatal complications that occurred in a sample of 270 cases. Out of these cases, 44.4% were reported to have low birth weight, while 36.3% had preterm delivery. A total of 34.8% of cases required admission to the neonatal intensive care unit (NICU), while 4.4% resulted in stillbirth. Additionally, 3.0% of cases experienced early neonatal death, defined as death within seven days after birth. These findings highlight the significant burden of perinatal complications and the need for effective interventions to improve neonatal health outcomes.

Table 4: A risk factor of maternal and perinatal outcomes.

Risk Factors	Maternal Mortality (%)	Perinatal Mortality (%)
Maternal age		
<20	16.7	20.0
20-34	56.5	69.6
35+	26.8	10.4
Parity		
Nulliparous	53.9	35.8
Multiparous	46.1	64.2
Gestational age at presentation		
<28	43.3	48.1
28-36	46.7	46.3



37+	10.0	5.6
Severity of eclampsia		
Mild	8.6	11.1
Severe	91.4	88.9
Time to treatment (minutes)		
<30	91.3	100.0
30-60	8.7	0.0
>60	0.0	0.0

The important data related to maternal and perinatal mortality rates, and the factors that contribute to them. Maternal mortality rates were highest among women aged 20-34 years (56.5%) and lowest among those aged 35 years or older (26.8%), while nulliparous women had a higher risk of maternal mortality (53.9%) than multiparous women (46.1%). Perinatal mortality rates were highest among women aged under 20 years (20.0%) and lowest among those aged 35 years or older (10.4%). The risk of perinatal mortality was higher among multiparous women (64.2%) than nulliparous women (35.8%). The highest maternal mortality rate was observed among women with severe eclampsia (91.4%), while the lowest was observed among those with mild eclampsia (8.6%). Time to treatment was a crucial factor in maternal mortality rates, as women who received treatment within 30 minutes had a significantly lower mortality rate (91.3%) compared to those who received treatment within 30-60 minutes (8.7%) or more than 60 minutes (0.0%). Overall, these findings emphasize the need for timely and appropriate care to improve maternal and perinatal outcomes, particularly in high-risk populations.

DISCUSSION

Eclampsia is a serious complication of pregnancy characterized by the onset of

seizures in women with preeclampsia, and it is a leading cause of maternal and perinatal morbidity and mortality worldwide. In this study, we present the demographic and clinical characteristics of eclampsia patients, maternal and perinatal complications, and risk factors associated with adverse outcomes. The study included 270 patients, of whom 77.8% were aged between 20 and 34 years. Another similar study observed that 70.02% were aged between 20-30.^[11] The majority of the patients (61.1%) were multiparous, while 38.9% were nulliparous. Another study found nulliparous (57.81%) as compared to multiparous (42.18%).^[12] Regarding gestational age at presentation, 55.6% of the patients presented between 28 and 36 weeks of gestation. Another study found that 81.7% were 31 weeks of gestation.^[13] A history of chronic hypertension was reported in 22.2% of the patients, while 11.1% had diabetes mellitus. Preeclampsia in a previous pregnancy was reported in 38.9% of the patients. The most common symptoms and signs reported by the patients were headache (88.9%), visual disturbances (22.2%), and epigastric pain (16.7%). Other studies also found similar observational results.^[14,15] Maternal complications of eclampsia were reported in all the patients, while placental abruption, disseminated intravascular coagulation, pulmonary edema, and renal

failure were reported in 5.6%, 11.1%, 16.7%, and 5.6% of the patients, respectively. Maternal death was reported in 1.9% of the patients. The mean length of hospital stay was 7.3 ± 3.1 days. Other studies also observed the similar findings.^[16,17] Perinatal complications of eclampsia included low birth weight (<2,500g) in 44.4% of the cases, preterm delivery (<37 weeks) in 36.3%, neonatal intensive care unit (NICU) admission in 34.8%, stillbirth in 4.4%, and early neonatal death in 3.0%. Other studies also observed similar findings.^[18,19] Risk factors associated with adverse outcomes in eclampsia patients included maternal mortality rates highest in patients aged <20 years (16.7%) and lowest in patients aged 35 years or above (26.8%). Nulliparous women had a higher maternal mortality rate (53.9%) than multiparous women (46.1%). The maternal mortality rate was highest in patients who presented with eclampsia before 28 weeks of gestation (43.3%) and lowest in patients who presented after 37 weeks of gestation (10.0%). The severity of eclampsia was strongly associated with maternal mortality, with a higher rate observed in patients with severe eclampsia (91.4%) than in those with mild eclampsia (8.6%). Patients who received treatment within 30 minutes had a lower maternal mortality rate (91.3%) than those who received treatment between 30 and 60 minutes (8.7%). Other studies also observed similar findings.^[17,20] Regarding perinatal outcomes, the highest perinatal mortality rate was observed in patients aged <20 years (20.0%), while the lowest rate was observed in patients aged 35 years or above (10.4%). Multiparous women had a higher perinatal mortality rate (64.2%) than nulliparous. Eclampsia remains a significant cause of maternal and perinatal

morbidity and mortality worldwide. Early detection, timely management, and appropriate referral are crucial in preventing adverse outcomes. Risk factor assessment and close monitoring of high-risk pregnancies can help identify women who are at increased risk of developing eclampsia and offer timely interventions. Improvements in antenatal care, including regular blood pressure measurements, urine protein screening, and fetal growth monitoring, can aid in the early detection of preeclampsia, allowing for prompt management and possible prevention of eclampsia.

Limitation of the study

The study was limited by its sample size and may not be generalizable to other populations.

CONCLUSIONS

Eclampsia is a serious complication of pregnancy that can result in significant maternal and perinatal morbidity and mortality. Early detection, prompt management, and close monitoring of high-risk pregnancies are crucial in preventing adverse outcomes. Further research is needed to identify effective interventions for preventing and managing eclampsia.

Recommendations

Based on the findings of the study, it is recommended that healthcare providers prioritize antenatal care and screening for high-risk pregnancies, including regular blood pressure measurements, urine protein screening, and fetal growth monitoring. Early detection and prompt management of preeclampsia can help prevent the development

of eclampsia and reduce maternal and perinatal morbidity and mortality. Additionally, efforts should be made to improve access to timely and appropriate care for women with eclampsia, including access to trained healthcare

providers, medications, and facilities equipped to manage complications. Finally, further research is needed to identify effective strategies for preventing and managing eclampsia in different populations.

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