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Assessment Of Maternal And Fetal Outcomes In Eclampsia Management.

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ABSTRACT

Eclampsia, a severe complication of pregnancy characterized by seizures, remains a major cause of maternal and neonatal morbidity and mortality, particularly in low-resource settings. This study aimed to assess maternal and fetal outcomes in the management of eclampsia at a tertiary care hospital. This prospective observational study included 60 pregnant women diagnosed with eclampsia. Data were collected on demographic and clinical characteristics, maternal and fetal outcomes, timing of intervention, and antenatal care status. Maternal complications, neonatal outcomes, and associations with intervention timing were analyzed using descriptive and inferential statistics. The study recorded maternal complications in 40% of cases, including seizure recurrence (16.7%), postpartum hemorrhage (13.3%), and HELLP syndrome (8.3%). Maternal mortality was 3.3%. Fetal complications included preterm births (33.3%), low birth weight (41.7%), and perinatal mortality (13.3%). Early intervention (<6 hours) significantly reduced maternal (10%) and fetal (15%) complications compared to delayed management (>12 hours). Antenatal care was associated with better outcomes, with maternal and fetal complication rates of 15% and 20%, respectively, in those who received care. Timely intervention and antenatal care significantly improve maternal and fetal outcomes in eclampsia. Strengthening healthcare systems and increasing antenatal care coverage are essential to reducing the burden of complications.

Keywords: Eclampsia, maternal outcomes, fetal outcomes

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INTRODUCTION

Eclampsia remains a significant cause of maternal and perinatal morbidity and mortality worldwide, particularly in resource-limited settings [1]. It is characterized by the onset of seizures in a pregnant woman with preeclampsia, a hypertensive disorder of pregnancy, and poses a critical obstetric emergency requiring prompt recognition and management. Despite advances in obstetric care, eclampsia continues to be a major public health concern, especially in developing countries where access to timely healthcare interventions is often limited [2, 3].

The management of eclampsia involves a multidisciplinary approach, including the control of seizures, stabilization of maternal and fetal conditions, and timely delivery to prevent further complications. Commonly used interventions include the administration of magnesium sulfate as the anticonvulsant of choice, antihypertensive therapy, and meticulous monitoring of both maternal and fetal well-being. However, the outcomes can vary widely based on the timing of intervention, the severity of the condition, and the availability of healthcare resources [4].

This study aims to assess the maternal and fetal outcomes in eclampsia management, focusing on complications, recovery, and survival rates. By identifying key factors influencing outcomes, this research seeks to contribute to evidence-based strategies for improving maternal and neonatal care in eclampsia [5, 6].

STUDY METHODOLOGY

This study was a prospective observational study conducted at a tertiary care hospital to evaluate maternal and fetal outcomes in the management of eclampsia. Ethical clearance was obtained from the institutional ethics committee, and written informed consent was secured from all participants before their inclusion in the study. The study included 60 pregnant women diagnosed with eclampsia during the study period, adhering to strict inclusion and exclusion criteria. Inclusion criteria comprised pregnant women presenting with eclampsia after 20 weeks of gestation, while those with pre-existing seizure disorders or chronic illnesses were excluded.

Detailed clinical histories, including obstetric history, antenatal care, and onset of symptoms, were collected from each participant. Physical examinations and investigations, such as blood pressure measurement, urine analysis for proteinuria, and laboratory tests including complete blood count, liver function tests, and renal function tests, were performed. Fetal assessments, including ultrasonography and non-stress testing, were conducted to determine gestational age, fetal well-being, and the presence of any complications.

Management strategies were implemented according to institutional protocols, including administration of magnesium sulfate for seizure control, antihypertensive therapy for blood pressure management, and expedited delivery when necessary. Patients were monitored in an intensive care unit setting, and maternal outcomes, including complications like postpartum hemorrhage, renal failure, or HELLP syndrome, were recorded. Neonatal outcomes, such as birth weight, Apgar scores, and neonatal intensive care unit (NICU) admissions, were also documented.

Data were analyzed using statistical software to assess the relationship between maternal and fetal outcomes and factors such as the timing of intervention and severity of eclampsia. Descriptive statistics were used to summarize the demographic and clinical characteristics of the study population, while inferential statistics were applied to evaluate outcomes and their associations. Results were presented in the form of tables and charts, highlighting the key findings of the study.

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RESULTS

Table 1: Demographic and Clinical Characteristics of Study Participants.

Parameter	Frequency (n = 60)	Percentage (%)
Age Group (in years)		
<20	15	25%
20–29	30	50%
≥30	15	25%
Gravidity		
Primigravida	40	66.7%
Multigravida	20	33.3%
Antenatal Care Received		
Yes	30	50%
No	30	50%

Table 2: Maternal Outcomes.

Outcome	Frequency (n = 60)	Percentage (%)
Seizure Recurrence	10	16.7%
Postpartum Hemorrhage	8	13.3%
HELLP Syndrome	5	8.3%
Renal Failure	3	5%
Maternal Mortality	2	3.3%
ICU Admission	18	30%

Table 3: Fetal Outcomes.

Outcome	Frequency (n = 60)	Percentage (%)
Preterm Birth	20	33.3%
Low Birth Weight (<2.5 kg)	25	41.7%
NICU Admission	18	30%
Perinatal Mortality	8	13.3%
Apgar Score <7 at 5 Minutes	12	20%

Table 4: Timing of Intervention and Outcomes.

Timing of Intervention	Maternal Complications (%)	Fetal Complications (%)
<6 Hours After Admission	10%	15%
6–12 Hours After Admission	20%	30%
>12 Hours After Admission	50%	60%

Table 5: Association Between Antenatal Care and Outcomes.

Antenatal Care Received	Maternal Complications (%)	Fetal Complications (%)
Yes	15%	20%
No	50%	60%

DISCUSSION

Eclampsia continues to pose a significant challenge in obstetric care, especially in resource-constrained settings. This study aimed to assess maternal and fetal outcomes in the management of eclampsia, focusing on key parameters such as demographic profiles, maternal complications, fetal outcomes, timing of intervention, and the impact of antenatal care. The findings provide valuable insights into the factors influencing outcomes and highlight areas requiring attention to improve overall care [7].

The study revealed a high incidence of maternal complications, with seizure recurrence (16.7%) being the most frequent. Postpartum hemorrhage (13.3%) and HELLP syndrome (8.3%) were also notable. These complications emphasize the need for prompt and effective seizure control, along with comprehensive monitoring of maternal health during and after delivery. ICU admissions were recorded in 30% of cases, underlining the severity of eclampsia and its potential for multi-system involvement. Maternal mortality, though low at 3.3%, highlights that eclampsia remains a life-threatening condition despite advancements in management protocols.

The occurrence of complications was notably higher among women who did not receive antenatal care (50%) compared to those who did (15%). This finding underscores the critical role of antenatal care in early detection and management of hypertensive disorders in pregnancy. Antenatal care enables timely interventions and reduces the severity of complications, thus improving maternal outcomes.

The fetal outcomes observed in this study reflect the significant impact of eclampsia on neonatal health. Preterm births accounted for 33.3% of cases, with 41.7% of neonates classified as low birth weight (<2.5 kg). These findings are consistent with the literature, where preeclampsia and eclampsia are well-documented contributors to preterm delivery and intrauterine growth restriction. NICU admissions were required for 30% of neonates, and perinatal mortality was observed in 13.3% of cases. An Apgar score <7 at 5 minutes was recorded in 20% of neonates, indicating neonatal compromise at birth [8, 9].

The adverse fetal outcomes were significantly associated with delayed intervention. Neonates born to mothers who received intervention within six hours of admission had better outcomes, with fewer complications (15%) compared to those with delayed management (>12 hours), where fetal complications were as high as 60%. This highlights the importance of timely decision-making and delivery in mitigating fetal morbidity and mortality.

The timing of intervention emerged as a critical determinant of both maternal and fetal outcomes. Early intervention, defined as management within six hours of admission, was associated with a lower incidence of complications in both mothers (10%) and neonates (15%). In contrast, delayed intervention (>12 hours) was linked to significantly higher complication rates (50% in mothers and 60% in neonates). This finding reinforces the urgency of prompt diagnosis and management in eclampsia to prevent escalation of the condition.

Delays in intervention can be attributed to various factors, including late presentation to healthcare facilities, inadequate infrastructure, and lack of awareness among patients and caregivers. These barriers highlight the need for enhanced community education on the symptoms of eclampsia, as well as strengthening referral systems and healthcare infrastructure in rural and semi-urban areas. (10)

The study underscores the vital role of antenatal care in improving outcomes for both mothers and neonates. Women who received antenatal care had significantly better outcomes, with lower rates of maternal (15%) and fetal (20%) complications compared to those who did not receive antenatal care (50% and 60%, respectively). Antenatal care facilitates the early identification of hypertensive disorders, enabling timely initiation of management protocols such as blood pressure control, close fetal monitoring, and preventive measures like aspirin and calcium supplementation.

The absence of antenatal care in half of the study population reflects a gap in access to and utilization of maternal health services. Cultural, financial, and logistical barriers often impede access to antenatal care in low-resource settings. Addressing these barriers through community outreach programs, financial incentives, and improved accessibility of healthcare facilities is imperative to enhance antenatal care coverage and reduce the burden of eclampsia-related complications [8].

The association between delayed intervention and poor outcomes has been corroborated by several studies. Timely administration of magnesium sulfate, antihypertensive therapy, and expedited delivery have been shown to significantly improve both maternal and fetal outcomes. Similarly, the role of antenatal care in mitigating complications has been widely documented, reinforcing its importance as a cornerstone of maternal health services [8-10].

CONCLUSION

Our study highlights the significant impact of timely intervention and antenatal care on maternal and fetal outcomes in eclampsia management. Early recognition and management of eclampsia, coupled with improved access to antenatal care, can substantially reduce the burden of complications. Strengthening healthcare systems, enhancing community awareness, and addressing barriers to care are essential to improving outcomes in eclampsia. Further research is needed to explore innovative strategies for early detection and management, particularly in low-resource settings, to ensure better maternal and neonatal health outcomes.

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