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Original Research Article

ANALYZING THE OUTCOME OF ECLAMPSIA CASES - AN INSTITUTIONAL BASED STUDY

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Abstract

Background: Eclampsia remains a significant contributor to maternal mortality, yet it is a condition that can be averted through the identification of avoidable risk factors, the implementation of effective medical interventions, and timely termination of pregnancy. **Aims:** This study aims to evaluate patients diagnosed with eclampsia who were admitted during the specified study period. **Material and Methods:** A prospective study was conducted on a total of 90 eclampsia patients. **Results:** Among the 90 patients included in the study, 80% were under the age of 25. The majority of eclampsia cases (73%) occurred during the antepartum period, with 93% of patients being primigravida. A significant proportion of cases were unbooked and originated from rural areas, with 75% being referred from peripheral healthcare facilities. All patients received magnesium sulfate either prior to or upon arrival at our center. **Conclusion:** Operative delivery was found to be a favorable option for expediting labor and reducing maternal mortality rates. Timely interventions in high-risk cases is the key to reduce morbidity.

INTRODUCTION

Eclampsia, a complication of severe preeclampsia, is commonly characterized by the sudden onset of grand mal seizures and/or unexplained coma in pregnant or postpartum women exhibiting signs or symptoms of preeclampsia. Typically occurring after the 20th week of gestation or in the postpartum period, eclampsia has been observed to manifest without hypertension and proteinuria in a significant percentage of cases reported in the United Kingdom and the United States. Maternal preeclampsia is clinically manifested by hypertension and proteinuria, with or without accompanying systemic abnormalities affecting the kidneys, liver, or blood. Fetal growth restriction, reduced amniotic fluid, and abnormal fetal oxygenation are also indicative of preeclampsia in the fetus. HELLP syndrome, a severe form of preeclampsia, presents with hemolytic anemia, elevated liver function tests (LFTs), and low platelet count. The majority of eclampsia cases occur in the third trimester, with a significant proportion of seizures occurring during labor or within 48 hours after delivery. Although rare, eclampsia can occur before the 20th week of gestation or as late as 23 days postpartum. Unfortunately, there are currently no reliable tests or symptom complexes that can accurately predict the development of eclampsia, aside from early detection of preeclampsia. In developed countries, many reported cases have been classified as unpreventable.[1-2]

The term "eclampsia" was coined by Varandaeus in a gynecology treatise, while Lelia Duley suggests that the emergence of pre-eclampsia and associated convulsions can be considered a syndrome resulting from a combination of multiple afflictions, comorbidities, and socio-economic factors.[3-4]

Eclampsia, a term derived from the Greek language meaning "shining forth," refers to the occurrence of unexplained seizures, convulsions, or altered mental status in individuals with preeclampsia. This condition typically arises after 20 weeks of pregnancy or during the postpartum period. In the Western world, the incidence of eclampsia ranges from 1 in 2000 to 1 in 4000 pregnancies. However, it is crucial to note that eclampsia remains a significant cause of maternal mortality in various regions of Africa, Asia, Latin America, and the Caribbean (Chaudhary P).[5,6] Our hospital conducted a study with the aim of identifying the risk factors and preventable causes of eclampsia. By doing so, we hope to reduce the incidence of caesarean sections and improve the management of this condition. The objectives of this study include identifying avoidable factors specific to our situation, understanding the social causes that can be prevented, determining effective medical treatments, and establishing the most suitable mode of delivery,

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whether it be a normal vaginal delivery or a lower segment cesarean section (LSCS).

MATERIALS AND METHODS

This prospective study was conducted at Anugrah Narayan Magadh Medical College and Hospital from October 2022 to March 2024 in the department of Obstetrics and Gynaecology.

The study started after approval from the institutional research and ethical committee.

The study examined 90 cases of eclampsia.

The inclusion criteria for the study included all antenatal and postnatal patients with eclampsia. However, antenatal patients with a history of epilepsy, cerebral stroke, cerebral malaria, or any undiagnosed convulsion were excluded from the study.

RESULTS

The table below indicates that the majority of eclampsia patients fall within the 21-25 age range, accounting for 60 (66.67%) out of 90 cases. [Table 1]

The table below illustrates that out of 90 patients with eclampsia, the majority, 69 (76.67%), are primigravida. [Table 2]

The table below indicates that the majority of eclampsia patients, specifically 68 out of 90 (75.56%), are referred for further treatment. [Table 3]

The table below indicates that the majority of eclampsia patients, specifically 89 out of 90 (98.89%), are unbooked. Only one patient is considered booked. [Table 4]

The table below illustrates that out of 90 patients admitted with eclampsia, the majority, 50 (55.57%), presented with comatose and convulsive symptoms. [Table 5]

According to the table provided, it is evident that the highest number of eclampsia patients were admitted within the time frame of 1-4 hours, accounting for 45 individuals out of a total of 90, which represents 50% of the total. [Table 6]

In the table below, it is indicated that the majority of eclampsia patients, specifically 66 out of 68 (97%), were administered MgSO4 by a referring individual. Only 2 patients did not receive MgSO4. [Table 7]

The table below indicates that the highest number of eclampsia patients underwent delivery via LSCS, with 69 out of 90 patients (66.67%). [Table 8]

According to the table provided, it is evident that the majority of patients diagnosed with eclampsia successfully gave birth to live babies. Out of a total of 90 patients, 84 of them, accounting for 93.33%, delivered live births. [Table 9]

The table below indicates that the highest number of eclampsia patients is antepartum eclampsia, accounting for 66 out of 90 cases (73.33%). [Table 10]

The table below indicates that the highest number of eclampsia patients, 85 out of 90 (94.44%), were successfully saved. [Table 11]

The table below indicates that the highest number of patients with eclampsia needed blood and blood product transfusions, specifically 62 out of 90 (68.89%). [Table 12]

Table 1: Distribution of cases according to age

S.No.	Age group (in yrs)	No. of cases	Percentage
1.	<20	12	13.33
2.	21-25	60	66.67
3.	26-30	15	16.67
4.	> 30	3	3.33
	Total	90	100

Table 2: Distribution of cases according to parity

S.No.	Parity	No. of cases	Percentage
1.	Primigravida	69	76.67
2.	2nd gravida	14	15.57
3.	3rd gravida	5	5.56
4.	> 3rdgravida	2	2.23
	Total	90	100

Table 3: Distribution of cases as Direct/Referred

S.No.	Direct/Referred	No. of cases	Percentage
1.	Referred	68	75.56
2.	Direct	22	24.44
	Total	90	100

Table 4: Distribution of cases as Booked/Unbooked

S.No.	Booked/Unbooked	No. of cases	Percentage
1.	Booked	1	1.11
2.	Unbooked	89	98.89
	Total	90	100

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Table 5: Distribution of cases according to condition at the time of admission

Condition at admission	No. of patients	Percentage
Comatose with convulsion	50	55.57
Convulsion with giddiness	12	13.33
Convulsion with headache	4	4.44
Headache	5	5.56
Blurring of vision	8	8.89
Epigastric pain	1	1.11
Total	90	100

Table 6: Distribution of cases according to duration between 1st convulsion and admission

S.No.	Duration	No. of cases	Percentage
1.	< 1 hrs	6	6.67
2.	1-4 hr	45	50.00
3.	> 4 hr	25	27.77
4.	Not known	14	15.56
	Total	90	100

Table 7: Distribution of cases according to referred patients, previous treatment of MgSO4 achieved or not

S.No.		No. of cases	Percentage
1.	MgSO4 given by referring person	66	97
2.	MgSO4 not given by referring person	2	3
	Total	68	100

Table 8: Distribution of cases according to mode of delivery

S.No.	Mode of delivery	No. of antepartum cases	Percentage
1.	LSCS due to eclampsia	57	63.34
2.	LSCS due to eclampsia + other reason	12	13.33
3.	Normal vaginal delivery	21	23.33
	Total	90	100

Table 9: Distribution of cases according to perinatal outcome

S.No.	Perinatal outcome	No. of cases	Percentage
1.	Live births	84	93.33
2.	IUD	6	6.67
3.	Still birth	0	0
	Total	90	100

Table 10: Distribution of cases according to comparison between antepartum, intrapartum and postpartum eclampsia

S.No.	Groups	No. of cases	Percentage
1.	Antepartum	66	73.33
2.	Intrapartum	18	20.00
3.	Postpartum	6	6.67
	Total	90	100

Table 11: Distribution of cases according to maternal mortality

S.No.	Mortality	No. of cases	Percentage
1.	Maternal death	5	5.56
2.	Saved	85	94.44
	Total	90	100

Table 12: Distribution of cases according to required blood and blood product (FFP)

S.No.		No. of cases	Percentage
1.	Required	62	68.89
2.	Not required	28	31.11
	Total	90	100

DISCUSSION

Pregnancy-induced hypertensive disorders continue to pose a significant obstetric challenge in developing nations. The exact cause of eclamptic seizures remains a mystery. Apart from the early identification of preeclampsia, there are no definitive tests or symptoms to predict the onset of eclampsia.[7] According to a report by the World Health Organization, eclampsia is responsible for 12% of maternal deaths, making it one of the primary causes of maternal mortality. Preeclampsia, characterized by a sudden rise in blood pressure during pregnancy, can progress to eclampsia if left untreated, leading to seizures, kidney and liver damage, and ultimately death. Eclampsia and severe

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preeclampsia claim the lives of approximately 63,000 women annually worldwide, along with many of their infants. Our research indicates a maternal mortality rate of 5.56%, with causes including intraventricular bleeding, aspiration, pulmonary edema, HELLP syndrome, and DIC. This demonstrates a lower mortality rate compared to the global average of 12% due to eclampsia, within our institution.

In our research, pre-eclampsia was frequently observed in first-time pregnant patients. As per Choudhary P,[3] eclampsia tends to affect young women and those who are pregnant for the first time. Our study also revealed that 80% of the patients were under the age of 25, and 76.67% were primigravidae, aligning with the findings of the aforementioned study. The majority of the patients in our study were illiterate, residing in rural areas, and lacked antenatal care. Out of 68 patients, 75.56% were referred and none were booked except for one, which is consistent with the research conducted by Swain S, Ojha KN, Prakash A, Bhatia BD in 1993 and Ansari MZ, Mueller BA, Krohn MA in 1995.[10] These studies highlighted the increased risk of eclampsia and maternal and perinatal loss due to inadequate antenatal care and delayed hospital referrals. Women without antenatal care were found to have a higher risk of developing eclampsia. Moodley J, Daya P in 1997,[11] noted that improvements in antenatal services between 1980-1990 led to a decrease in eclampsia cases, yet it remains a significant issue in developing nations despite advancements in care. Additionally, a study by Lorren D Richie and Janet C King in 2000,[12,13] demonstrated that daily calcium supplementation reduced systolic blood pressure. Despite efforts to prevent and treat eclampsia, it continues to be a major cause of maternal mortality in developing countries. Regular antenatal care is crucial in preventing this condition.[14]

Levine R.J. (2006) conducted a study involving 8325 patients and found that calcium did not reduce the incidence of pre-eclampsia. However, it was effective in reducing the severity of convulsions in eclampsia patients. Deborah Maine (2007) suggested that calcium supplementation could potentially lower the incidence of toxemia by addressing a possible calcium deficiency. P,[16] The study by Seema Jain, Priyamvada Sharma, Shobha Kulshreshtha, Govind Mohan, and Saroj Singh (2010) focused on the role of calcium, magnesium, and zinc in pre-eclampsia.[17] Sham Shad Begam, Aziz un-nisa, and Isqal Begum (2001) identified various factors contributing to maternal mortality in eclampsia, including lack of transport, poverty, familial taboos, and ignorance about healthcare facilities.[18] It is evident that poor educational and socioeconomic status of women is a significant factor in high maternal mortality rates. Current safe motherhood indicators show low percentages of antenatal care, deliveries at health facilities, and skilled attendants at delivery. Our study revealed that the majority of eclampsia cases (93.33%) occurred antepartum, with the remaining cases (6.67%) happening postpartum.

James P. Neilson (1995) emphasized the significance of magnesium sulphate as the preferred drug in the United States for treating eclampsia. The international collaborative eclampsia trial, led by Lelia Duley and James P. Neilson (1999), demonstrated that MgSO4 is more effective and safer than other alternatives.[23-24] Duley and Henderson-Smart (2003) further supported this claim, stating that MgSO4 is superior to phenytoin in preventing seizures and other health issues for women with eclampsia. The Magpie Trial Collaborative Group (2002) also found that maternal mortality was lower among women who received magnesium sulphate. Our own study confirmed the benefits of magnesium sulphate in reducing maternal morbidity, with patients who did not respond to treatment being referred for further care due to intraventricular bleeding detected by CT scan.[25]

The preferred treatment for eclampsia is delivery. If the patient is already in labor or if labor can be easily induced, a vaginal delivery may be considered as long as there are no other complications. A retrospective study conducted by Kristin H. Coppage and William J. Polzin in 2002 found that immediate cesarean section had beneficial effects in severe preeclampsia cases. In our own study, 76.67% of patients underwent cesarean section while 23.33% had a normal vaginal delivery. Other studies have also reported that cesarean section is the common mode of delivery among eclamptic patients, with approximately 55.31% of patients undergoing this procedure. However, if seizures are effectively controlled and the patient is stable, the clinician may choose to wait for spontaneous vaginal delivery after inducing labor, as observed in our study. According to Craig Weber, M.D., in 2007, delivery is the only cure for eclampsia and should occur as soon as possible after treatment initiation. Ultimately, delivery is always the primary goal of treatment for eclampsia patients.[26-28]

CONCLUSION

In this prospective study conducted on 90 patients admitted as a case of eclampsia either antepartum and postpartum. Operative delivery is a better option in eclampsia cases to shorten the labour and to decrease maternal mortality rate. To decrease the maternal complications, a methyl prednisolone was given, which improved maternal morbidity.

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