

FETOMATERNAL OUTCOME IN ECLAMPSIA AT TERTIARY CARE CENTRE: A DESCRIPTIVE CROSS-SECTIONAL STUDY

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**ABSTRACT**

Introduction: Eclampsia is a life threatening emergency condition that remains a leading cause of maternal and perinatal mortality. It is one of the causes of preventable maternal mortality. There are specific risks for the mother as this condition lead to seizure and may cause woman to lose consciousness and if the fetus is not delivered, this condition can cause the death of the mother and or the fetus. This study was conducted to evaluate the fetomaternal outcome in eclampsia.

Materials and Methods: This is a descriptive cross sectional study done at National Medical College Teaching Hospital from 1st February 2021 to 31st January 2022. Ethical approval was obtained from IRC (regd no. F-NMC/518/076-77). During the study period 1496 women delivered. Out of this, 44 patients with generalized tonic-clonic convulsions during pregnancy / labour / within 7 days of delivery were included in the study criteria. The data analyzed included various maternal parameters, fetal parameters and pregnancy outcomes.

Result: Among 1496, 44 patients (2.94%) developed eclampsia, 38.63% in age group of < 20 years, 59.09% were primigravida, 84.09% unbooked, 63.63% presented with antepartum eclampsia, delivered by caesarean 63.63%. There was 2.26% maternal mortality due to cerebrovascular accident. Perinatal mortality was 11.36% which included stillbirth 6.81% and neonatal death 4.54%.

Conclusion: Regular antenatal checkup, early detection of disease, timely referral, and early initiation and treatment in patients with eclampsia improve outcomes. Treatment of these patients should be carried out in tertiary care centers where intensive care units, NICU facilities, and multidisciplinary units are available.

Keywords: Caesarean section, Eclampsia, Fetal outcome, Maternal outcome.

INTRODUCTION

Hypertensive pregnancy disorder is one of the leading causes of death during pregnancy.¹ Eclampsia (Greek term for lightning)² is defined as new onset of grand mal seizure activity and/or unexplained coma during pregnancy or postpartum in a woman with signs or symptoms of preeclampsia.^{3,4} Pre-eclampsia is a hypertensive disorder of pregnancy characterized by three main features: high blood pressure occurring after 20 weeks gestation, high levels of protein in urine or other organ dysfunction and

edema.⁵⁻⁷

Hypertensive pregnancy disorder resulted in 46,900 deaths in 2015.⁸ Eclampsia affects nearly 1.4% of births worldwide.⁹ WHO estimates that eclampsia develops in 2.3% of preeclamptic women in the developing world, compared with 0.8% of preeclampsia cases in developed countries.¹⁰ Eclampsia tends to occur more often in the first pregnancy than in subsequent

pregnancies.¹¹⁻¹³

The mechanisms of eclampsia is not definitively understood, but reduced blood flow to the placenta (placental hypoperfusion) may be a key feature of the process.¹⁴ There are risks to both the mother and the fetus when eclampsia occurs. Consequence of eclampsia include aspiration pneumonia, cerebral hemorrhage, kidney failure, pulmonary edema, HELLP syndrome, coagulopathy, placental abruption and cardiac arrest, low birth weight, small for gestational age, intrauterine growth restriction.¹⁵

Most women will have signs/symptoms hours before their first seizure. Typically, the woman develops hypertension before the onset of a seizure.¹⁶ Other signs and symptoms¹⁷ include haedache,¹⁸ visual disturbance, epigastric pain, altered mental status. Any of these symptoms may be present before or after the seizure.¹⁹

The fact that eclampsia is completely preventable significant cause of maternal and fetal morbidity and mortality; this study aims to find out the fetomaternal outcome in eclampsia. The magnitude of effects in terms of complications on the mother and the fetus in this study will alert the obstetrician to take preventive measures against eclampsia and this will benefit both the mother and the fetus.

MATERIALS & METHODS

Study Design

This descriptive cross-sectional study was conducted in the Department of Obstetrics and Gynaecology of National Medical College and Teaching Hospital for duration of one year from 1st February 2021 to 31st January 2022. The ethical approval was obtained from the Institutional Review Committee of the National Medical College and Teaching Hospital (Registration number: F-NMC/518/076-77). The study population included patients with generalized tonic-clonic convulsions during pregnancy / labour / within 7 days of delivery. All the patients of eclampsia were admitted at the obstetric and gynecological department of National Medical College and Teaching Hospital during the study period.

Written informed consent was taken from all patients / relatives enrolled in the study. They were evaluated by history, clinical examination and relevant investigations. Forms which captured the required clinical information were used. Such information include age, parity, booking status, gestational age at presentation, time of onset of fits (antenatal, intrapartum, postnatal), blood pressure at time of fits / arrival at the hospital. Patient had antenatal check-ups, whether immunized or not, patient is a booked or unbooked case. Obstetric history were taken in detail to know whether patient is a primi or a multigravida and her past obstetric performance were also considered in detail. The menstrual history will be taken with special reference to the last menstrual period and as to whether the patient had regular cycles to determine the period of gestation. The patients were asked for any significant past and family history. A detailed general examination was done and vitals were recorded. A per abdominal examination was done to assess height of uterus in weeks, the lie of fetus, the position of back, the types of presentation and position and fetal heart rate. A detailed pelvic examination was done to determine the consistency, effacement and dilatation of the cervix. The presence or absence of membrane will be noted. Selection of cases was done according to inclusion criteria. The neonatologist assessed each high risk baby. Routine blood investigations haemoglobin, blood sugar, platelet, serology, urine routine, renal function test, liver function test were sent. Treatment modality employed, mode of delivery, fetal weight, APGAR score, neonatal outcome, fetal and maternal morbidity and mortality were recorded and were followed up till their delivery and postnatally were recorded on the proforma.

Selection Criteria:

All participants who meet inclusion criteria in study period enrolled in study.

Inclusion criteria- Patients with generalized tonic-clonic convulsions during pregnancy/ labour/ within 7 days of delivery were included.

Exclusion criteria- Previous history of epilepsy, neurological disorders, encephalitis/ meningitis and any other secondary causes underlying seizures, refusal to

participate.

Data analysis:

The data collected were entered daily. Analysis of the data was done by using SPSS version 20 software. These findings were then presented in the form of tables, graphs and diagrams using Microsoft Excel 2021. SPSS version 20 was the software used for calculation and tabulation of data. The final results were discussed and the conclusion was derived. A simple descriptive statistical analysis method was done.

RESULTS

A total of 1496 patients delivered within the study period, out of which 44 patients developed eclampsia giving a frequency of eclampsia of about 1 in 34 deliveries. The incidence of eclampsia came out to be 2.94%.

Table 1: Sociodemographic and Obstetric factors associated with Eclampsia

Characteristics	No. of cases (44)	Percentage
Maternal age (years)		
< 20	17	38.63%
20 – 24	12	27.27%
25 – 29	7	15.90%
30 – 34	6	13.63%
≥ 35	2	4.54%
Parity distribution		
Primigravida	26	59.09%
Multigravida	18	40.90%
Booking status		
Booked	7	15.90%
Unbooked	37	84.09%
Type of Eclampsia		
Antepartum	28	63.63%
Intrapartum	6	13.63%
Postpartum	10	22.72%
Gestational age (weeks) at the onset of fit		
< 34	6	13.63%
34 – 37	11	25%
37 – 40	19	43.18%
Post dated	8	18.18%
Fits delivery interval		
Less than 6 hours	5	11.36%

6 – 12 hours	24	54.54%
12 – 24 hours	13	29.54%
More than 24 hours	2	4.54%
Blood pressure at admission		
> 160/110 mm Hg	35	79.54%
< 160/110 mm Hg	9	20.45%
Mode of delivery		
Vaginal delivery	16	36.36%
Caesarean section	28	63.63%
Mode of care		
Intensive care unit	8	18.18%
Ward care	36	81.81%
Total admission (days)		
Admission < 7 days	15	34.09%
Admission > 7 days	29	65.90%

Table 1 demonstrates Sociodemographic and Obstetric factors associated with Eclampsia. Eclampsia was more common in the age group < 20 years 17 (38.63%), primigravida 26 (59.09%) and unbooked 37 (84.09%). Among 44 cases, 28 (63.63%) patients were antepartum eclampsia, 6 (13.63%) were intrapartum eclampsia, 10 (22.72%) cases were postpartum eclampsia. Majority of patients with fits presented at term pregnancy i.e. 19 (43.18%). Fits to delivery time interval was seen maximum at 6–12 hours duration 24 (54.54%). Blood pressure >160/110 was seen in 35 (79.54%). Patients were delivered by caesarean section in 28 (63.63%) whereas vaginal delivery 16 (36.36%). Mainly, the patients were managed in ward 36 (81.81%) and discharged 29 (65.90%) after 7 days.

Table 2: Maternal morbidity and mortality due to eclampsia

Maternal complications	No. of cases (44)	Percentage
No complication	23	52.27%
Postpartum haemorrhage	5	11.36%
Pulmonary edema	4	9.09%
HELLP syndrome	3	6.81%
Renal failure	3	6.81%
Abruptio placenta	3	6.81%
Cerebrovascular accidents	1	2.27%
Coagulopathy	1	2.27%
Death	1	2.27%

Table 2 demonstrates maternal complications with

maximum postpartum haemorrhage 5 (11.36%) cases, pulmonary edema 4 (9.09%) cases, HELLP syndrome, renal failure, abruptio each 3 (6.81%) cases, and death 1 (2.27%) case due to cerebrovascular accident.

Table 3: Perinatal morbidity and mortality

NICU admissions	No. of cases (44)	Percentage
No admission	27	61.36%
Birth asphyxia	5	11.36%
Respiratory distress	5	11.36%
Meconium aspiration	3	6.81%
Intrauterine growth restriction	2	4.54%
Prematurity	2	4.54%
Stillbirth	3	6.81%
Neonatal death	2	4.54%
Perinatal mortality	5	11.36%

Table 3 demonstrates perinatal complications with NICU admission 17 babies (38.63%) following which birth asphyxia and respiratory distress each 5 (11.36%), meconium aspiration 3 (6.81%), intrauterine growth restriction and prematurity each 2 (4.54%). Perinatal mortality was 5 (11.36%) which included stillbirth 3 (6.81%) and neonatal death 2 (4.54%).

DISCUSSION

During the period of one year from 1 February 2021 to 31 January 2022, among 1496 deliveries, 44 patients had eclampsia giving a frequency of eclampsia of about 1 in 34 deliveries. The incidence of eclampsia came out to be 2.94%. The incidence was comparable with what was obtained in similar studies of Bihar 2.06%²⁰, Varanasi 2.2%²¹, Abbottabad 3.23%²² in contrast to Maternity hospital Kathmandu 0.29%,²³ Patan Hospital Kathmandu²⁴, 0.24%, Peshawar Pakistan 1.65%.²⁵ The high incidence of eclampsia in our study is due to the high referral rate to tertiary center for further management.

In our study, eclampsia was more common in young women (38.63%) and primiparous women (59.09%), which is roughly comparable to our study by Sunita TH et al²⁶ and Kaur P et al.²⁷ Unbooked eclamptic patients were 84.09%. This is due to patient unawareness for antenatal checkups and poverty. A study done by Manandhar showed that antenatal care could not reduce the risk of severe preeclampsia/eclampsia.²⁸ Most of our patients

63.63% have antepartum eclampsia and occurred in most patients 43.18% during full term pregnancies which is comparable to other studies by Mahran et al²⁹ and Sibai et al.³⁰

Eclamptic patients (79.64%) presented with blood pressure >160/110 mm Hg. In a study by Sunita et al, 68% of eclamptic women had severe hypertension. In the study conducted by Sibai et al 45% patients had severe hypertension.^{26, 30} The majority (63.63%) of our patients were delivered by caesarean section. It is higher than the other study by Chaudhary P et al. (55.31%),²³ Sunita TH et al. (45%),²⁶ but lower than the other study by Gautam SK et al.,³¹ where all eclamptic patients underwent caesarean section.

Many 81.81% patients required ward admission and 65.90% were admitted in hospital for more than a week, 47.72% of the patients developed complications that is higher than a recent study 7.22% Gautam SK et al it probably reflects the good health care and transportation facility in Kathmandu³¹ and Sita Ghimire in Eastern Nepal 19.5%.³²

Maternal complications presented with maximum postpartum haemorrhage 11.36%, pulmonary edema 9.09%, HELLP syndrome, renal failure, abruptio 6.81%, and a death 2.27% due to cerebrovascular accident. In study conducted by Chukwuma et al maternal mortality was 10%,³³ whereas in study conducted by Sibai et al it was significantly low 0.4%.³⁰

Birth asphyxia and respiratory distress were the major cause for NICU admissions in this study. There were (38.63%) NICU admissions in our study and in the study conducted by Lee et al³⁴ there were 59% NICU admissions while in the study conducted by Mahran et al 18.8%.²⁹ In the current study, perinatal mortality was (11.36%), contributing 6.81% of stillbirths and 4.54% of neonatal deaths. In a study by Ndaboine et al. perinatal mortality was 20.7% (12.2% stillbirth, 8.5% neonatal mortality)³⁵ and according to Mahran et al. 38.6% (2.7% stillbirth, 9.5% neonatal death).²⁹

LIMITATIONS

The study was hospital based and findings might not

be representative of the general population. Due to the limited duration and number of samples, the projected result cannot be conclusively applied to large populations, so multicentric study is recommended.

CONCLUSION

The present study showed incidence of eclampsia to be 2.94%. Eclampsia is a very serious complication of pregnancy that causes maternal and perinatal mortality. Eclampsia can be prevented by early warning signs and symptoms so that threatening complications can be surpassed. The issues held lack of adequate antenatal care; low socioeconomic status and lack of awareness of early detection, referral, and prompt treatment of eclampsia were important issues. Appropriate health education and public awareness of eclamptic patients seeking timely medical care should be promoted at all levels of the community.

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