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Original Research Article

Study on maternal and perinatal outcome in eclampsia in a tertiary care hospital

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ABSTRACT

Background: Eclampsia is an unpredictable multi-organ disease unique to pregnancy and is largely a preventable condition, responsible for high maternal and perinatal mortality.
Methods: The present study was conducted in the Department of Obstetrics and Gynaecology in Maharani Laxmi Bai Medical College, Jhansi. It was a retrospective study conducted over a period of 12 months on all eclamptic cases attending our hospital and feto-maternal outcome data was analysed.
Results: The incidence of eclampsia in our hospital was 2.22%. Most of the eclamptic cases were antepartum eclampsia constituting 81.48%. During the study period there were a total of 2430 obstetric admissions out of which 54 were eclamptic cases. There were 89 near miss cases and 21 maternal deaths. 16 (17.97%) near miss cases and 7(33.33%) maternal deaths were due to eclampsia. 37.03% patients had complications. Pulmonary edema/ARDS was the most common complication seen in our study. Early neonatal mortality in our study was 11.11%, 11 new-borns needed NICU care. Prematurity was the most common cause.
Conclusions: Adequate screening, monitoring and routine check-up during and after pregnancy may prevent worsening the maternal and foetal outcome. Lack of antenatal care is a common risk factor for eclampsia is and this needs to be addressed to prevent this serious complication of pregnancy.

Keywords: Disseminated intravascular coagulation, Feto-maternal outcome, Mortality, Near miss, Posterior reversible encephalopathy syndrome

INTRODUCTION

Eclampsia is an extremely severe form of pre-eclampsia and is defined as the onset of seizures (convulsions) in a woman with pre-eclampsia. Pre-eclampsia is a disorder of pregnancy characterized by development of hypertension to the extent of 140/90mmHg or more with proteinuria after the 20th week in a previously normotensive and nonprotein-uric women. Onset may be before, during, or after delivery. Eclampsia is an unpredictable multi organ disease unique to pregnancy and is largely a preventable condition, responsible for high maternal and perinatal mortality. The abnormal placenta is known to be the major cause for the origin of PE, and its removal puts an end to the disease. Due to abnormal implantation and placentation poor uterine and placental perfusion occurs which leads to oxidative stress, hypoxic condition and release of some anti-angiogenic factors.[1] These anti-angiogenic factors lead to generalized endothelial dysfunction which is responsible for hypertensive syndrome and microangiopathy.[1] Approximately, 1 in 2000 deliveries is complicated by eclampsia in developed countries, whereas incidence in developing countries varies from 1 in 100 to 1 in 1700 cases.[2]

Incidence has fallen in developed countries, 0.2 to 0.5 % of all deliveries. The reported incidence of eclampsia varies from 0.179 to 3.7% in India. According to WHO estimation eclampsia is the cause of 12% of all maternal deaths globally. Maternal mortality varies from 2.2 to 23%.

The objective of this study was to evaluate the incidence rate of eclampsia in all eclamptic women attending our hospital, to analyze patient's age, parity, gestational age, mode of delivery, feto-maternal outcome, prognosis and evaluation of the risk factors and the preventable causes.

METHODS

After the approval of Institutional Ethical Committee and proper counselling and consent of the patients, a retrospective observational study was conducted at the Department of Obstetrics and Gynaecology, MLB Medical College Jhansi (Uttar Pradesh) on 54 cases of eclampsia attending our hospital from July 2021 to June 2022 over a period of 12 months. Women with eclampsia admitted to our hospital were evaluated for obstetric, menstrual, antenatal, medical and surgical history, blood pressure and laboratory evaluations, mode of delivery and the treatment received. Associated symptoms like blurring of vision, edema, disorientation in the mother noted. Laboratory evaluations recorded were serial measurement of complete blood cell count, urine albumin by dipstick, coagulation profile (PT, APTT), liver function tests (serum bilirubin, ALT, AST, AND LDH), and renal function tests (blood urea, serum creatinine, and serum uric acid). Ophthalmoscopic examination was done in all cases of eclampsia. Antenatal corticosteroids were given for fetal lung maturity if gestational age was less than 32 weeks. Fetal surveillance was done by modified bio physical profile and doppler and termination was done either by vaginal delivery or caesarean section. Maternal morbidity in terms of pulmonary oedema, PPH, DIC, sepsis, CNS, hepatic and renal complications and maternal mortality noted. Near miss cases evaluated using the WHO Near miss criteria. The perinatal outcome in terms of the IUFD, stillbirths, NICU admissions and early neonatal death were also noted. Ethical approval for the study was obtained from the ethical committee of the hospital and informed consent was taken from all the patients included in the study.

Inclusion criteria

All antepartum, intrapartum and postpartum eclamptic women attending our hospital were included.

Statistical analysis data obtained was collected and analysed by SPSS software.

RESULTS

In this study, most of the eclamptic cases were antepartum eclampsia constituting 81.48% of all the patients admitted (Table 1). Table 2 shows the distribution of subjects according to demographic parameters. Maximum women were in age group 20-25 years constituting 57.40% followed by women in age group 26-30 years constituting 22.22% with a mean age±SD of 24.5±2.80 years.92.6% of the patients were referred from PHC's, CHC's and district hospitals. Maximum cases of eclampsia belonged to 32-37 weeks gestational age group constituting 50.00%. In our study, most of the cases of eclampsia were primigravida constituting (66.66%). 61.1% of patients with Eclampsia had systolic blood pressure above 140 mmHg. 75.91% women had diastolic blood pressure above 110 mmHg. 35.18% women had diastolic blood pressure above 130mmHg (Table 3).

Table 1: Proportion of patients with eclampsia (n=54).

Type of eclampsia	Number of cases	Percentage
Antepartum eclampsia	44	81.48
Intrapartum eclampsia	4	7.4
Postpartum eclampsia	6	11.11

Table 2: Distribution according to demographic parameters.

Parameters	Number	Percentage
Age (mean±SD in years)	24.5±2.80	
Gestational age (weeks)		
Less than 28 weeks	2	3.7
28-32	4	7.40
32-37	27	50.00
More than 37 weeks	21	38.88
Gravid status		
G1	36	66.66
G2	10	18.51
G3	5	9.25
G4 and more	3	5.55

Table 3: Distribution according to blood pressure.

Blood pressure	No. of cases	% of cases	Blood pressure	No. of cases	% of cases
<100	1	1.85	<90	2	3.70
100-119	7	12.96	90-99	3	5.55
120-139	13	24.07	100-109	8	14.81
140-159	13	24.07	110-119	10	18.51
≥160	20	37.03	120-129	12	22.22
			≥130	19	35.18

Table 4 shows distribution according to lab parameters in which 42.49% patients with eclampsia had urine albumin +2,37.03% patients had deranged coagulation profile, 46.30% had thrombocytopenia. The rate of cesarean section in our study was higher (77.08%) (Table 5).

Most of the eclamptic patients were disoriented/ irritable accounting for 79.62%. During the study period there were

a total of 2430 obstetric admissions out of which 54 were eclamptic cases (Table 6).

Table 4: Distribution according to lab parameters.

Lab parameters		No. of cases	% of cases
U. Albumin	Nil	0	0
	+1	9	16.66
	+2	23	42.59
	+3	22	40.74
Coagulation profile	Normal	34	62.97
	Deranged	20	37.03
Platelet count	Normal	29	53.70
	Deranged	25	46.30
LFT	Normal	30	55.55
	Deranged	24	44.44

Table 5: Distribution according to mode of delivery.

Mode (n=48)	No. of cases	% of cases
Vaginal delivery	10	20.83
Emergency LSCS (Spinal anesthesia and General anesthesia)	37	77.08
Hysterotomy	1	2.08

Table 6: Distribution according to general condition.

General condition	No. of cases	% of cases
Blurring of vision	5	9.25
Disoriented/irritable	43	79.62
Unconsciousness	11	20.37
Anasarca	29	53.70

Table 7: Distribution according to maternal outcome.

Outcome	No. of cases	% of cases
Uncomplicated	11	20.37
With some complications	20	37.03
Near miss cases (n=89)	16	29.62
Mortality (n=21)	7	12.96

Table 8: Distribution according to complications.

Complications	No. of cases	% of cases
Pulmonary edema	21	38.88
PPH	13	24.07
DIC	9	16.66
Sepsis	7	12.96
Renal complications	6	11.11
CNS complications (IC Bleed, PRES)	3	5.55
Hepatic complications	3	5.55
HELLP syndrome	6	11.11

During the study period there were a total of 89 near miss cases out of which 16 near miss cases were due to eclampsia (17.97%), 37.03% patients had complications (Table 7). Pulmonary edema/ARDS was the most common complication seen in our study followed by atonic postpartum haemorrhage in 13 cases (24.07%) (Table 8). Early neonatal mortality in our study was 11.11%. 11 newborns needed NICU care with prematurity being the most common cause (Table 9).

Table 9: Distribution according to neonatal outcome.

Outcome	No. of cases	% of cases
Healthy	22	40.74
Premature	26	48.14
Early neonatal death	6	11.11
NICU admission	11	20.37
Intrauterine death	4	7.40

DISCUSSION

Eclampsia is a very serious hypertensive disorder of pregnancy. It takes place only in the presence of placenta even without fetus (hydatidiform mole), and typically improves postpartum.[3,4] Hypoperfusion and ischemic conditions evidently show the abnormal placenta. PE is known to be originated from disordered vascular development of the placenta which further widely spreads anti-angiogenic factors into the maternal circulation and causes a systemic endothelial cell dysfunction and microangiopathy.[5] Both maternal and perinatal mortality are high inspite of the different preventive approaches to improve obstetric care. In India the reported incidence of eclampsia varies from 0.179-3.7%. The incidence in our hospital was 2.22%.

Most of the eclamptic cases were antepartum eclampsia constituting 81.48% of all the eclamptic patients admitted. In different studies, antepartum eclampsia is found as commonest variety and the incidence were 51.20 percent and 60.20 percent.[6,7] Maximum women were in age group 20-30 years constituting 79.62%, comparable to Shiraz et al (78.2%), Sarma et al (71.79%).[8,9] Most of the patients were referred from PHC's, CHC's and district hospitals (92.6%). Majority of cases in present study were primigravida (66.66%), Shiraz et al (69.1%), Datta et al (66.0%) and Shaheen et al (69%) also reported the same.[8,10,11] Most of the cases were from rural background, illiterate, un-booked with no antenatal checkup. 61.1% of patients with Eclampsia had systolic blood pressure above 140 mmHg. 75.91% women had diastolic blood pressure above 110 mmHg. 35.18% women had diastolic blood pressure above 130mmHg.

There were 42.49% patients with eclampsia had urine albumin +2,37.03% patients had deranged coagulation profile, 46.30% had thrombocytopenia. The rate of cesarean section was high in our hospital which is 77.08% as compared to other studies and 20.83% cases had vaginal

delivery. In a study by Nessa et al caesarean section were common mode of delivery being 68.57% whereas delivered vaginally were only 37.14% cases.[12] Raji et al reported normal labour was seen in 31.51%, instrumental delivery 3.42%, spontaneous expulsion 2.74%, LSCS 61.65%, hysterotomy 0.68%.[13] Ghimire et al reported nearly 70% women underwent caesarean section.[14] Most of the eclamptic patients were disoriented/irritable accounting for 79.62%.

During the study period there were a total of 2430 obstetric admissions out of which 54 were eclamptic cases. There were 89 near miss cases and 21 maternal deaths .16 (17.97%) near miss cases and 7 (33.33%) maternal deaths were due to eclampsia. 37.03% patients had complications. Pulmonary edema/ARDS was the most common complication seen in our study followed by postpartum hemorrhage in 13 (24.07%) followed by disseminated intravascular coagulation in 9 (16.66%). 6 out of 54 (11.11%) eclamptic cases developed HELLP syndrome. Early neonatal mortality in our study was 6.00% (3 out of 50 alive new-borns) and 11 (20.37%) new-borns needed NICU care. Prematurity was the most common cause. There were 4 intrauterine deaths (7.04%). Perinatal mortality in our study was found to be 12.96% (3 early neonatal deaths and 4 intrauterine deaths out of 54). 40.74% of the new-borns were healthy without any complications.

CONCLUSION

Eclampsia is a systemic disorder characterized by maternal endothelial dysfunction and is largely preventable condition, responsible for high maternal and perinatal mortality. Adequate screening, monitoring and routine check-up during and after pregnancy may prevent worsening the maternal and foetal outcome. The most common risk factor for eclampsia is lack of antenatal care and this needs to be addressed to prevent this serious complication of pregnancy. Previous history of preeclampsia and eclampsia helps with the early diagnosis and prompt treatment. Healthcare personnel at peripheral centers should be capable of administering Magnesium sulphate and giving preliminary management, and should timely refer the patient to a higher center.

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