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Original Research Article

Clinical study of maternal complications associated with eclampsia

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ABSTRACT

Background: Eclampsia is still one of the leading causes of maternal mortality and morbidity in developing countries. Though the incidence in developed nations has drastically reduced, it has remained the same over years in India, mainly due to lack of awareness, poor socio-economic status and inadequate ante natal check-ups. The objective of this study was to determine the presentation, demographic features, risk factors, management, maternal mortality and morbidity, in women presenting with eclampsia.

Methods: This study was conducted in Vanivilas hospital from January to December 2014 for 12 months. Total 230 women with eclampsia were studied with respect to their age, parity, socio economic status, gestational age, details of previous antenatal check-ups, clinical features at presentation, nature and number of convulsions, treatment received before admission, management in the institution and maternal morbidity and mortality.

Results: The incidence of Eclampsia was 1.4%. 30% were below 20 years of age, 45% were primigravidas, 97% were referred cases with inadequate antenatal checkups. 68% had antepartum eclampsia, 22% had intrapartum eclampsia and 10% had postpartum eclampsia. 24% had instrumental delivery, 24% underwent caesarean delivery. There were 17.4% ICU admissions, 5.7% acute kidney injury cases and 13 maternal deaths.

Conclusions: Eclampsia still remains a major cause of maternal morbidity and mortality in india. Information about danger signs of pre-eclampsia/ eclampsia should be made available to antenatal clients. Importance of timely referral to the tertiary center should be emphasised to the peripheral health workers.

Keywords: Acute kidney injury, ECLAMPSIA, HELLP, Maternal complications, Pulmonary edema

INTRODUCTION

Hypertensive disorders complicating pregnancy are one of the deadly triad, along with haemorrhage and infection that contribute greatly to maternal mortality and morbidity. These hypertensive disorders remain among the most unsolved problems in obstetrics. This hypertensive disorder of pregnancy consists of a spectrum of disorders from gestational hypertension, preeclampsia, eclampsia, pre-eclampsia superimposed on chronic hypertension and chronic hypertension.¹

Preeclampsia is described as pregnancy specific syndrome that can affect virtually every organ system. It

is diagnosed with a minimum criterion of BP \geq 140/90 mm of Hg after 20 weeks of gestation and proteinuria of \geq 300 mg/24 hours or \geq 1+ dipstick. Preeclampsia complicated by generalised tonic - clonic convulsions is termed eclampsia. Fatal coma without convulsions has also been called eclampsia. Once eclampsia has ensued, the risk to both mother and fetus increase significantly. Major complications include placental abruption, neurological deficits, aspiration pneumonia, pulmonary edema, acute renal failure, HELLP syndrome, DIC, cardiopulmonary arrest and maternal death.²

In 10% women, some degree of blindness follows a seizure. Two causes for impaired vision or blindness are

varying degrees of retinal detachment or occipital lobe ischemia or edema. In these cases, the vision returns to normal within a week.³ Rarely permanent visual defects including blindness develop due to cerebral infarction or retinal artery infarction and ischemia.^{4,5}

Eclampsia is a preventable and treatable cause of maternal morbidity and mortality with poor fetomaternal outcome in developing countries. In India, it is the one of the most common causes of maternal mortality. The high maternal morbidity and mortality due to eclampsia in the developing countries has been ascribed to late referral, delay in hospitalization, lack of transport, unbooked status of patients and multiple seizures prior to admission. We are being a tertiary care centre get many cases of eclampsia. Hence this study is undertaken.

METHODS

This is a cross sectional observational study conducted at Vanivilas hospital from January 2014 to December 2014 for 12 months.

Objective of this study was to determine the presentation, demographic features, risk factors, management, maternal mortality and morbidity, in women presenting with eclampsia.

There were 230 women with eclampsia who developed convulsions before, at or after admission during this study period. Details of their age, parity, socio economic status, gestational age, number of previous antenatal check-ups, clinical features at presentation, nature and number of convulsions, whether a known case of HDP, treatment received before admission, detailed history of current pregnancy and previous pregnancies were documented. Women were subjected to a detailed clinical examination.

The MgSO₄ regimen and antihypertensive management, mode of termination of pregnancy, duration of hospitalisation noted. An analysis of maternal mortality and morbidity was done with respect to ICU admissions, development of status eclampticus, cerebral complications like PRESS syndrome (posterior reversible encephalopathy syndrome), intraventricular haemorrhage, cerebral edema, blindness, HELLP (haemolysis, elevated liver enzymes, low platelets) syndrome, DIC (disseminated intravascular coagulation), acute kidney injury, pulmonary edema and maternal deaths. Cases were followed up throughout the period of their hospitalization till discharge.

RESULTS

The following data was obtained from the present study. During the study period there were 16,361 deliveries, of which 1.4% were complicated with ECLAMPSIA.

The age distribution of present study group is shown in Table 1. Nearly 40% women were below 20 years and 50% were between 20 and 30 years of age.

Table 1: Age distribution.

Age	Number	Percentage
<-19	94	40.8
20-24	68	29.5
25-29	48	20.8
>-30	20	8.6

In the present series, there were 104 (45%) primis, 55 (24%) second gravidas, 41 (18%) third gravidas, 28 (12%) fourth gravidas and 2 (1%) fifth gravidas. Nearly half of the women in this study group were primigravidas.

Table 2: Gestational age at the onset of antepartum convulsions.

GA	Number	Percentage
28-34	60	26
34-37	110	48
>37	60	26

Table 2 shows, gestational age at the onset of convulsions. It includes both antepartum and intrapartum cases. 48% of the patients were between 34 and 37 weeks of gestation.

Among 230, 223 (97%) cases were referred cases. Almost all 230 women belonged to low socioeconomic status.

124 (54%) were diagnosed as cases of pre-eclampsia before convulsions, out of which 83 (36%) were on antihypertensives.

Out of 106 (46%) who were not diagnosed as HDP prior to convulsions, 67 (29%) did not have an ANC visit for one month prior to convulsions.

157 (68%) had antepartum eclampsia, 50 (22%) had intrapartum eclampsia and 23 (10%) had postpartum eclampsia.

4 (1.7%) had chronic renal disease prior to pregnancy, 3 (1.3%) had chronic hypertension.

80 (34.0%) patients out of the 223 referred patients had received loading dose of MgSO₄, that is 4 gm IV and 10 gm IM according to Pritchard regime. 50 (21.7%) patients had got only 10 gm IM MgSO₄. 10 (4.3%) patients had received 10 mg diazepam IV and 83 (36%) of them had not received any anticonvulsive treatment.

224 (97.4%) of them received Pritchard regimen MgSO₄. 6 (3.6%) of them were given IV MgSO₄ i.e Zuspan

regimen as their platelet count was low contraindicating intramuscular injections. Out of 224 cases who received Pritchard regimen 24 could not take the drug as prescribed either due to inadequate urine output (21 cases) or due to toxicity (3 cases).

Table 3: Mode of delivery.

Delivery	Number	Percentage
Vaginal	175	76
Non-instrumental	120	52
Forceps	46	20
Vacuum	9	4
Cesarean section	55	24

175 (76%) delivered vaginally and 55 (24%) underwent caesarean delivery.

Out of 175 vaginal deliveries 46 (20%) underwent forceps delivery and 9 (4%) had ventouse assisted delivery as shown in Table 3.

Maternal complications are noted down in Table 4. Placental abruption was the most common complication (15.7%) followed by DIC (5.7%).

There were 40 (17.4%) ICU admissions and 13 (5.7%) maternal deaths. Out of 13 deaths 4 (1.6%) had cerebrovascular accidents, 2 (0.8%) had acute pulmonary edema, 2 (0.8%) had disseminated intravascular coagulation with multi organ dysfunction, 2 (0.8%) had HELLP syndrome with anemia with DIC, 1 (0.4%) had acute pulmonary embolism, 1 (0.4%) had septicaemia

with multiorgan dysfunction and 1 (0.4%) had acute kidney injury with uremic encephalopathy.

Table 4: Maternal complications.

Complications	Number	Percentage
Placental abruption	36	15.7
DIC	13	5.7
Press syndrome	6	2.6
CVA	4	1.7
Acute kidney injury	7	3
Blindness	3	1.3
HELLP syndrome	28	12.1
Pulmonary edema	4	1.7
Pulmonary embolism	1	0.4
PPH	9	3.9
Maternal deaths	13	5.7

DISCUSSION

In our study 1.4% of pregnancies were complicated with eclampsia. It is higher than the prevalence rate of 0.76% found in the study conducted by Ajah LO and colleagues.⁶ Higher prevalence might be attributed to the fact that ours is a tertiary care centre which acts as a referral hospital covering a large area.

In present study 40% of women were below 20 years of age which is comparable to the study done by Ghimire S where 41% of women were less than 19 years of age.⁷ This finding substantiates the fact that preeclampsia with severe features and eclampsia is more common among adolescents.

Table 5: Comparison of maternal complications with other studies.

Complications	Present study	Aqida	Ghimire S	Minire A	Nankali A
ARF	3%	10.1%	-	12.3%	8/349
Visual impairment	-	1.7%	-	-	13/349
HELLP syndrome	12.1%	-	-	4.2%	1/
Pulmonary edema	-	-	-	24/430	-
DIC	-	-	-	12/430	37/
Placental abruption	-	-	-	30/430	27/349
Maternal deaths	5.7%	-	5.36%	-	-

In present study 45% were primis, which is comparable with the study conducted by Ghimire S and Aqida ET and colleagues.^{7,8} In present study 97% were referred cases and almost all 230 women belonged to low socioeconomic status. 29% did not have any ANC visit prior to convulsions. These findings substantiate the fact that eclampsia is more common in poor and unbooked primiparas. Antepartum eclampsia (68%) was more than intra-partum (22%) and postpartum (10%) combined. Similar results were found in a study conducted by Aqida

and colleagues in Nigeria.⁸ 224 women were given Pritchard regimen MgSO₄ and other 6 Zuspan regimen to manage convulsions, as Magnesium sulphate is currently the most ideal drug for the treatment of eclampsia to control convulsions.^{9,10}

Eclamptic fits were more common (48%) in 34-37 weeks period of gestation. Fits to delivery interval was more than six hours in 89.1% women and 24% women underwent caesarean delivery, 20 % cases underwent forceps delivery and 4% had ventouse delivery. These

rates are higher compared to average hospital statistics. Comparison of maternal complications with other studies is shown in Table 5. From all the studies mentioned in the table it can be stated that eclampsia is the most common medical complication of pregnancy and is associated with substantial morbidity and mortality for mother.

CONCLUSION

Eclampsia is common among the adolescents, unbooked and low socio-economic group of women in this study. Eclampsia still remains a major cause of maternal morbidity and mortality in India. More awareness and enabling factors should be created for more women to access antenatal facilities. Information about danger signs of pre-eclampsia / eclampsia should be made available to antenatal clients. Significant efforts are required towards female education, women empowerment and provision of social amenities in rural areas. There is a need to educate the women especially of lower socio economic classes regarding nutrition, pregnancy and the need for regular Ante natal check-ups.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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