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Maternal and Fetal Outcome in Eclampsia

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Abstract **Original Research Article**

Background: Hypertensive disorders of pregnancy are a leading cause of maternal and perinatal mortality and morbidity worldwide. In general hypertensive disorders of pregnancy may complicate 10% of pregnancies in general population [1]. Preeclampsia and eclampsia account for half of this cases worldwide [2]. ***Methods:*** A cross sectional study was carried out in a tertiary care hospital on 200 women with eclampsia over a period of 1 year. Only those cases with convulsions beyond 20 weeks associated with or without signs of preeclampsia during antepartum, intrapartum or within 7 days postpartum were taken while convulsions attributable to other causes were excluded. Investigations and management were carried out as per protocol. Fetomaternal outcomes and risk factors influencing it were analyzed. ***Results:*** Out of 200 cases, there were 148(74%) antepartum eclampsia cases, 32(16%) intrapartum eclampsia cases and 20(10%) postpartum eclampsia cases. Out of 200 patients, there were 17 cases(8.5%) of sepsis, 16 (8%) cases of haemorrhage (PPH and abruption placentae),18(9%) cases of pulmonary edema,6(3%) cases of cerebrovascular accident, 5 (2.5%) cases of acute kidney injury,1(0.5%) case of aspiration pneumonitis,1(0.5%) case of Multiorgan Dysfunction Syndrome and 2(1%) case of HELLP syndrome. There were 27 (13.5%) maternal deaths due to eclampsia related complications such as pulmonary edema(15 cases) CVA(6 cases), sepsis (3 cases), PPH (2 cases) and MODS (1 case). Out of 200 cases, 46(23%) underwent LSCS. There were 172(86%) livebirths, 18(9%) stillbirths, 10(5%) IUFD and 19 neonatal deaths. Overall perinatal death due to eclampsia was 23.5%. Among neonatal complications, meconium staining was seen in 53 (26.5%) cases, Apgar score less than 5 minutes in 35(17.5%) cases, NICU admissions in 108 (54%) cases and neonatal death was observed in 19(9.5%) cases. ***Conclusion:*** Preeclampsia and eclampsia continue to be a significant cause of fetomaternal mortality and morbidity. Early diagnosis of pre-eclampsia and proper management will lower the complications and will definitely improve fetomaternal outcome.

Keywords: Eclampsia, Preeclampsia Maternal morbidity, Maternal mortality, Fetal morbidity, Fetal mortality.

INTRODUCTION

The hypertensive disorders of pregnancy complicate about 5–10% of all pregnancies, although the incidence may vary according to the characteristics of the studied population and the criteria used for diagnosis [3-6]. These are one of the major contributors to maternal and fetal mortality and morbidity globally.

Maternal complications include eclampsia, stroke, and damage to the hepatic and renal organs. Timely interventions such as increased surveillance, treatment of symptoms, transfer to higher care facility and delivery when necessary, could reduce morbidity and mortality due to hypertensive disorders of pregnancy [7]. With both preeclampsia and eclampsia, the only cure is for the effected mother to give birth.

Keeping in mind about the burden of eclampsia in our society, this study was conducted among the patients admitted in department of Obstetrics and Gynecology, Gauhati Medical College and Hospital in a one year study period, from 1st June 2018 to 31st May 2019 to find out the maternal and fetal outcome in eclampsia.

AIM: To find out the fetomaternal outcome in eclampsia and the risk factors influencing it.

OBJECTIVE

1. To find out maternal morbidity and mortality
2. To find out fetal morbidity and mortality
3. To identify different risk factors influencing the fetomaternal outcome in eclampsia.

METHODS

After taking clearance from ethical committee and consent from responsible guardian,this research was carried out as a cross sectional study on maternal and fetal outcome of eclampsia in Gauhati Medical College, Gauhati, Assam from July 2018 to May 2019. A total of 200 pregnant women with eclampsia were included in the study.

Inclusion Criteria

- Convulsions in pregnancy beyond 20 weeks associated with or without signs of preeclampsia, during antepartum, intrapartum or within 7 days postpartum.

Exclusion Criteria

- Convulsions in pregnancy attributed to other causes.

A proforma was used to record information on maternal age, parity, booking status, gestational age at diagnosis,laboratory investigations,mode of delivery, complications(both maternal and fetal) and finally the maternal and fetal outcome.

Investigations and management were carried out in accordance with the standardized department protocol. Investigations that were routinely done were complete hemogram, platelet count, liver function tests, coagulation profile, Urine for albumin, 24 hour urinary protein. Ultrasound with Doppler was done after stabilizing the patient in selected cases.

Magnesium sulphate was the anticonvulsant of choice used for treatment according to Pritchard's regime. The data was compiled and analysed.

RESULTS

During our study period, total number of deliveries were 17155 and total number number of eclampsia cases were 257. The incidence of eclampsia in our institute was found to be 1.5%. We have analysed 200 cases of eclampsia from 1st June 2018 to 31st May 2019.

Out of 200 patients in the present study, eclampsia was observed in different age groups ranging from 18 years to 37 years with mean age 23 years. The maximum number of eclampsia patients were in the age group 20 – 24 years (73 cases) followed by the age group 15- 19 years (63 cases). Out of 200 cases, 121(60.5%) cases were unbooked, 165 cases (82.5%) were primigravida, 103 cases (51.5%) were illiterate and 97 cases (48.5%) had education upto primary level.

Table-1: Showing Distribution of Gestational Age

GESTATIONAL AGE (in weeks)	NUMBER OF CASES	PERCENTAGE
< 34 weeks	82	45%
≥34 weeks- $39^{(+6)}$ weeks	91	50%
≥ 40 weeks	9	5%
TOTAL	182	91%

Out of 200 cases of eclampsia, 182 cases were admitted before delivery and 18 cases were referred from outside as postpartum eclampsia. Out of 182 cases, 91(50%) cases of eclampsia were observed in gestational age ≥ 34weeks- $39^{(+6)}$ weeks.

Table-2: Showing Distribution of Antepartum, Intrapartum and Postpartum Eclampsia Cases

Antepartum/Intrapartum/ Postpartum	NUMBER OF CASES	PERCENTAGE
ANTEPARTUM	148	74%
INTRAPARTUM	32	16%
POSTPARTUM	20	10%

It was seen that there were total 148(74%) antepartum eclampsia cases.

Table-3: Showing Distribution of Maternal Outcomes

MATERNAL OUTCOME	NUMBER	PERCENTAGE	MATERNAL DEATH (Number of cases)
SEPSIS	17	8.5%	3
OTHER SYSTEMIC COMPLICATIONS	33	16.5%	
• PULMONARY OEDEMA	18	9%	15
• CEREBROVASCULAR ACCIDENT(CVA)	6	3%	6
• ACUTE KIDNEY INJURY(AKI)	5	2.5%	0
• ASPIRATION PNEUMONITIS(MENDELSON'S SYNDROME)	1	0.5%	
• MULTIORGAN DYSFUNCTION SYNDROME(MODS)	1	0.5%	1
• HELLP SYNDROME	2	1%	0
HAEMORRHAGE (POSTPARTUM HAEMORRHAGE,ABRUPTIO PLACENTAE)	16	8%	2
ICU ADMISSIONS	11	5.5%	Total maternal death 27
UNEVENTFUL	96	48%	

Out of 200 patients, there were 17 cases (8.5%) of sepsis, 16 (8%) cases of haemorrhage (PPH and abruption placentae), 18(9%) cases of pulmonary edema, 6(3%) cases of cerebrovascular accident, 5 (2.5%) cases of acute kidney injury, 1(0.5%) case of aspiration pneumonitis, 1(0.5%) case of Multiorgan Dysfunction Syndrome and 2(1%) case of HELLP syndrome. There were 27 (13.5%) maternal deaths due to eclampsia related complications such as pulmonary edema (15 cases) CVA (6 cases), sepsis (3 cases), PPH (2 cases) and MODS (1 case). ICU admissions were required in 11(5.5%) cases. It was also observed that there was significant association between age and systemic complications like pulmonary edema, CVA etc (p value 0.001). Systemic complications were found to be more in young age group (15to19 years).

Table-4: Showing Mode of Delivery

MODE OF DELIVERY	NUMBER OF CASES	PERCENTAGE
VAGINAL DELIVERY	141	70.5%
INSTRUMENTAL VAGINAL DELIVERY	13	6.5%
CAESAREAN SECTION	46	23%

It was seen that 141(70.5%) out of 200 had spontaneous vaginal delivery, 13(6.5%) had instrumental vaginal delivery and 46(23%) had undergone LSCS.

Out of 200, 172(86%) resulted in live birth, 18(9%) resulted in stillbirth and 10 (5%) resulted in IUFD.

Table-5: Showing Differences in Birthweight

BIRTHWEIGHT	NUMBER OF CASES	PERCENTAGE
Normal weight	74	37%
Low birth weight	71	35.5%
Very Low birth weight	39	19.5%
Extremely Low birth weight	16	8%

Majority of babies born to eclamptic mothers had birth weight in between 2.5 to 3.5 kg (Normal birth weight). Amongst the others the number of low birth weight babies were high.

Table-6: Showing Other Neonatal Complications

COMPLICATIONS	NUMBER OF CASES	PERCENTAGE
MECONIUM STAINING	53	26.5%
APGAR SCORE <7 AT 5 MINUTES	35	17.5%
NICU ADMISSIONS	108	54%
NEONATAL DEATHS	19	9.5%

Amongst the babies born to eclamptic mothers, the 108 babies were admitted in NICU(54%), 53 babies (26.5%) had meconium staining and 35 babies (17.5%) had Apgar score <7 at 5 minutes. 19 babies (9.5%) had neonatal death.

It was seen that the commonest indication for NICU admission was hyperbilirubinemia (39 cases) followed by low birth weight (37 cases). Other indications for NICU admission were hypoxic ischemic encephalopathy (12 cases), meconium aspiration syndrome (10 cases), sepsis (3 cases), meningocoele (1 case), bleeding disorders (1 case) and pneumonia (1 case).

DISCUSSION

In our study, most of the cases were unbooked (60.5%) which is similar to the finding of Kalpana Thapa *et al*., [8] The percentage of unbooked cases is more in our study most probably due to ignorance, illiteracy, low socioeconomic status and lower compliance with antenatal clinic. In our study, eclampsia cases were found to be higher in primigravida (82.5%) than in multigravida (17.5%). A Pal *et al*., [9] and Isabela Roberta Cruz Barbosa *et al*., [10] observed that eclampsia was mostly associated with primigravida (7.43% and 68% respectively). Kalpana Thapa [8] in her study found that eclampsia cases were found mostly in primigravida (73.91%). Out of 182 cases in our study, 91(50%) cases of eclampsia were observed in gestational age $\geq$ 34weeks- $39^{(+6)}$ weeks. Choudhury *et al*., [11], reported that eclampsia was commonest at term pregnancy. In our study, out of 200 patietns, there were 17 cases (8.5%) of sepsis, 16 (8%) cases of haemorrhage (PPH and abruption placentae), 18(9%) cases of pulmonary edema, 6(3%) cases of cerebrovascular accident, 5 (2.5%) cases of acute kidney injury, 1(0.5%) case of aspiration pneumonitis, 1(0.5%) case of Multiorgan Dysfunction Syndrome and 2(1%) case of HELLP syndrome. There were 27 (13.5%) maternal deaths due to eclampsia related complications such as pulmonary edema (15 cases) CVA (6 cases), sepsis (3 cases), PPH (2 cases) and MODS (1 case). ICU admissions were required in

11(5.5%) cases. Murthy M *et al.*, [12] in their study found that among the eclampsia cases, there were 11% cases of sepsis, 6% cases of pulmonary oedema, 4.8% cases of HELLP and 3.6% cases of PPH. Eclampsia contributed to 21% of total maternal death in our hospital. A Pal *et al*., [9] found out in their study that eclampsia contributed to 27.85% of all maternal deaths during their study period of 2 years. Collins E. M. Okoror [13] found that 27.7 % of total maternal mortality was found to be due to eclampsia. In our study, there were 172(86%) live birth followed by 18(9%) stillbirth, 10 (5%) IUFD and neonatal death accounted for 9.5%. Out of 200 babies, 108 babies (54%) required NICU admission. Amongst the babies who were admitted in NICU after birth, the most common reason for admission was hyperbilirubinemia (19.5%) followed by low birth weight (18.5%). It was seen that the mean birth weight at which NICU admission was required was 1.9 ($\pm$ 0.66SD) kg ($p<0.01$) and mean gestational age at which NICU admission was required was of 34.7 ($\pm$3.2SD) weeks ($p<0.0001$). A Pal *et al*., [9], found that incidence of low birth weight baby among eclamptic patients was 26.6%. Isabela Roberta Cruz Barbosa *et al*., [10] had found out that women with eclampsia had higher number of cases of babies with low birth weight, higher intrauterine and neonatal mortality. Murthy M *et al*., [12], reported that the live birth was observed in 72.5%, still birth in 18.7% and early neonatal death in 8.8%.

CONCLUSION

Despite accessible health care and health education and awareness regarding antenatal check ups, fetomaternal mortality and morbidity tend to on the higher side. There are many issues which need to be addressed like the education status, age at marriage etc. Early diagnosis of preeclampsia and its proper management before the appearance of complications is very important. Hence it is of utmost importance that women should be made aware about the alert signs and symptoms and the risks of preeclampsia so that the complications donot arise. Apart from this, prompt treatment and management of complications will certainly improve the maternal and fetal outcome.

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