

A Retrospective Study to Determine the Maternal and Perinatal Outcome in Eclampsia at A Tertiary Care Facility

Suman Kumari¹, Madhuri Choudhary², Neha Singh³,
Anisha Buddhapriya⁴

¹Assistant Professor, Department of Obstetrics and Gynaecology, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India

²Junior Resident, Department of Obstetrics and Gynaecology, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India

³Junior Resident, Department of Obstetrics and Gynaecology, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India

⁴Junior Resident, Department of Obstetrics and Gynaecology, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India

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Corresponding author: Dr. Anisha Buddhapriya

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Abstract

Aim: The aim of this study to determine the maternal and perinatal outcome in eclampsia at a tertiary care center. **Methods:** The retrospective study was carried out in the Department of Obstetrics and Gynaecology, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India for 18 months. A total of 115 patients with eclampsia were included in this study. Information such as detailed patient profile, obstetric history, blood pressure (BP) at the time of admission, mode of delivery, duration of hospital stays including intensive care unit (ICU) admission, maternal complications and fetal outcome were noted. **Results:** The prevalence of eclampsia came out to be 18.75 per 1000 deliveries. Eclampsia was found to be more common in young patients with age 20-25 years (61.73%). 86.95% of women managed for eclampsia were unbooked. Maximum patient 77.39% were primigravida in our study. 89.56% patient had antepartum eclampsia and only 10.43% had postpartum eclampsia. **Conclusion:** This study reveals that eclampsia is still an important obstetric emergency in the community contributing to significant maternal and perinatal morbidity and mortality. Certainly, the high incidence of eclampsia can be reduced by proper antenatal care, diagnosing, admitting and treating the mild and severe pre-eclampsia cases.

Keywords: Eclampsia, Maternal, Perinatal, Outcome.

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Introduction

The term Eclampsia is derived from a Greek word, meaning 'like a flash of lightning'. Pre-Eclampsia when complicated with grand mal seizures (generalized tonic-clonic convulsions) and / or coma is called Eclampsia[1]. Eclampsia is most common in the third trimester and

becomes increasingly more frequent as term approaches[1]. Approximately 1 in 2000 deliveries is complicated by eclampsia in developed countries, whereas the incidence in developing countries varies from 1 in 100 to 1 in 1700 cases[2]. Maternal mortality in eclampsia is very

high in India and varies from 2-30 %, much more in rural hospital based than in the urban counterpart[3]. The perinatal mortality is very high to the extent of about 30-50%.³ Eclampsia is the third commonest causes of maternal mortality, after hemorrhage and infection in the developing countries[4]. Mostly eclampsia is preceded by pre-eclampsia but in 15- 20% of the cases it may arise without any symptoms of pre-eclampsia too. It is recommended to make a diagnosis of eclampsia for possible existence, in patients who present with convulsions during pregnancy, labour or puerperium[4]. Some clinical causes of maternal deaths that are followed after eclampsia are cardiopulmonary failure, acute renal failure, cerebrovascular accident (CVA), HELLP syndrome (Haemolysis, Elevated liver enzymes and Low platelets) and premature separation of placenta[5]. Reasons like iatrogenic prematurity, respiratory distress syndrome (RDS), intrauterine asphyxia, intrauterine growth restriction (IUGR) and intrauterine death (IUD) are mostly attributed for poor fetal outcome. Additionally at later stages of life, IUGR may result in neuro-developmental defects in children[6]. The only cure for eclampsia is delivery of the baby. According to WHO report 200, eclampsia accounts for 12% of all maternal deaths in developing countries[7]. The onset of eclamptic convulsions can be antepartum (38-53%), intrapartum (18-36%), or postpartum (11-44%)[8]. The purpose of this study is to evaluate the incidence of eclampsia, maternal and perinatal and morbidity/ mortality associated with it.

Material and methods

The present retrospective study was carried in the department of Obstetrics and Gynaecology, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India for 18months from May,2019 to October,2020.

Methodology

A total of 115 patients with eclampsia were included in this study. Total patients admitted during this period was 6133. Pertinent information regarding the eclamptic cases was extracted from hospital in patient records and discharge sheets. Facts collected were reconfirmed by going through operation records and delivery registers so that no cases would be missed. Information such as detailed patient profile, obstetric history, blood pressure (BP) at the time of admission, mode of delivery, duration of hospital stays including intensive care unit (ICU) admission, maternal complications and fetal outcome were noted. The management protocol for eclampsia patients in our hospital is as follows:

Loading dose of injection magnesium sulfate is given 4g (20% solution) intravenously at the rate not to exceed 1 g/min followed promptly with 10 g of 50% of magnesium sulphate solution, one half (5 g) injected deeply in the upper outer quadrant of each buttock through a 3-inch-long 20-gauge-needle (Additional of 1.0 ml of 2% of lidocaine minimizes discomfort). If convulsions persists after 15 minutes, 2 g given more intravenously as a 20% solution at a rate not to exceed 1 g/min. This is followed by maintenance dose every 4 hrs of 5 g of a 50% solution of magnesium sulphate injected deeply in the upper outer quadrant of alternate buttocks for 24 hrs after delivery or last convulsion, whichever is later.

Statistical analysis

All data were entered in SPSS version19 and were analyzed using simple descriptive statistics. Data were analyzed in terms of mean and percentage and presented in tables.

Table 1: Age distribution

Age group	Number of patients	%Age
<20 years	10	8.69
20-25 years	71	61.73
25-30 years	29	25.21
Above 30 years	5	4.34

The age of eclamptic women in our study varied from 16 years to 34 years (Table 1). Eclampsia was found to be more common in young patients with age 20-25 years (61.73%) and followed by 25-30 years 25.21%.

Table 2: Booking status

Booking status	Number of patients	%Age
Booked	15	13.05
Unbooked	100	86.95

86.95% of women managed for eclampsia were unbooked (Table 2). Only 2 woman who suffered with eclampsia had completed four ante-natal check-ups (ANC) visit as recommended by national protocol.

Table 3: Parity

Parity	Number of patients	%Age
Primigravida	89	77.39
Multigravida	26	22.60

Maximum patient 77.39% were primigravida in our study (Table3).

Table 4: Timing of convulsion

Timing of convulsion	Number of patients	%Age
Antepartum	103	89.56
Intrapartum	0	0
Postpartum	12	10.43

89.56% patient had antepartum eclampsia and only 10.43% had postpartum eclampsia (Table4).

Table 5: Gestational age distribution

Gestational age	Number of patients	%Age
21-25weeks	4	3.47
26-30weeks	8	6.95
31-35weeks	18	15.65
36-40weeks	85	73.91
>40 weeks	0	0

Majority 73.91% patient were in between gestational age group of more than 36 weeks and only 3.47% patients were less than 25week (Table5).

Table 6: Convulsion delivery-interval

Convulsion-delivery interval	Number of patients	%Age
1hour-10hour	2	1.73
>10 hour	113	98.26

Convulsion-delivery interval is the interval between first eclamptic fit and the time of delivery. Maximum patient (98.26%) had convulsion delivery interval >10 hour (Table 6).

Table 7: Blood pressure at the time of presentation

BP at the time of admission	Number of patients	%
Systolic (mmHg)		
Less than 140	62	53.91
140-160	16	13.91
More than 160	37	32.17
Diastolic (mmHg)		
Less than 90	34	29.56
90-110	73	63.47
More than 110	8	6.95

BP noted at the time of admission was categorized in terms of systolic and diastolic. Systolic blood pressure (SBP) was found less than 140mmHg in majority (53.91%) of the patients followed >146 mmHg in (32.17%) and 140-160 mmHg in (13.91%). Diastolic blood pressure (DBP) was noted to be <90 mmHg in 29.56%, 90-110 mmHg in 63.47% and >110 mmHg in 6.95% (Table7).

Table 8: Mode of delivery

Mode of delivery	Number of patients	%Age
LSCS	78	67.82
Vaginal	36	31.30
Instrumental	10	0.86

Out of 115 eclamptic patients, 78 women underwent caesarean section (CS) and 10 had instrumental delivery using either forceps or ventouse. Remaining 36 women delivered vaginally which also embraced 5 home deliveries. Cesarean delivery was the common mode of delivery in 67.82% of the patient (Table8).

Table 9: Maternal outcome

Maternal complication	Number of patients	%Age
DIC	4	3.47
HELLP	6	5.21
Pulmonary oedema	2	1.73
Intracranial hemorrhage	1	0.86

The most common indication of cesarean was fetal distress. DIC occurred in 4 patient, HELLP syndrome developed in 6 patients, pulmonary edema developed in 2 patients and intracranial hemorrhage occurred in 1 patient (Table 9).

Table 10: Hospital stay

Place of admission	Number of patients	%Age
ICU admission	7	6.08
Ward admission/ eclampsia room	108	93.91

ICU admission was mandated in 6.08% women and rest 93.91 women were managed in the eclampsia room and general wards depending on the patients' status (Table10). Cause of death was pulmonary edema in 3 patients, HELLP syndrome in 1 patient and unidentifiable cause in 1 patient.

Table 11: Perinatal outcome

Perinatal outcome	Number of patients	%Age
Total live birth	94	81.73%
Total still birth	21	18.27%

Out of 115 babies 81.73% babies were live born and 18.27% were still born (Table11).

Discussion

The overall prevalence of eclampsia in our study was 18.75 per 1000 deliveries. Similar prevalence was reported in other studies. The incidence of eclampsia was reported as 5.8 per 1000 deliveries by Shaikh SB et al and 10 per 1000 deliveries by Sunita TH et al.[9,10]

In a study conducted at a tertiary centre in Kathmandu, the prevalence was calculated to be 1.4 per 1000 deliveries.11 Diversity in prevalence has been detected in various studies[12,13]. The frequency is significantly lower in developed countries and may be credited to effective antenatal services.[12,14-16] Prominent rates of eclampsia at our setting may be related to high referrals received from urban health centers, primary health centers, rural hospitals, sub district hospitals and also from private hospitals.

Eclampsia was more commonly seen in young pregnant women and primigravidas. Similar findings were observed by Shaikh S B et al and Acharya G et al.[9,17] Gautam (Bhattarai) SK et al found 61.3% of their study sample were primigravida[18]. So, there should be compulsory and regular screening of young pregnant woman especially primigravida for preeclampsia/eclampsia. The outcome is substantially dissimilar with result noted by Duckitt et al and Berhe et al who have identified advancing maternal age as a risk factor for eclampsia[16,19].

In this study 86.95% of women managed for eclampsia were unbooked. Lack of antenatal care is a serious concern and one of the important risk factors for the development of eclampsia[20-22]. Ghimire S, reported that 97% of eclampsia patients

did not receive antenatal check-up[23]. Duhan L et al found 96% of cases were unbooked.

There was 89.56% patient had antepartum eclampsia and only 10.43% had postpartum eclampsia. Similar observation was noticed in other studies as well. Chaudhary P, found antepartum eclampsia in 70% of her patients had, Ghimire S, found it in 83% of cases[23,24]. Comparable findings were found in other studies[25]. In contrast to our finding, Douglas et al reported higher incidence of postpartum eclampsia in the UK which could be due to good ANC surveillance[14]. Ecalmpsia was seen in 73.91% of patients at term gestation in our study which is more than to a study done by Marinakhanum et al, i.e 53%[26].

Level of BP is crucial in defining pre-eclampsia and eclampsia[27]. SBP of 140mmHg or more and DBP of 90 mmHg or more is considered as cut-off level[16]. In our study 53.91% patients had BP less than 140. Mattar F et al, reported majority of the patients had no hypertension[28]. We found SBP more than 160mmHg in 32.17%, 140-160 mmHg in 13.91%. Study conducted by Jha et al who had SBP of more than 160mmHg in 18%, 140-160mmHg in 36% and less than 140 in 46%[25]. DBP of more than 90mmHg was noted in 63.47% cases similar to finding of Rana et al who noted it to be 92%[29]. Cesarean delivery was the common mode of delivery in 67.82% which is similar to study done by Sibai BM et al[30,31].

Our study reveals that CS was performed in 67.82% of eclamptic women and 6.08% required ICU care. The rate of cesarean section is comparable to other studies. The percentage of cesarean section required in eclamptic women was reported 55.31% by

Chaudhary P et al, and 45% by Sunita TH et al.[10,24] Risk of medical litigation and taking no-risk policy adds to rising CS rate. Kurude et al, reported vaginal delivery (56%) as a common mode of delivery[32].

The proportion of patients required intensive care in our study is less compared to observation made by Ghimire S who reported that 29.46% of patients required intensive care in her study[23]. These findings warrant need of urgent referral to tertiary care centre in case of women with eclampsia. All our patients received MgSO₄ as per Pritchard regimen to prevent convulsions. Recurrence of fits increases the maternal morbidity[33]. Efficacy of MgSO₄ in prevention and treatment of eclamptic convulsions is time tested, however narrow therapeutic index and toxicity is still a major concern in clinical use. Respiratory rate, patellar reflex, urine output should be monitored strictly[34].

The most common causes of maternal death are HELLP, acute renal failure secondary to abruption placentae, DIC. Similar findings were reported in other studies done in Nepal and in India. Kurude et al reported 5.3% maternal death in eclampsia patients[32]. Similar maternal outcome was mentioned by Sunita TH, Ghimre S and Shakya et al.[10,11,23].

In the present research 81.73% babies were live born and 18.27% still born. The most common causes of perinatal death were prematurity, fetal growth restriction, fetal asphyxia and acidosis. In half number of newborn, Apgar score at 5 minutes was less than 7. Many studies have suggested that there is higher risk of preterm delivery and low birth weight in eclampsia along with increased rate of fetal death[23,24,35,36].

Conclusion

This study reveals that eclampsia is still an important obstetric emergency in the community contributing to significant maternal and perinatal morbidity and mortality. Certainly, the high incidence of

eclampsia can be reduced by proper antenatal care, diagnosing, admitting and treating the mild and severe pre-eclampsia cases. However, eclampsia can occur bypassing the preeclamptic state and as such, it is not always a preventable condition. Antenatal care, early diagnosis, primary management and referrals need to be improved.

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