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Fetomaternal outcome of eclamptic parturient in a tertiary care center: A descriptive cross-sectional study

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ABSTRACT

Background: Eclampsia is still a leading cause of maternal death second to postpartum hemorrhage in developing countries. It is also associated with poor perinatal outcome. **Aims and Objective:** The objective of this study was to find the incidence, maternal and perinatal outcome of patients admitted in a tertiary hospital, Pokhara with diagnosis of eclampsia. **Materials and Methods:** A descriptive cross sectional study was conducted in department of obstetrics and gynecology, MTH, Pokhara for duration of 1 year from 1st January 2020 to 30th December 2020. A total of 22 patients were enrolled in the study irrespective of timing of occurrence of fits, age, parity, gestational age and status of booking on admission. **Results:** During the study period the incidence of eclampsia at our center was 0.85% .Majority of the patients 17(77.27%) were primigravida and 16(72.68%) delivered at less than 37 weeks of gestation. Only 4 patients had her antenatal checkup done in MTH. According to timing of occurrence of fits Antepartum and postpartum eclampsia comprise 50% each with no cases of intrapartum eclampsia. Caesarean section was done in 17(77%) cases. Among the cases 10, (45.45%) patients required ICU admission and 6(27.27%) required ventilator support. HELLP, acute renal failures, PRES, PPH were causes of maternal morbidity. Three (13.63%) babies were born stillbirth. Sixteen (72.72%) babies were born preterm and 13(59.09%) had birth weight less than 2.5kg. Six (27.27%) babies needed NICU admission. **Conclusion:** Eclampsia continues to be one of the prime etiological factors for maternal and perinatal morbidity and mortality in developing countries like ours. This is mostly due to the delay in seeking and reaching the care. Regular antenatal checkup, early recognition, its prevention and proper management of eclamptic cases are vital to tackle this challenge.

Key words: Eclampsia; Maternal outcome; Perinatal outcome

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INTRODUCTION

Preeclampsia (PE) and eclampsia are the second leading causes claiming 46,900 maternal deaths worldwide[1] Eclampsia is characterized by new onset of grand mal seizure activity and/or unexplained coma during pregnancy or postpartum in a woman with signs or symptoms of preeclampsia and is one of the serious obstetric emergency.[2] Women often presents with few warning signs and even occurs in a women with previously mild disease and therefore predicting its occurrence is as difficult as predicting the timing.[3] The incidence of eclampsia is on decreasing trend in developed countries but it's still a leading cause of maternal death second to postpartum hemorrhage in developing countries. The crude incidence of eclampsia fluctuates from 0 to 0.1% in Europe and up to 4% in Nigeria[4] 0.6% in Brazil,[5] in India it varies from 0.18 to 4.6%.[6] In several studies done in Nepal the incidence varied from .29% to 1.3%.[7-9] This variation emphasizes the huge gap in quality of maternal health care.

Eclampsia has been one of the leading causes of maternal and perinatal mortality as well as morbidity throughout the world. Maternal death rates of 0 to 13.9% have been reported.[10] and it is estimated that around 50000 maternal

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deaths per year worldwide occurs due to eclampsia, with the large majority of cases occurring in developing countries.[11]

The perinatal death rate in this condition is closely related to gestational age and varies from 90 to 230 per 1000 deliveries worldwide.[10] The British eclampsia survey reported associated stillbirth and neonatal death rates of 22.2 per 1000 deliveries and 34.1 per 1000 deliveries.[12]

Though all cases of eclampsia cannot be prevented but effort can be made to reduce maternal and perinatal morbidity and mortality by reinforcing women for basic four or more antenatal visit, giving proper information about danger signs in pregnancy and where to go in case of danger signs and benefit of postnatal care. In developing country like ours though there has been a substantial progress in improvement of maternal health care access and utilization, disparities still remains according to women's socioeconomic status, education level and place of residence. So, additional efforts are needed to improve the quality of maternal health care to end preventable maternal death due to eclampsia. This study aims to find the incidence and analyze cases of eclampsia in relation to maternal and fetal outcome.

Aims and objectives

1. To find out the incidence of eclampsia in tertiary care center
2. To study the maternal and fetal outcome of patients with Eclampsia.

Inclusion criteria

All cases of antepartum, intrapartum and postpartum eclampsia admitted in maternity ward of a teaching hospital.

Exclusion criteria

Other causes of convulsion with pregnancy like epilepsy, meningitis, cerebrovascular accidents and patient presenting after 7 days of delivery.

MATERIALS AND METHODS

It was a cross sectional hospital based study conducted in department of obstetrics and gynecology, Manipal Teaching Hospital, Pokhara. The study period was of 1 year starting from January 2020 to December 2020. Ethical approval was taken from the ethical committee of Manipal teaching hospital and verbal consent for study was taken from patient party or patient herself if conscious and oriented.

Hypertensive patients with tonic clonic convulsion either antepartum, intrapartum or postpartum irrespective of their age, gestational age, parity and status of booking on admission were included in the study. A detailed history was taken from attendant or patient herself regarding age, parity, gestational age, ANC checkup during pregnancy, any rise of BP during pregnancy, whether she was on antihypertensive medication, type and nature of convulsion, the number of convulsion before admission, and events prior to convulsions like a headache, epigastric pain, vomiting, blurring of vision . Thorough examination of patient was done and investigations sent. Pritchard's regimen was followed and loading dose of 14 gms i.e. 4 gms IV slowly over 3-5 minutes and 10gm deep intramuscular was given if not received previously. Anti-hypertensive started if blood pressure exceeded 140/90 mmHg. Once patient was stabilized mode of delivery was decided. Caesarean section was done if induction failed or for other obstetrical indications. Choice of anesthesia was decided by anesthetist. All newborn babies were examined immediately by pediatrician after delivery. A woman in need of ICU and ventilatory support was shifted to ICU. In cases of complication, respective specialist was involved in the management. Maintenance dose of Magnesium sulphate and antihypertensive was continued. Mother and neonate were followed till the time of discharge. Statistical analysis was done using SPSS version 20.0 using simple descriptive statistics. Data were analyzed in term of percentage and presented in tabulated and figure form.

RESULT

During the study period of one year 2559 patients attended our institute for obstetric care out of which 22 patient were cases of eclampsia which gives an incidence of 0.85 %.

The result of demographic profile depicted in Table 1 show that most of the women who had eclampsia were less than 30 years of age. Among them 18.1% were teen pregnancies and only 4.5% of case were above 30 years. Majority of patient (n=16, 72.68%) delivered at less than 37 weeks of gestation. Only 6(27.27%) patient delivered at term and (n=17, 77.27%) were primipara and only (n=5, 22.72%) were multipara (Table 1).

The booking status of patients reveals that only 4(18.18%) patients had antenatal care in Manipal. Majority of patient 12(54.54%) had antenatal care in either other institute or primary health care Centre. Six patients (27.27%) had no antenatal visit throughout her pregnancy (Table 2).

Blood pressure recorded at the time of admission as shown in Table 3 were categorized in terms of systolic and diastolic BP. In 12(54.54%) patients Systolic blood pressure was more than 160mmHg whereas in 3(13.63%) patients it was less than 140mmHg. In 3(13.63%) cases diastolic blood pressure was less than 90mmHg whereas in 13 (59.09%) cases it ranged between 90-110mmHg. In 6(27.27%) cases it was more than 110 mmHg (Table 3).

Table 1: Demographic characteristics of Eclampsia

Demographic profile	Total number of patients	%
Maternal age		
≤20 years	4	18.1%
21-30 years	17	77.27%
>30 years	1	4.5%
Gestational age		
<34 weeks	1	4.5%
34-37 weeks	15	68.18%
>37 weeks	6	27.27%
Parity		
Primipara	17	77.27%
Multipara	5	22.72%

Table 2: Distribution according to booking status

Booking status	Total number of patients	%
ANC in Manipal	4	18.18%
ANC elsewhere	12	54.54%
No Antenatal care	6	27.27%

Table 3: Distribution according to BP at the time of admission

BP at the time of admission	Total number of patients	%
Systolic BP		
<140mmHg	3	13.63%
140-160mmHg	7	31.81%
>160mmHg	12	54.54%
Diastolic BP		
<90mmHg	3	13.63%
90-110mmHg	13	59.09%
>110mmHg	6	27.27%

Table 4: Hospital care

Hospital care	Total number of patients	%
ICU care	10	45.45%
Post-Operative room	12	54.54%
Ventilatory support	6	27.27%

According to the period of occurrence of fits, Antepartum eclampsia was present in 11(50%) cases and rest 11(50%) had eclampsia in postpartum period (Figure 1).

Most of the cases 17(77.27%) underwent caesarean section and only 5(22.72%) patients delivered vaginally (Figure 2).

Almost half of the cases 10(45.45%) were admitted in ICU for monitoring whereas 12(54.54%) received care in Post-operative ward. Six (27.27%) patient were kept under ventilatory support (Table 4).

Regarding maternal morbidity 3(13.63%) patient had HELLP syndrome, 1(4.54%) had acute renal failure, 3(13.63%) had posterior reversible encephalopathy syndrome, 4(18.18%) had post-partum hemorrhage and

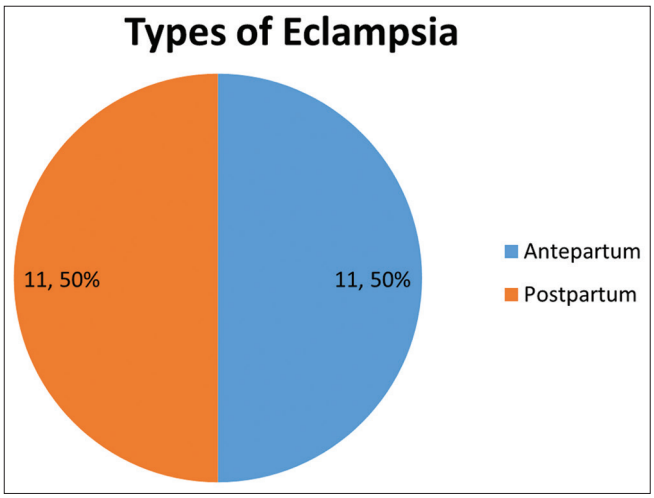

Figure 1: Distribution of study group according to period of occurrence of fits

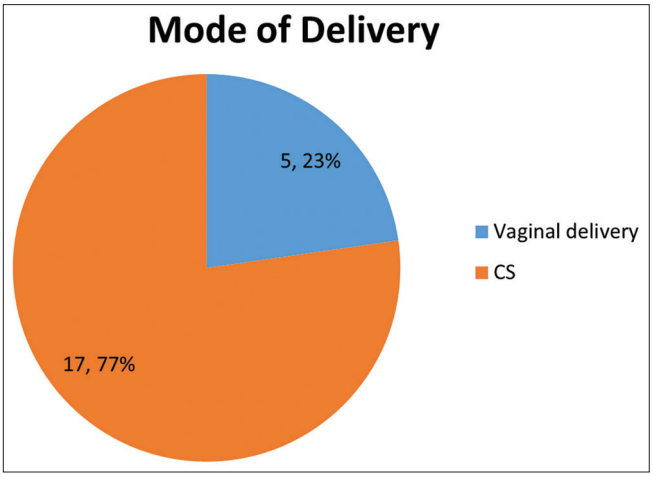

Figure 2: Distribution of study group according to mode of delivery

Table 5: Maternal morbidity

Maternal morbidity	Total number of patients	%
HELLP syndrome	3	13.63%
Acute renal failure	1	4.54%
PRES	3	13.63%
PPH	4	18.18%
Psychosis	1	4.54%

Table 6: Perinatal outcome

Perinatal outcome	No.	%
Live birth	19	86.36%
Still birth	3	13.63%
Term	6	27.27%
Preterm	16	72.72%
Body Weight >2.5kg	9	40.90%
Low birth weight <2.5kg	13	59.09%
NICU admission	6	27.27%

1(4.54%) had psychosis. No maternal mortality was present during the study period (Table 5).

Perinatal outcome depict that 19 (86.36%) patients had live birth and 3(13.63%) had stillbirth. Six (27.27%) babies were delivered at term and 16(72.72%) delivered preterm. Thirteen (59.09%) babies born were low birth weight and 9(40.90%) had birth weight >2.5kg. Six (27.27%) babies needed NICU admission (Table 6).

DISCUSSION

This study showed that the hospital based incidence of eclampsia was 0.85% which is similar to studies done by Dalal et al[13] which was 0.96% and Verma et al[14] 0.82%. However it was lower than the incidence shown in various studies which ranged from 1.1% to 1.58%.[15-20] Studies done in developed countries showed the incidence to be from 0.29% to 0.79%.This can be due to provision of better antenatal care.[21]

Eclampsia is found to affect young and nulliparous women. In our study most of the women 17(77.27%) belonged to age group of 20-30 years. Four (18.1%) women were less than 20 years and only one woman was more than 30 years. Similar finding was observed by Dalal et al[13] where 56% of the patient belonged to the age group of 21-25 years and only 2.6% women were more than 30 years. In a study done by Verma et al[14] l60 (46.15%) women were between 21-25 years and only 5.38% women were >30 years. Similar finding were observed in many otherstudies.[17,20]

It was found that 17 (77.27%) women were primipara. Most of the studies showed similar finding.[13,14,17,20] The exact mechanism for occurrence of eclampsia in nulliparous women is still unknown though various postulations have been made. During antenatal checkup this high risk group needs strict screening and they should be educated about the importance of regular blood pressure monitoring and about the warning symptoms.

In our study only 18.18% of women were booked at Manipal whereas 54.54% women had visited nearby health facilities at least once. Among them 27% of women had never attended any health care facility for their antenatal checkup. Lack of regular antenatal care was found in most of the cases. In a study done by Sujata et al[20] 55.7%women had no antenatal care and only 34.61% had regular antenatal care. Dalal et al[13] and Verma et al[14] in their studies also found that most of the women were unbooked cases. This result shows lack of awareness among the women regarding the importance of antenatal care. If major focus is given on regular antenatal checkup than most of the cases of eclampsia can be prevented.

In our study 68.18% cases had gestational age less than 37 weeks which is similar to study done by Kamrun N et al[16] where 62.85% were preterm cases. Regarding timing of occurrence of fits 50% cases had fits in antenatal period and 50% in postpartum period. This is in contrast to most of the studies which showed antepartum period to be the most common time for occurrence of fits. Few studies showed incidence of postpartum eclampsia to be comparable or slightly higher than in our study.[16]

Elevated blood pressure is the most crucial parameter to diagnose pre eclampsia and eclampsia. In our study 12(54.54%) patient had systolic blood pressure >160mmHg and few patient 3(13.63%) even had BP <140mmHg. Similarly 13(59.09%) patient had diastolic BP between 90-110mmHg, 6(27.27%) had >110mmHg and 3(13.63%) had <90mmHg. Women who had postpartum eclampsia were found to have near normal blood pressure range than in women who had antepartum eclampsia. This shows that in most of the cases women who are prone to develop eclampsia have significantly raised blood pressure but it even occurred in women with normal range blood pressure. Dalal et al[13] in her study found that in 14% of the cases blood pressure were within normal range. Similarly Verma et al[14] found that in 13.85% cases systolic BP was <140mmHg and in 6.15% cases diastolic BP was <90mmHg.

In our study 17(77%) women underwent emergency caesarean section and 5(22.72%) had vaginal delivery. Most of the women who underwent caesarean were cases of antepartum eclampsia and they were either remote from term with unfavorable cervix or with other obstetric indications for caesarean. Most of the studies showed similar findings. Contrary to our study 71.54% cases had vaginal delivery in a study done by Verma et al[14] Eclampsia per se is not the sole indication for caesarean section but timely and judicious selection of cases for vaginal or caesarean is said to improve maternal as well as fetal outcome.

Regarding hospital care 45.45% patient required intensive care monitoring whereas 54.54% patient were monitored in post-operative ward. Ventilatory support was required in 27.27% cases. Most of the ventilated patients had repeated episode of seizure and could not be extubated. Similar finding was reported by Kamrun N et al[16] where 40% patient received ICU care and 51.42% were treated in eclampsia ward. In a study done by Dalal et al.,[13] 24.77% patient required ICU care and Pradhan et al[22] reported that 31 patient out of 52 required ventilator support for respiration. These findings warrant urgent need of referral of all cases of eclampsia to tertiary care center.

In terms of maternal morbidity 3(13.63%) patients suffered from HELLP Syndrome, 1(4.54%) had acute renal failure, 3(13.63%) had posterior reversible encephalopathy syndrome,4(18.88%) had postpartum hemorrhage and

1(4.54%) had psychosis. No maternal mortality occurred due to the complication of eclampsia during the study period. Most of the studies showed similar causes for maternal morbidity and mortality.[5,14,19,20] Morbidities were more commonly seen in patients who were in critical condition at the time of arrival to hospital, delayed referred cases, and delay in seeking and reaching care due to poor transport facilities and inadequate diagnosis and treatment at peripheral centers and most of them did not receive any antenatal care.

There were 3(13.63%) perinatal death and all were stillbirth cases. Similar finding was noted in study done by Jadav et al[18] where 15% of babies born were stillbirth and 11% in a study done by Pradhan et al.[22] Most of the baby's i.e. 72.72% were delivered preterm and 59.09% were of low birth weight. This result is comparable to studies done by Sujata et al[20] where 60% of the newborn were low birth weight. Six (27.27%) babies needed NICU admission for various indications and were discharged after receiving treatment.

CONCLUSION

Eclampsia still is a second leading cause of maternal death and remains an intractable obstetric emergency in the underprivileged world. Studies shows that young women who are pregnant for the first time and who receive inadequate antenatal care are the major contributors to the poor outcome of eclamptic women. Educating young women about the need of basic antenatal care, improving quality of service at primary health care level by educating all health care workers about the importance of identifying high risk cases and close supervision of those cases and timely intervention and provision for early and safe referral will help to improve maternal and fetal outcome in eclampsia.

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Author's Contribution:
AS-Concept and Design of the study, data collection Interpretation of results, Preparation of manuscript and revision of manuscript; **JS, SGD, ASA-**Revision of manuscript.

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