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Original Research Article

Feto-maternal outcome in eclampsia at tertiary care hospital in an observational prospective study

Amisha J. Hemnani*, Dipti C. Parmar

Department of Obstetrics and Gynecology, Government Medical College Bhavanagar, Bhavanagar, Gujarat, India

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***Correspondence:**
Dr. Amisha J. Hemnani,
E-mail: hemnaniamisha7@gmail.com

ABSTRACT

Background: Eclampsia is a grave consequence of pre-eclampsia. It is defined as development of seizures in a woman with pre-eclampsia during pregnancy or puerperium that cannot be attributed to other causes. Pre-eclampsia complicated by generalized tonic clonic convulsions raises the risk to both mother and fetus. The current study is being done to analyse the cause, clinical course, it's management and feto-maternal outcome in patients of eclampsia.
Methods: prospective observational study at Gopinath maternity home, Obstetrics and Gynaecology department, Government Medical College, Bhavanagar including all antepartum, intrapartum and postpartum cases of eclampsia in 10-month period August 2023 to May 2024.
Results: The findings underscore the high prevalence of eclampsia among younger women, particularly primigravidae. The study also revealed that the majority of cases were managed as emergencies, reflecting the lack of adequate prenatal care and monitoring. These demographic and socioeconomic insights emphasize the urgent need for improved healthcare access and educational programs targeted at vulnerable groups to mitigate the risks associated with eclampsia.
Conclusions: The high incidence of eclampsia and its complications during this study indicate the need for early identification of risk factors and timely intervention to improve maternal and perinatal outcome. By giving mass awareness towards the importance of antenatal care, ensuring early detection of symptoms of pre-eclampsia in peripheral hospitals and providing adequate treatment, the incidence of eclampsia can be reduced effectively.

Keywords: Convulsions, Eclampsia, PIH, Pre-eclampsia

INTRODUCTION

The term eclampsia was derived from Greek word flash of lightening. Eclampsia is defined as pre-eclampsia complicated by generalised tonic clonic convulsions or coma.[1,2] Eclampsia is a clinical diagnosis based on the occurrence of 1 or more generalised tonic clonic convulsions in a pre-eclamptic women in absence of any other cause.[1,2]

Pre-eclampsia itself is a hypertensive disorder that occurs in 2-8% of pregnancies and is characterised by new onset hypertension (BP>140/90 mmhg) and proteinuria (>300mg in 24 hour) or in absence of proteinuria there is presence of severe features such as thrombocytopenia, renal insufficiency, impaired liver function, pulmonary oedema or cerebral or visual symptoms. Eclampsia has remained as one of the major causes of maternal and perinatal morbidity as well as mortality throughout the world.[3-5] The complications of severe pre-eclampsia and eclampsia can lead to multi-organ dysfunction faster and hence the relative quantum of death due to eclampsia is high.[6,7]

Prevention of eclampsia is the key to reduce complication and hence to decrease in morbidity and mortality in patients of pre-eclampsia. The mainstay of treatment of eclampsia is delivery of the fetus and placenta after convulsion and severe hypertension is controlled and woman is stabilised.[2,3] Patients were followed up till 12

weeks after delivery to evaluate BP control and any residual deficit in post-partum monitoring. The current study has been done to analyse the cause, clinical course, its management and feto-maternal outcome in eclampsia patients at our institute.

METHODS

Study type

The was a prospective observational study.

Study place

The study was carried out at Gopinath Maternity Home, within the Obstetrics and Gynecology Department of Government Medical College and Sir T General Hospital Bhavnagar, Gujarat, India.

Study duration

The study was conducted over a period of 10 months from August 2023 to May 2024. This duration allowed for comprehensive data collection and analysis of maternal and fetal outcomes in cases of eclampsia.

Inclusion criteria

All cases of antepartum, intrapartum and postpartum eclampsia during the study period and more than 20 weeks of gestational age. Patients who provided informed written consent or relative's consent in cases where patient were unable to give consent.

Exclusion criteria

Patients diagnosed with convulsions due to epilepsy, cerebral causes, space occupying lesion in brain, malaria or other metabolic disorders. Patients presenting more than 42 days post-delivery.

Procedure

Patients were observed and monitored from admission through the antepartum, intrapartum and postpartum periods to gather detailed information on the complications and outcomes associated with eclampsia. Total 80 patients were included in study selected by convenience sampling method.

Ethical approval

IEC, GMC Bhavanagar approval no. 1253/2023 on 02/08/2024

Statistical analysis

The data analysis was conducted using a variety of statistical methods to ensure comprehensive and accurate results. Descriptive statistics were used to summarize the baseline characteristics of the study population, including maternal age, parity, BMI and other demographic variables. Multivariate analysis was performed to identify predictors of adverse outcomes. Logistic regression models were utilized to assess the likelihood of specific outcomes based on a range of predictors, allowing for a more nuanced understanding of risk factors.

The statistical software used for data analysis was SPSS (Statistical Package for the Social Sciences), version 25. SPSS was chosen for its robust data handling capabilities and comprehensive range of statistical functions.

The software facilitated the execution of complex analyses, including descriptive statistics, comparative tests (such as chi-square and t-tests) and multivariate regression models.

RESULTS

Statistical test used

Chi square test

P value of 1.00 suggesting no significant age-related differences in eclampsia patients (Table 1).

Statistical test used

Chi square test

Maximum patients of eclampsia were primigravida and chi-square test showed a significant difference in gravida status distribution (Table 2).

Table 1: Age distribution of eclampsia patients.

Age group	No. of patients	%	P value
18-20	18	22.50	
21-25	45	56.25	
26-30	9	11.25	1.00
31-35	5	6.25	
36-40	3	3.75	

Table 2: Gravida status of eclampsia patients.

Gravida status	No. of patients	%	P value
Primi	57	71.25	<0.005
Second	17	21.25	
Third	3	3.75	
More than 3	3	3.75	

Table 3: Type of eclampsia and its distribution.

Type of eclampsia	No. of patients	%	P value
Antepartum	58	72.50	<0.005
Intrapartum	09	11.25	
Postpartum	13	16.25	

Table 4: Weeks of pregnancy in eclampsia patients.

Weeks of pregnancy	No. of patients	%
28 weeks-33 weeks 6 days	3	3.75
34 weeks-36 weeks 6 days	28	35.00
>37 weeks	49	61.25

Table 5: Mode of delivery.

Mode of delivery	Frequency	%
Caesarean delivery	57	71.25
Vaginal delivery	23	28.75

Table 6: Perinatal outcome.

Perinatal outcome	No. of cases	%
Live birth	66	82.5
IUFD	14	17.5
Neonatal death	8	10.00

Table 7: NICU admission indications.

NICU admission indications	No. of cases	%
Prematurity	28	42.42
Jaundice	10	15.15
Meconium aspiration syndrome	4	6.06
Septicemia	3	4.54
ARDS	3	4.54
IVH	1	1.51
Neonatal convulsion	1	1.51

Table 8: Maternal complications in eclampsia.

Maternal complications	No. of patients	%
DIC	8	10.0
PPH	7	8.75
HELLP syndrome	7	8.75
Abruptio placenta	6	7.5
Post-partum psychosis	2	2.5
Acute renal failure	2	2.5
Pulmonary oedema	2	2.5
Status eclampticus	2	2.5

Continued.

Maternal complications	No. of patients	%
Puerperal sepsis	2	2.5
ICH	1	1.25
Transient blindness	1	1.25

Statistical test used

Chi square test

Antepartum eclampsia was most prevalent type and chi-square test indicated a significant difference (Table 3).

Statistical test used

Chi square test

These findings highlight that most eclampsia cases occurred after 34 weeks of amenorrhea, indicating a significant prevalence of late-term eclampsia thus importance of monitoring pregnant women closely in the later weeks of pregnancy to manage and prevent complications effectively (Table 4).

This study highlights the prevalence of caesarean section in the observed population (Table 5).

The current study suggests most fetuses were live births (Table 6). The Table 7 outlines the neonatal admission indications in NICU where a significant proportion of neonates, total 50 which is 62.5% required NICU admission. Prematurity was observed in 42.42% of cases.

The most common maternal complications included DIC (10%), postpartum haemorrhage (8.75%) and HELLP Syndrome (8.75%) (Table 8).

DISCUSSION

The study presented comprehensive findings on the clinical profiles and outcomes of eclampsia patients. Our study found that the majority of eclampsia patients (56.25%) were aged between 21-25 years. This aligns with several studies, including Choudhary et al, (2015) and Ali et al, (2017), which also reported a higher prevalence of eclampsia in younger women, particularly those in their early twenties. However, some studies, like those by Bolarinwa et al, (2019), reported a broader age range with significant cases in women aged 18-35.[8-10]

Our study highlighted that 71.25% of eclampsia patients were primigravida, which is consistent with findings from studies such as those by Srinivas et al, (2016) and Ngwenya et al. The significant association ($p<0.005$) between primigravida status and eclampsia underscores the need for heightened surveillance in first pregnancies. Primigravida women may have a heightened immune response to placental factors, increasing their susceptibility to eclampsia.[11,12] Among the study population antepartum eclampsia was most prevalent type. This distribution is consistent with studies by Douglas et al and Redman et al and Kullima et al, which also reported higher rates of antepartum eclampsia.[13,14]

Most eclampsia cases occurred after 34 weeks of amenorrhea, similar to findings by Roberts et al and Williams et al, who also reported higher incidences of near-term eclampsia. This pattern suggests that pregnancies are particularly vulnerable to eclampsia near term, emphasizing the need for intensified monitoring and intervention strategies in the later weeks of pregnancy.[15,16] Cesarean section (71.255%) was the most common mode of delivery in our study, similar to findings by Sibai et al and Lumbiganon et al, who also reported high cesarean rates in eclampsia cases. The preference for cesarean delivery in eclampsia patients is likely due to the need for rapid and controlled delivery to reduce maternal and fetal risks.[17,18] Most pregnancies resulted in live births. Similar live birth rates were reported by Roberts et al, and Zhang et al. The high rate of live births indicates effective clinical management, but the presence of intrauterine deaths (12.5%) and stillbirths (5%) underscores the severity of eclampsia's impact on fetal health.[15,19] A significant portion of neonates required NICU admission (62.5%), with prematurity being common (42.42%). These findings are consistent with studies by Douglas et al and Redman et al and Oladokun et al, which also reported high NICU admission rates and prematurity in neonates born to eclampsia patients.

The significant neonatal complications highlight the need for advanced neonatal care facilities and early intervention strategies.[13,20] Postpartum hemorrhage (8.75%) and disseminated intravascular coagulation (10.0%) were the most common maternal complications in our study, with significant associations ($p<0.005$). Similar complication rates were reported by Sibai et al, and Altman et al. These findings emphasize the critical need for comprehensive maternal care to manage and mitigate the severe complications associated with eclampsia.[17,21]

This study, despite its comprehensive nature, has several limitations that warrant consideration. Firstly, the sample size, while adequate, may not be representative of the broader population, potentially limiting the generalizability of the findings. The study was conducted in a single tertiary care hospital, which might introduce a selection bias, as patients attending such facilities may have different socioeconomic and health profiles compared to those in rural or primary care settings.

Secondly, the study relies heavily on the accuracy and completeness of medical records.

CONCLUSION

We conducted a study to establish the clinical profile and associated maternal and perinatal outcomes among eclamptic patient admitted to our maternity home. Majority of patients were primigravida, Antepartum eclampsia accounted for most of the cases and mostly presented beyond 37 weeks of gestation. Majority of patients had no maternal complications and there were no maternal deaths in the current study. Among patients with complications, most common was disseminated intravascular coagulation (DIC). There were total of 8 neonatal deaths in the present study. Perinatal morbidity was mainly by prematurity and ARDS. Eclampsia is still a major health problem in India. It is basically a preventable disease by regular antenatal care and proper health education to pregnant women and her family members. The high incidence of eclampsia and its complications during this study indicate the need for early identification of risk factors and timely intervention to improve maternal and perinatal outcome. By giving mass awareness towards the importance of antenatal care, ensuring early detection of symptoms of pre-eclampsia in peripheral hospitals and providing adequate treatment, the incidence of eclampsia can be reduced effectively.

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