

## A Study of Clinical Profile and Fetomaternal Outcome of Eclampsia patients at a Tertiary Care Hospital

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### Abstract:

**Background:** Eclampsia is a severe complication of pregnancy characterized by the onset of seizures in a woman with pre-existing preeclampsia. This condition, though relatively rare. The purpose of our study is to analyse trend of eclampsia and its fetomaternal outcome.

**Methods:** A prospective observational Study of Clinical Profile and Fetomaternal Outcome of Eclampsia patients over a period of 1 year from January 2023 to December 2023 at department of Obstetrics and Gynecology, C.U. Shah Medical College and Hospital, Surendranagar, Gujarat. Women presented with eclampsia or new episode eclampsia during hospital stay were included in our study. Its included maternal, fetal parameters and outcome of pregnancy.

**Results:** The antepartum eclampsia incidence was (32.37%). High risk factors were is primigravida (65.92%), low maternal age (21-30 years), inadequate antenatal care and illiteracy. In most of cases Caesarean section was the mode of delivery in 34 cases (77.27%) and the most common indication was unfavourable cervix(47%), 79.54% women had antepartum eclampsia and out of this 68.18% women had severe preeclampsia. There was 2.2% maternal mortality, attributed to acute renal failure and pulmonary edema. Perinatal mortality was 13.63% with 1 still births and 2 neonatal deaths. Prematurity complicated 15.9% pregnancies. 15 neonates were admitted to NICU.

**Conclusions:** Inadequate prenatal care, low socioeconomic level, and inadequate education all contribute to eclampsia, which is one of the major causes of morbidity and mortality of mothers and fetuses and neonates. We can conclude that improved prenatal care, early disease detection, prompt referrals, and early treatment initiation of eclamptic patients all contribute to better outcomes. ICU for mothers, NICU for neonates and multidisciplinary units at tertiary care centers help in improving Maternal and perinatal outcome.

**Keywords:** Eclampsia, Fetomaternal outcome, NICU, Prematurity.

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### Introduction

Eclampsia is a severe complication of pregnancy characterized by the onset of seizures in a woman with preeclampsia, a condition marked by high blood pressure and signs of organ damage, often involving the liver or kidneys. Although eclampsia is less common in developed countries due to improved prenatal care, it remains a significant cause of maternal and perinatal morbidity and mortality worldwide, particularly in low-resource settings. Eclampsia is defined as the onset of generalised tonic-clonic convulsion or coma during pregnancy, in labour or post-partum period in

patient who has signs and symptoms of preeclampsia.[1] The condition typically occurs after the 20th week of gestation, [2,3] during labour, or postpartum, and is often preceded by symptoms such as headaches, visual disturbances, and upper abdominal pain. Eclampsia, a critical complication of pregnancy, is characterized by the sudden onset of seizures in a woman with preeclampsia, a condition associated with high blood pressure. Despite advancements in prenatal care, eclampsia remains a significant cause of maternal and foetal mortality, especially in

developing countries where access to healthcare may be limited and is highly associated with adverse maternal and foetal outcome. [4,5] The condition can arise during pregnancy, labour, or in the postpartum period, typically following preeclampsia symptoms such as severe headaches, vision changes, and upper abdominal pain.

The exact mechanisms behind eclampsia are not fully understood, but it is widely believed to involve a complex interplay of factors including abnormal placental function, endothelial dysfunction, and immune system abnormalities. Understanding the pathophysiology, risk factors, and early warning signs of eclampsia is crucial for effective prevention and management. Despite ongoing research, the exact cause of eclampsia remains unclear, but it is widely believed to involve abnormal placental development and immune system responses. Timely diagnosis and intervention are essential in reducing the adverse outcomes associated with this life-threatening condition.

Eclampsia is a life threatening emergency and major cause of serious maternal morbidity and is still the important cause of maternal mortality worldwide. Complicated and mismanaged cases are responsible for most maternal deaths, which are usually due to intracerebral hemorrhage, pulmonary edema, or failure of renal, hepatic, or respiratory systems. In addition its presence is usually associated with high perinatal mortality and morbidity.

The main causes of perinatal mortality and neonatal morbidity from eclampsia are preterm delivery, foetal growth retardation, and abruptio placentae. [6] so its causes Preterm birth, low birth weight, severe asphyxia, stillbirth, intrapartum death, DIC, hemolysis, abruption of placenta, oligohydramnios, DIC, HELLP syndrome in mothers, and numerous other neonatal and fetal complications are caused by it. [7,8,9]

According to WHO incidence of preeclampsia in developed countries is 0.4% and in developing countries is 2.8%, so its seven time higher in developing countries than in developed countries. Progression to eclampsia is three time more in developing countries (2.3%) than in developed countries (0.8%). According to WHO 16% MMR in developing countries is due to preeclampsia or eclampsia. [10] Women are prevented from seeking healthcare during pregnancy by a number of factors, including superstitious beliefs, poverty, illiteracy, lack of health awareness, and weak community connections with comprehensive health facilities. These factors collectively contribute to eclampsia.

Eclampsia may be antepartum, intrapartum and postpartum. Antepartum eclampsia is more

dangerous than postpartum eclampsia. [11] Primigravida are at higher risk of developing eclampsia. [12] Eclampsia is most common in the last trimester of pregnancy and becomes increasingly more frequent as term approaches. [13]

Antenatal care were categorised as follows: [14]

- a. Quality antenatal care – At least 4 or more check-up by an authorized service provider along with birth planning and awareness regarding eclampsia.
- b. Regular antenatal care – At least 4 or more check-up by an authorized service provider.
- c. Irregular antenatal care - Less than 4 antenatal check-up by an authorized service provider.
- d. No antenatal care - Total absence of antenatal check-up or irregular check-up by an unauthorized person.

Authorized service provider was defined as a person who had skills to do proper antenatal check-up and necessary training to impart awareness. ANMs, GNMs and Doctors were considered authorized service provider.

There are no trustworthy tests or symptoms that may be used to anticipate the onset of eclampsia, with the exception of early identification of preeclampsia. One of the main diagnostic markers for eclampsia is hypertension. However, preeclampsia frequently has a subtle onset, with pathological alterations beginning early in the course of the illness and symptoms typically appearing later. There may be no hypertension in 16% of the patients. Of 399 women with eclampsia, only 48% of the cases had significant proteinuria, whereas 14% of the cases had no proteinuria at all. [15]

### Objectives

1. To describe clinical profile of patients in eclampsia.
2. To determine Maternal Outcome in patients of eclampsia.
3. To determine Fetal Outcome in patients of eclampsia.

### Material and Methods

**Study Design:** A prospective observational Study of Clinical Profile and Fetomaternal Outcome of Eclampsia patients present to cu shah medical college and hospital. To determine high risk factors affecting maternal and perinatal outcome.

**Study Period:** Eclampsia patients present to our institute over a period of 1 year from January 2023 to December 2023 at department of obstetrics and gynecology, cu shah medical college and hospital, surendranagar, Gujarat.

**Source Population:** All pregnant women who delivered and mothers were referred from other hospitals and health centers for labour during the study period at cu shah medical college and hospital.

**Study Population:** Women who presented as eclampsia or developed eclampsia during hospital stay were included in our study.

**Inclusion Criteria:** All Women who presented as eclampsia or developed eclampsia during hospital stay were included in our study.

**Exclusion Criteria:** Women who were known case of epilepsy, and seizures due to metabolic disturbances, space occupying lesions or intra cerebral infections.

### Results and Discussion

A total number of 1359 delivery during study period. Out of them 44 patients diagnosed as cases of eclampsia making incidence of eclampsia 32.37 per 1000 deliveries.

**Table 1: Socio-Demographic Variables**

Maternal Age	No. Of Patient	Percentage (%)
<20	6	13.636%
21-30	28	63.636%
>30	10	22.727%
Total	44	100%
Social Class	No Of Patients	Percentage (%)
Lower	24	54.54%
Lower Middle	18	40.9%
Upper Middle	2	4.54%
Total Patient	44	100%
Literacy	No Of Patients	Percentage (%)
Literate	4	9%
Illiterate	40	91%
Total	44	100%

In our study most of patients (63.63%) age were in between 21-30 year. Its correlate Similarly with Parmeet Kaur [16] in her study observed maximum number of patient within this group. And in our study mean age is 26 year. In our study most patients from lower social class (54.54%). Some significant barriers that keep women in this area from receiving prenatal counsel during their

pregnancies are poverty and illiteracy. The development of eclampsia is also significantly influenced by the mother's literacy. Most individuals with eclampsia had extremely low literacy rates. In our study most patients are Illiterate (91%). Literacy is directly linked to number of antenatal visits and booking status. In our study only 9% patients are booked.

**Table 2: Gravidity**

Gravidity	No. Of Patient	Percentage (%)
Primigravida	29	65.92%
Multigravida	15	34.09%
Total	44	100%

Gravidity also influences occurrence of eclampsia. Primigravidas are more prone to develop eclampsia than multigravidas. In our study, it was found that most of the eclampsia patients were primigravida (65.92%). This result is comparable to other study like Shiraz's et al, Dutta et al and Shaheen B et al. [17,18,19]

**Table 3: Antenatal Care**

Category	No. of patients	Percentage (%)
No antenatal care	32	72.72%
Irregular antenatal care	10	22.72%
Regular antenatal care	2	4.54%
Quality antenatal care	0	0
total	44	100%

In the study, it was observed that majority of the patients had history of irregular antenatal care (72.72 percent). Not a single patient got quality

antenatal care. Result is comparable with other study [20,21,22,23]. Similarly Jain et al, 1988 [24] and Swain et al, 1992 [25] documented that lack of

antenatal care acts as a high risk factor for eclampsia. They had found that lack of antenatal

care among eclamptic patient were about 93.99 percent and 76.66 percent respectively.

**Table 4: Type of Eclampsia**

Type Of Eclampsia	No. Of Patients	Percentage (%)
Antepartum	35	79.54%
Intrapartum	3	6.81%
Postpartum	6	13.63%
Total	44	100%

In our study 79.54% eclampsia is antepartum, 6.81% intrapartum and 13.63% postpartum. In different studies, antepartum eclampsia is found as commonest variety and the incidence were 51.20 percent in Pal B, Niyogi G, Patkar V [26] and 60.20 percent in Desai P, Badhenka H, Barbhaya M, Desai M, et al. [27]

**Table 5: Gestational Age (Weeks)**

Gestational Age(Weeks)	No. Of Patients	Percentage (%)
<34	8	18.18%
34-37	14	31.88%
>37	22	50%
Total	44	100%

In this study most patient's develop eclampsia during last trimester and most of them after 37 weeks of pregnancy (50%). A study from UK (44 percent) of cases occurred eclampsia before completion of 37 weeks of gestation. [28]

**Table 6: Blood Pressure**

Blood Pressure	No. Of Patients	Percentage (%)
>160/110	30	68.18%
<160/110	14	31.818%

In this study 68.18% patients presented with severe hypertension with blood pressure >160/110, and 31.81% patients had blood pressure <160/110. In the study conducted by Sibai et al 45% patients had severe hypertension. [6,29]

**Table 7: Mode of Delivery**

Mode Of Delivery	No. Of Patient	Percentage (%)
Induced Vaginal Delivery	10	22.72%
Cesarian Section	34	77.27%
Total	44	100%

In present study only 22.72% delivered vaginally and 77.27% undergone caesarean section due to various indications. In our study all vaginal delivery are induced vaginal delivery. The number

of woman delivered by caesarean section was 34 (77.27%) which is similar to reported by Onuh et al 58.4% but much lower than reported by Agida et al (84.8%). [30,31]

**Table 8: Indication of Cesarean Section in Eclampsia**

Indications	No. Of Patients	Percentage (%)
Failed Induction	4	11.76%
CPD	2	5.8%
Fetal Distress	12	35.29%
Unfavourable Cervix	16	47%
Total	34	100%

The most common indication of caesarean section in this study was unfavourable cervix in (47%) patients followed by fetal distress in (35.29%) patients, failed induction in (12.5%) patients and

cephalopelvic disproportion in (5.8%) patients, similarly in the study conducted by Eftie et al the most common indication of caesarean section was unfavourable cervix in 78.2% patients. [32]

**Table 9: Maternal Complications and Outcome**

Complications	No. of patients	Percentage (%)
Acute renal failure	4	9%
HELLP syndrome	3	6.81%
Pulmonary edema	2	4.54%
Coagulopathy(DIC)	2	4.54%
Abruptio placentae	3	6.81%
Post-partum haemorrhage(PPH)	6	13.63%
Cortical blindness	1	2.2%
Postpartum psychosis	1	2.2%
Death	1	2.2%

In our study 9% of patients had Acute Renal Failure, where in study by Sibai et al [6] who reported acute renal failure in 4.7%, while in the study conducted by Lee et al acute renal failure in 3%. [33]

HELLP syndrome seen in 6.81% in our study, where in study by Douglas et al who reported 7% of HELLP syndrome in their study. [34] 4.54% of patients had pulmonary edema in our study. In study conducted by Chukwuma et al [35] they reported 3% of pulmonary edema, but Sibai et al [6] reported only 2.9% of pulmonary edema. 4.54% of patients had DIC in our study, where in study by Jido et al showed 3.4% of DIC in their study. [36] 6.81% of eclamptic patients had abruptio placenta

in this study which is similar to study by Raji et al who reported 4.10% of abruptio placentae while Chukwuma et al reported 7% of abruptio placentae. [29,37,38]

13.63% of patients had postpartum haemorrhage in this study while Bhanu et al reported postpartum haemorrhage in 3.9% cases. [39]

Cortical blindness was present in (2.2%) cases in this study whereas in study by Douglas et al they reported cortical blindness in <1% of cases. [37]

Maternal mortality in present study was (2.2%), In study conducted by Chukwuma et al maternal mortality was 10%, whereas in study conducted by Sibai et al it was significantly low 0.4%. [35,6]

**Table 10: Perinatal Morbidity and Mortality**

Perinatal outcome	No. of neonates	Percentage (%)
Prematurity	7	15.9%
Meconium aspiration syndrome	2	4.5%
IUGR	3	6.8%
Respiratory distress	2	4.5%
Birth asphyxia	1	2.27%
Total NICU Admission	15	34.1%
<b>Perinatal mortality</b>		
IUD	3	6.8%
Still birth	1	2.27%
Neonatal death	2	4.5%
Total mortality	6	13.63%

15 babies had some perinatal morbidity (34.1%) and required NICU admission. Prematurity (15.9%) is most common indication of NICU admission, intrauterine growth restriction (6.8%), 4.5% Respiratory distress and birth asphyxia (2.27%) were the most common causes of perinatal morbidity. The other common causes were meconium aspiration syndrome. Perinatal mortality was (13.6%) which Includes IUD (6.8%), still births (2.27%) and neonatal death (4.5%).

### Conclusion

Eclampsia is significant causes of maternal and fetal morbidity and mortality especially in developing countries. Even prevention is not possible in developed countries, it is important to recognise early warning symptoms and signs so

that life threatening complications of mothers and baby can be avoided. Pulmonary edema and prematurity seem to be the main culprits for high maternal and foetal mortality & morbidity respectively. Thus, it can be stated that our health care system has not adequate facilities to provide satisfactory antenatal service to pregnant mothers. A good quality antenatal health care services, increasing patient awareness about warning symptoms, investigations, timely delivery and intensive monitoring in the intrapartum and postpartum period have the potential to improve maternal and perinatal outcome. Education and empowerment of women and accessible health care especially to the lower socioeconomical and rural population.

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