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**Original Research Article**

# Effect of eclampsia on pregnancy outcome at the tertiary care center

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## ABSTRACT

**Background**: Eclampsia is a common medical and life-threatening emergency condition mainly seen in 5-10% of all pregnancies and that is a major cause of maternal and perinatal morbidity and mortality The aim of the study to find out the fetomaternal outcomes of eclampsia in tertiary care hospital and to analyse the trend of eclampsia and associated epidemiological variables.
**Methods**: This retrospective analytical study was undertaken with 40 clinically diagnosed women with eclampsia in their third trimester of pregnancy in the Department of Obstetrics and Gynaecology, at tertiary care hospital from July 2020 to December 2021. Women who came to the hospital with eclampsia or developed eclampsia during hospital stay were included in our study.
**Results:** In our study, the antepartum eclampsia was in 32 cases (80%), primigravida 27 cases (67.5%), maternal age (21-30 years) 26 cases (65%). Cesarean section was the mode of delivery in 26 cases (65%). NICU admission is required by 20 neonates (50%).
**Conclusions:** Eclampsia is an important cause of maternal and perinatal morbidity and mortality. Providing quality antenatal health care services, increasing awareness of patients about warning symptoms, proper investigations, timely delivery, and proper monitoring in the intrapartum and postpartum period have the potential to improve maternal and perinatal outcomes.

**Keywords:** Eclampsia, Caesarean section, NICU, Prematurity

## INTRODUCTION

Hypertensive disorders complicate about 5-10% of all pregnancies worldwide. The triad of hypertension, hemorrhage, and infection play a big role in complicating pregnancy, which is responsible for a major share of maternal morbidity and mortality.[1]

Eclampsia is defined as the onset of generalized tonic-clonic seizures and/or coma during pregnancy or postpartum in a patient who has signs and symptoms of preeclampsia.[1] Eclampsia is a life-threatening condition that continues to be a major cause of serious maternal morbidity and is still the leading cause of maternal mortality worldwide. Most maternal deaths are due to lack of standard antenatal care and associated life-threatening complications like intracerebral hemorrhage, pulmonary edema, or renal, hepatic or respiratory failure. The main causes of perinatal mortality and neonatal morbidity from eclampsia are preterm delivery, fetal growth retardation, and birth asphyxia.[2] Preeclampsia is a multisystem disorder where one or more factors are released, damaging the vascular endothelial cells in the maternal circulation, leading to multisystem dysfunction.[3]

## METHODS

The retrospective study including 40 cases of eclampsia in the third trimester of pregnancy was conducted in Obstetrics and Gynaecology Department, at a tertiary care

hospital in the western part of India (Ahmedabad) from July 2020 to December 2021. The aim of the study is to find out the fetomaternal outcomes of eclampsia in tertiary care hospital and to analyze the trend of eclampsia and associated epidemiological variables.

***Inclusion criteria***

Patients with generalized tonic-clonic seizures during pregnancy/labour/ within 3 days of delivery were included.

***Exclusion criteria***

Women who were known cases of epilepsy; and seizures due to metabolic disturbance, space-occupying lesions, or intracerebral infections were excluded.

## RESULTS

A total number of 7000 women delivered during the period, out of them,40 women were diagnosed with eclampsia, making an incidence of eclampsia to be 5.7 per 1000 deliveries.

**Table 1: Demographic characteristics.**

| Characteristics | No. of cases (%) |
|---|---|
| **Maternal age (years)** | |
| <20 | 4 (10) |
| 21-30 | 26 (65) |
| >30 | 10 (25) |
| **Parity** | |
| Primigravida | 27 (67.5) |
| Multigravida | 13 (32.5) |
| **Booking status** | |
| Booked | 08 (20) |
| Unbooked | 32 (80) |

Table 1 demonstrates the demographic characteristics of patients. Eclampsia was more common in the age group 21-30 years (65%) compared to the extreme of age group (<20 and >30) (35%), the majority of patients were primigravida (67.5%) compared to multigravida (32.5%), and (80%) patients were unbooked.

**Table 2: Type of eclampsia.**

| Type of eclampsia | No. of cases (%) |
|---|---|
| **Antepartum** | 32 (80) |
| **Intrapartum** | 2 (5) |
| **Postpartum** | 6 (15) |

Among 40 cases 32 (80%) cases majority were antepartum eclampsia, 2 (5%) were intrapartum eclampsia and 6 (15%) cases were postpartum eclampsia (Table 2).

Majority of patients presented in >37 weeks 20 (50%) with eclamptic fits compared to 12 (30%) patients between 34-37 weeks and 8 (20%) at <34 weeks (Table 3).

**Table 3: Gestational age at the onset of eclampsia.**

| Gestational age (weeks) | No. of cases (%) | Agarwal et al[7] (%) |
|---|---|---|
| **<34** | 8 (20) | 20.7 |
| **34-37** | 12 (30) | 36.3 |
| **>37** | 20 (50) | 42.8 |

**Table 4: Mode of delivery.**

| Mode of delivery | No. of cases (%) |
|---|---|
| **Vaginal** | 14 (35) |
| **LSCS** | 26 (65) |

**Table 5: Indications for cesarean section.**

| Indication | No. of cases (%) |
|---|---|
| **Unfavorable cervix** | 17 (65.4) |
| **Cephalopelvic disproportion** | 6 (23.1) |
| **Fetal distress** | 3 (11.5) |

Total 26 (65%) patients were delivered by lower segment cesarean section, while 14 (35%) patients delivered vaginally (Table 4).

The most common indication of cesarean section was unfavorable cervix in 17 (65.4) patients followed by cephalopelvic disproportion in 6 (23.1%), fetal distress in 3 (11.5%) patients (Table 5).

**Table 6: Maternal complications and outcome.**

| Complications | No. of cases (%) |
|---|---|
| **Abruptio placentae** | 2 (5) |
| **Postpartum hemorrhage** | 2 (5) |
| **Coagulopathy** | 2 (5) |
| **Acute renal injury** | 2 (5) |
| **Pulmonary edema** | 1 (2.5) |
| **HELLP syndrome** | 1 (2.5) |

Abruptio placentae, postpartum hemorrhage, Acute renal injury and coagulopathy presented in 5% of cases while HELLP (haemolysis, elevated liver enzymes, low platelets) syndrome and pulmonary edema in 2.5% cases.

**Table 7: Perinatal complications and outcome.**

| Perinatal outcomes | No. of cases (%) |
|---|---|
| **NICU admissions** | 20 (50) |
| **Prematurity** | 15 (37.5) |
| **Fetal growth restriction** | 10 (25) |
| **Meconium aspiration syndrome** | 5 (12.5) |
| **Birth asphyxia** | 6 (15) |
| **Pulmonary edema** | 3 (7.5) |

The 20 babies had perinatal morbidity and were admitted to NICU for multiple problems as mentioned in Table 7. Prematurity (37.5%) was the most common cause of

perinatal morbidity. The other common causes were fetal growth restriction (25%), meconium aspiration syndrome (12.5%), respiratory distress (15%), and pulmonary edema in (7.5%) of cases.

## DISCUSSION

Eclampsia was more common in the age group 21-30 years (65%), a similar finding was reported in the study conducted by Kannar et al (67%).[4] Gravidity also affects the incidence of eclampsia. In our study majority of (67.5%), patients were primigravida. Sibai et al (71%) and Akinola et al (65.4%) also reported similar findings in their studies.[2,5] Incidence of eclampsia was more common in unbooked cases (80%) in this study. These results are near similar to Akinola et al (88%) and Tukur et al (82.6%) studies.[5,6] Unbooked patients came to the hospital deprived of routine antenatal check-ups, so, early prediction of preeclampsia cannot be possible that may lead to the progression of the disease. Regular, frequent, and efficient antenatal visits are important for the prevention of eclampsia. By efficient antenatal care, preeclampsia can be detected earlier and eclampsia can be minimized.

Antepartum eclampsia (80%) was more than intrapartum (5%) and postpartum (15%). Similar results were found in a study conducted by Agarwal et al the onset of convulsions occurred before delivery in 80.6% of cases and after delivery in 19.4%.[7] Majority of patients 20 (50%) presented at gestational age >37 weeks, 12 (30%) patients between 34-37 weeks, and 08 (20%) at <34 weeks. In a study conducted by Agarwal et al >37 weeks 42.8% between 34-36 weeks in 36.3% and <34 weeks in 20.7%.[7] In the nulliparous group, women who had eclampsia before 37 weeks gestation in the index pregnancy had significantly higher incidences of preeclampsia and poor perinatal outcome in subsequent pregnancies as compared with those who had eclampsia at greater than or equal to 37 weeks of gestation.

The number of women delivered by cesarean section was 26 (65%), which is similar to Jain et al (68.04%) but much lower than Agida et al (84.8%). The most common indications are unfavourable cervix followed by cephalopelvic disproportion and fetal distress.[8,9] Patients with non-obstetrical causes were given a trial of labor by induction, labor was monitored according to partograph and further decisions were taken according to that like in the unfavoured cervix after induction of labor, if labor had not progressed or Bishop's score was not well delivered by lower segment cesarean section.

The 5% of patients had acute renal failure in this study which is similar to the study by Agarwal et al who reported acute renal failure in 4.54%.[7] It is diagnosed by the sudden increase in serum creatinine >1 mg/dl, oliguria/anuria and need for dialysis. However, reversal of AKI occurs in most patients with preeclampsia after delivery. Patients who had PIH before 34 weeks of gestations, they were more chances of AKI. The incidence of HELLP syndrome was (2.5%) in our study which is compared to a study by Douglas et al who reported 7% of HELLP syndrome in their study.[10] The 2.5% of patients had pulmonary edema in our study.

NICU admissions in our study is 50% and, in the study, conducted by Abalos et al there were 32.02% NICU admissions.[11] In this study, the neonatal death rate was 5.68% and the most common causes of death were prematurity, birth asphyxia, and meconium aspiration syndrome. Prematurity and fetal growth restriction were the major cause of neonatal deaths and NICU admissions in this study.

## CONCLUSION

Eclampsia continues to be a major concern and a significant cause of maternal morbidity and mortality. Prevention of eclampsia is not possible, but it is important to recognize early warning symptoms and signs so life-threatening complications can be prevented. Inadequate antenatal care, delay in seeking the help of women, delay in diagnosis and management of eclampsia in peripheral centers, and referral are the major contributors to poor outcomes for eclamptic women.

Providing quality antenatal health care services, improving primary health centers' timely referral facilities and other essential facilities, increasing awareness of patients about warning symptoms, proper investigations, timely delivery, and proper monitoring in the intrapartum and postpartum period have the potential to improve maternal and fetal outcomes.

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