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Original Research Article

## Incidence and determinant of eclampsia and its associated complication in tertiary care hospital of Gujarat, India

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### ABSTRACT

**Background:** Eclampsia is one of common cause of maternal mortality in developing country like India. It can be detected and prevented if early ANC care is properly done. Mainstay of management in case of eclampsia is early delivery to improve the prognosis in terms of reducing maternal and perinatal morbidity and mortality.

**Methods:** This prospective study was carried out in the department of obstetrics and gynaecology, at tertiary care centre in the state of Gujarat, for a period of two years from July 2012 to June 2014. With purposive sampling method all patients admitted with complain of eclampsia is included in study. Details are taken in predesigned, pre-validated and prescribed proforma.

**Results:** Hospital based incidence of eclampsia in our study is 1.11%. Majority of the patient were unbooked. Eclampsia is a disease of young primigravida, specifically teenage primigravida. Seventy-five percentage of eclampsia cases occurred in the antenatal period, 14% in intranatal period and 11% in the postnatal period.

**Conclusions:** In developing countries like India still eclampsia is major problem. Good antenatal care with increased antenatal visits may help in reducing the incidence. Increased incidence among young primigravida and low socio-economic status group provides the target group for medical measures.

**Keywords:** Eclampsia, Preeclampsia, Pregnancy induce hypertension

### INTRODUCTION

Globally hypertensive disorder of pregnancy contributes 14% of maternal death, it is approximately 42,000 mother per year.<sup>1,2</sup> Nearly all of these deaths occur in low-resource settings (99%).<sup>3</sup> Hypertensive disorders of pregnancy (HDPs) affect about 10% of all pregnant women around the world and are an important cause of maternal and perinatal mortality and morbidity. Hypertensive disorders of pregnancy include chronic hypertension, gestational hypertension, pre-eclampsia and eclampsia. The majority of morbidity and mortality is associated with pre-eclampsia and eclampsia. Eclampsia is defined as new onset of grand mal seizure activity and

or coma during pregnancy, labour or postpartum in a woman with signs or symptoms of preeclampsia.<sup>4,5</sup> More than 50% occur in the third trimester. In more recent years, there has been an increasing shift in the incidence of eclampsia toward the postpartum period. This is presumably related to improved access to prenatal care, earlier detection of pre-eclampsia, and prophylactic use of magnesium sulfate.

It is one of the leading cause of maternal and perinatal mortality as well as morbidity throughout the world.<sup>6,7</sup> Every year more than 50,000 maternal deaths occurred due to eclampsia, most of which occurs in developing countries.<sup>8</sup> Approximately 1 in 2000 deliveries are

complicated by eclampsia in developed countries; whereas the incidence in developing countries is estimated around 1 in 100 to 1 in 1700 cases.<sup>9</sup>

Mainstay of management in case of eclampsia is early delivery to improve the prognosis in terms of reducing maternal and perinatal morbidity and mortality. The current study was done to determine the incidence, clinical presentation and its determinants in patients of eclampsia who presented in tertiary care institute in Gujarat during the year July 2010-July 2012.

## METHODS

This prospective study was carried out in the department of obstetrics and gynaecology, at tertiary care centre in Ahmedabad, Gujarat, for a period of two years from July 2012 to June 2014. The study setting is one of the largest tertiary care centre in the state of Gujarat with there are around fifteen admissions per day to the labour room. Administrative permissions were taken from hospital authority for the study. All the women admitted during pregnancy or within 42 days of termination of pregnancy or delivery who had complain of eclampsia and their complications were included in the study. Patients were informed about the purpose of the study and informed consents were taken from the patients who were ready to participate in the study.

### Inclusion criteria

- Women admitted during pregnancy or within 42 days of termination of pregnancy or delivery who had complain of eclampsia or their complication
- Pregnant woman who were ready to give informed consents
- Pregnant woman who were able to give history during any stage of hospital admission.

### Exclusion criteria

- Women admitted during pregnancy or within 42 days of termination of pregnancy or delivery who did not had complain of eclampsia or their complication
- Patients who were not ready to give informed consents
- Pregnant woman who were not able to give history during any stage of hospital admission.

All patients were treated as per the protocol. A detailed history with clinical symptoms and signs, laboratory investigations, management and neonatal outcome were recorded in the predesigned, pre-validated and prescribed proforma. On examination edema classified as: up to dorsum of foot as +, Up to knee joint as ++, Thigh and ant. Abdominal wall as +++ and Generalised edema as +++++. Amount of protein loss in urine classified as Trace if protein loss is < 0.1 gm/lit, + if protein loss is 0.1-1 gm / lit, ++ if protein loss is 1-5 gm / lit, +++ if protein loss is 5-10 gm / lit, +++++ if protein loss is  $\geq$  10 gm / lit.

## Statistical analysis

Data from proforma entered in Microsoft Excel and data analysis was done with the help of Epi info 7 software and categorical data were presented by percentage.

## RESULTS

In this cohort of 10582 deliveries there were 118 cases of eclampsia over two years. This gives an incidence of eclampsia of 1.11%, (11 per 1,000 deliveries). Out of these 118 patients 100 patients had given informed consent to take part in study. Majority of patients in this study were unbooked, out of 100 cases only 15 cases were registered. Majority of the patients (78%) were from socioeconomically lower class. Seventy-five percentage of eclampsia cases occurred in the antenatal period, 14% in intranatal period and 11% in the postnatal period (Table 1).

**Table 1: Demographic characteristics of eclampsia patients.**

	No. of cases	Percentage
<b>Type of admission</b>		
Emergency	85	85%
Registered	15	15%
<b>Socioeconomical class</b>		
Middle	22	22%
Lower	78	78%
<b>Systolic blood pressure</b>		
< 150 mmHg	15	15%
150-160 mmHg	55	55%
160-170 mmHg	8	8%
170-180 mmHg	12	12%
180-190 mmHg	10	10%
<b>Diastolic blood pressure</b>		
< 100 mmHg	20	20%
100-110 mmHg	63	63%
110-120 mmHg	7	7%
120-130 mmHg	10	10%
<b>Type of eclampsia</b>		
Antepartum	75	75%
Intrapartum	14	14%
Postpartum	11	11%

The majority of eclampsia cases occurred in women aged 21-25 years (44%; n = 44); 30% (n = 182) eclampsia occurred in women aged 20 years or below. Eclampsia is a disease of young primigravida, specifically teenage primigravida. More than half women (58%) had convulsion after 32 weeks, suggesting more incidence near term pregnancy (Table 2).

Most of preeclampsia patients complain of edema and had proteinuria on testing. In present study, only 7% patients had no edema 69% patients had ++ or higher grade edema. Five percent patients did not had proteinuria on admission and 63 had massive proteinuria.

In this study 75% of patients were conscious but irritable; level of consciousness indicates poor prognosis with increasing grades. In the present series of study, 35 patients had headache, which are generally over the frontal and occasionally occipital occurs due to high blood pressure and did not respond to analgesics (Table 3).

**Table 2: Determinants of eclampsia in patients at hospital.**

	No. of cases	Percentage
<b>Age of patients</b>		
18-20	30	30%
21-25	44	44%
26-30	19	19%
> 30	7	7%
<b>Parity of patients</b>		
Nulliparous	68	68%
1	19	19%
2	6	6%
3	2	2%
4	3	3%
5	2	2%
<b>Previous history of hypertensive disorder</b>		
P/H of PIH	9	9%
P/H of Eclampsia	2	2%
<b>Gestational age in eclampsia patients</b>		
< 28 weeks	5	5%
28-32 weeks	37	37%
33 to 36 weeks	58	58%

**Table 3: Clinical presentation of eclampsia patients at hospital.**

	No. of cases	Percentage
<b>Degree of oedema</b>		
No oedema	7	7%
+	24	24%
++	52	52%
+++	15	15%
++++	2	2%
<b>Degree of proteinuria</b>		
No proteinuria	5	5%
Trace	8	8%
+	4	4%
++	20	20%
+++	32	32%
++++	31	31%
<b>Mental status of patients</b>		
Conscious	75	75%
Drowsiness	15	15%
Stupor	8	8%
Coma	2	2%
<b>Symptoms during aura</b>		
Headache	35	35%
Vomiting	7	7%
Blurring of vision	11	11%
Epigastric pain	6	6%

## DISCUSSION

In this hospital-based study, incidence of eclampsia is 1.11%. This finding is comparable with study by Olakunle et al (1.66%).<sup>10</sup> One multicentric community-based study at south east region show the lower (0.5%) incidence rate compare to this study.<sup>11</sup> It is hospital-based study it caters high percentage of referred cases giving higher incidence of eclampsia. Incidence of eclampsia was more common in unbooked cases in this study. These results are agreement with other studies.<sup>10,12,13</sup> Regular, frequent and efficient antenatal visits are important for prevention of eclampsia. By efficient antenatal care preeclampsia can be detected earlier and eclampsia can be minimized. This study shows the higher incidence in socioeconomically lower class. This can be explained by lack of antenatal visits by these women. In this study 75% of eclampsia cases occurred in the antenatal period and 11% in the postnatal period. The proportion of eclampsia cases occurring in the antenatal period was slightly higher than the other Indian study.<sup>14</sup>

Eclampsia is a disease of young primigravida, specifically teenage primigravida. In this study, nearly a third of eclampsia cases occurred in women aged under 20 years. Other studies have reported rates of 26% to 55%.<sup>15,16</sup> The incidence below the age group 20 years is 4.9 times higher than the age group more than 20 years.<sup>16</sup> Here the slight shift from teenage to 21-25 years can be explained by late marriages in last few years. Existing literature suggests that teenage pregnant women are at greater risk of eclampsia and their care should be prioritized in clinical practice.<sup>17</sup> Interventions aiming to overcome the complex socio-cultural needs of this group to improve access to healthcare and prevent eclampsia warrant further research.

## CONCLUSION

In this study around ten percentage of patients had past history of PIH or eclampsia. In this study more than half patients had eclampsia after 32 weeks of gestation. Highest incidence of eclampsia occurs between 28-37 weeks requires some screening test. GANT suggested that angiotensin II sensitivity test is to be done in between 28-32 weeks of pregnancy in all nulliparous and high-risk multiparous patients. Roll over test is the simplest screening test be the prediction of PIH. This test also be done between 28-32 weeks of pregnancy. Early detection and proper management of PIH/preeclampsia reduces the incidence of eclampsia.

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