

## A study of Maternal and perinatal outcome in eclampsia patients

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### Abstract

**Background:** eclampsia continues to be a major obstetric emergency particularly in developing countries such as India and is a major contributor to maternal and perinatal mortality hence the importance of continued effort in monitoring and reviewing each eclamptic patient and to analyse factors affecting the maternal and fetal outcome.

**Aim & Objective:** To study the Maternal and perinatal outcome in eclampsia patients and the various factors associated with occurrence and complication of eclampsia.

**Material and Method:** The present study was a prospective study. A total number of 130 patients of tonic-clonic convulsion with pregnancy diagnosed as eclampsia were included in the study. All eclamptic patients either antepartum, intrapartum or postpartum were included in the study irrespective of their age, gestational age, parity and status of booking on admission.

**Results:** During the study period incidence of eclampsia at our Centre was .82%. Total maternal death due to eclampsia was 8 and perinatal death was 49. It is concluded that good antenatal care, timely identification of signs and symptoms of pre-eclampsia intensive monitoring, earlier and meticulous termination of pregnancy can help in improving maternal and fetal outcome in eclampsia patients

**Keywords:** Obstetric emergency, Postpartum haemorrhage, Maternal and fetal mortality.

### Introduction

Eclampsia is an acute and life-threatening complication of pregnancy characterised by the appearance of tonic-clonic convulsion with or without coma usually in a patient who has developed pre-eclampsia. It is an obstetric emergency associated with serious maternal and perinatal complications. Despite intensive research exact etiopathogenesis of eclampsia is not known yet. Defective placentation and endothelial dysfunction are considered to be the core features.

In developed countries, its incidence is on declining trends but in developing the world, like India, it still remains the significant contributor to maternal morbidity and death. In the USA its incidence is 4.3/10,000 deliveries and in the UK it is 4.9/10,000 deliveries.<sup>(1)</sup> The incidence of eclampsia in India varies from 0.18 to 4.6%.<sup>(2)</sup>

Eclampsia may complicate maternal life by acute renal failure, hepatic damage, HELLP syndrome, placental abruption, DIC, cerebrovascular accidents, pulmonary oedema and by aspiration pneumonia. Perinatal mortality in eclampsia is increased due to prematurity, low birth weight, birth asphyxia and intrauterine growth retardation. It is estimated that about 7% of maternal mortality is associated with a hypertensive disorder of pregnancy, particularly eclampsia.<sup>(3)</sup> Perinatal mortality varies from 30% to 60%.<sup>(4)</sup>

Although all cases of eclampsia are not preventable but we can improve maternal and fetal outcome by good antenatal care, early detection of sign and symptoms of preeclampsia, prompt treatment and timely termination of pregnancy.

This study was done to assess the maternal and fetal outcome in eclampsia patients and to evaluate various factors affecting its occurrence and outcome.

### Aims and Objectives

1. To study the Maternal and perinatal outcome in eclampsia patients
2. To study the various factors associated with occurrence and complication of eclampsia.

### Material and Methods

The present study was a prospective study, carried out at Dept. of Obs. and gyne, at S.P. Medical College, Bikaner during the period of January to December 2015.

Before conducting this study an Ethical approval was taken from Ethical Committee S.P. Medical College, Bikaner, and informed consent was taken from the attendants or from patients (if conscious and well oriented).

**Sample size:** 130 cases of tonic-clonic convulsions with pregnancy diagnosed as eclampsia admitted under the department of Obs. and gyne at PBM Hospital Bikaner over a period of one year, were included in this study.

**Inclusion criteria:** Patients with a tonic-clonic convulsion in the second half of pregnancy diagnosed to have eclampsia or within ten days after delivery.

**Exclusion Criteria:** Other causes of tonic-clonic convulsion with pregnancy like epilepsy, meningitis, cerebrovascular accident.

**Procedure:** A total number of 130 patients of tonic-clonic convulsion with pregnancy diagnosed as eclampsia were included in the study. All eclamptic patients either antepartum, intrapartum or postpartum

were included in the study irrespective of their age, gestational age, parity and status of booking on admission.

History was taken from the patients and her attendants. A detailed history of age, parity, gestational age, type and nature of convulsion, the number of convulsion before admission, events prior to convulsions like a headache, epigastric pain, vomiting, blurring of vision was taken. The previous history of convulsions, hypertension or gestational diabetes was recorded. History of patient's antenatal care, like registration for an antenatal checkup, a number of antenatal visits, monitoring of blood pressure, any medications are taken for hypertension, iron and calcium supplementation, T.T. immunization was recorded. Any known history of epilepsy, renal failure, heart disease was elicited in a detailed manner.

A detailed history of previous pregnancy if any, like the history of convulsion, mode of delivery, the maternal and perinatal outcome was recorded.

General examination of patients like pulse, blood pressure, the temperature was recorded. Pallor, cyanosis, icterus, edema was looked for. Cardiovascular system, the respiratory system was examined. Reflexes were checked. Per abdominal examination including the height of fundus, presentation of the fetus, auscultation of fetal heart sound was done. Per vaginal examination included effacement of the cervix, dilation of cervix, station of presenting part and membrane status. Induction or augmentation of labour was done according to the bishop score and patient condition. Monitoring of pulse rate, blood pressure, knee-jerk, respiratory rate, urine output was done.

In postpartum eclampsia, the duration between delivery and episode of convulsion, mode, and place of delivery was noted.

Lab investigations like complete blood count, serum electrolytes, liver function, renal function test, ABORh, urine complete examination was sent on admission. Obstetric sonography was performed.

**Statistical analysis:** Data had been entered and analyzed using SPSS ver-22.0. Percentages were used to describe the data.

## Result

A total number of 15743 women delivered during our study period and among them 130 women were diagnosed with eclampsia. The incidence of eclampsia at our Centre, during the study period, was 0.82%.

By analyzing sociodemographic characteristics of eclampsia patients, it was observed that 46.15% belong to 21-25 years of age group followed by 40% in <20 years age group. 83% patients were Hindu by religion. 16.92% of eclamptic patients were from the rural background.

Out of 130 patients, only 9 patients had antenatal booking while 66.92% were unbooked and 11.54% were referred from peripheral areas. As eclampsia is a disease

of primigravida, 80.77% patients in our study were primigravida. 10% were second gravida and 9.3% were multigravida. 72.30% patients presented as antepartum eclampsia, 16.15% patients were in the intrapartum period and 11.53% women admitted as postpartum eclampsia. 44.62% of eclampsia patients had gestation age of > 34weeks and 35.38% patients had 31-34 weeks of pregnancy at the time of admission.

50% patients had systolic blood pressure >160mmHg, 36.15% had between 140-160 mmHg, 13.85% had <140 mmHg at the time of admission. 41.53% had diastolic blood pressure >110 mmHg, 52.30% had between 90-110mmHg and 6.15% had diastolic blood pressure <90mmHg. 71.54% of women delivered by vaginal route, 23.84% women need cesarean section. 3.08% patients required forceps and 2 women died before delivery.

No postpartum complication was seen in 69.25% of patients. 24.62% patients had atonic PPH and two patients landed in obstetric hysterectomy due to PPH. The vaginal hematoma was seen in 2 patients, two patient had a cervical tear.

Among 130 patients, 122 patients were discharged while 8 patient died due to various complications of eclampsia. 2 patient died due to cerebrovascular hemorrhage, 2 died due to pulmonary edema. One patient with acute renal failure, one patient with status epilepticus with cardiopulmonary arrest lost her life. HELLP syndrome caused mortality in one patient and one patient died due to septicemia.

By observing the fetal outcome, it was seen that there was a total 79 live birth, 30 (23.08%) stillbirth and 19(14.62%) early neonatal death in eclampsia patient. (two patient died before delivery.)

**Table 1: Demographic distribution of patients**

Variables	No	Percentage
	(N=130)	(%)
<b>Age Groups</b>		
≤20	52	40.0
21-25	60	46.15
26-30	11	8.46
>30	7	5.38
<b>Religion</b>		
Hindu	108	83.07
Muslim	22	16.92
<b>Domicile</b>		
Rural	100	76.92
Urban	30	23.08

**Table 2: Clinical Variable of patents**

Variables	No	Percentage
	(N=130)	(%)
<b>Booking Status</b>		
Registered	19	14.61
Booked	9	6.92
Unbooked	87	66.92

Referred	15	11.54
<b>Gravidity</b>		
1	105	80.77
2	13	10.00
≥3	12	9.23
<b>Gestational Age</b>		
≤30	26	20.0
31-34	46	35.38
>34	58	44.62
<b>Systolic blood pressure at admission</b>		
> 160	65	50.0
140-160	47	36.15
<140	18	13.85
<b>Diastolic blood pressure at admission</b>		
>110	54	41.53
90-110	68	52.30
<90	8	6.15
<b>Mode of Delivery</b>		
LSCS	31	23.84
Forceps	4	3.08
Normal Vaginal Delivery	93	71.54
Died before delivery	2	1.54

**Table 3: Post-Partum Complications and maternal outcome in eclampsia patients**

	No (N=130)	Percentage (%)
<b>Post-Partum Complications</b>		
Nil	90	69.23
Atonic PPH	32	24.62
Vaginal Hematoma	2	1.54
Obst Hysterectomy due to PPH	2	1.54
Cervical Tear	4	3.08
<b>Outcome</b>		
Discharge	122	93.85
Death	8	6.15

**Table 4: Perinatal outcome in eclampsia patients**

Variables	No (N=130)	Percentage (%)
<b>Perinatal Outcome</b>		
Live birth	79	60.76
Still birth	30	23.08
Neonatal Death	19	14.62

**Table 5: Cause of maternal mortality in eclampsia patients**

Cause of maternal mortality	(N=08)
Cerebrovascular accident	2
Pulmonary edema	2
Acute renal failure	1
Status epilepticus with cardiopulmonary arrest	1
HELLP Syndrome	1
Septicemia	1

## Discussion

Our study showed that the hospital-based incidence of eclampsia was 0.82% at our Centre. This incidence was high in comparison to developed countries. Where it varies from 0.29% to 0.79% due to better provision of antenatal care.<sup>(5)</sup> Our incidence was lower than other studies.<sup>(6-10)</sup>

Eclampsia is a disease of young and nulliparous women. Maximum patients (46.15%) belonged to 21-25 years age group, but interestingly 40% female were less than 20 years of age group because in Rajasthan early marriage is a custom. Kaur et al, also reported 20-25 years age group of 50% of their cases.<sup>(11)</sup> Yakasai et al, reported a mean age of 20.6 and SD of five years.<sup>(12)</sup> Our results were comparable with these studies.

Our study indicates that inadequate antenatal care is a major contribution to the poor outcome of the eclamptic patients. 66.92% patients were unbooked didn't receive any antenatal care. 11.54% patients were referred. Failure to recognize signs and symptoms of pre-eclampsia and failure to manage complication in an eclamptic patient is a major factor for poor outcome in referred cases. Many of the patients were critically ill on arrival at the tertiary care centre.

In our study, 44.62% patient had gestation age <34 weeks. Which is similar to a study done by Khanumm et al.<sup>(13)</sup> 72.30% patients were in antepartum period and 11.53% patients were in postpartum period this was similar to a study done by Swain S et al.<sup>(14)</sup>

In our study, 50% patient had systolic blood pressure more than 160 mmHg and 41.53% more than 110 mmHg. Sunita TH reported 68% cases as severe hypertension.<sup>(15)</sup>

In our study, 71.54% women delivered by vaginal route and 23.84% patient need caesarian and 3.08% patient delivered by forceps. Khanum et al showed a 25% caesarian rate, 71% normal vaginal delivery and 2% each of craniotomy and forceps delivery. Arshad T reported a total of 37.5% LSCS deliveries, 25% by forceps, 37.5% by spontaneous vaginal delivery.<sup>(16)</sup> There were eight maternal deaths, giving a case fatality rate of 6.5%. It is higher than that reported from eastern India (4.4%).<sup>(8)</sup> But this case fatality rate is much higher than reported from developed countries (0.5% to 1.8%).<sup>(17,18)</sup> The most common causes of death were intracranial bleeding, pulmonary edema, acute renal failure, HELP syndrome and septicemia. These maternal deaths were due to critical condition at arrival, delayed referral, poor transport facilities and inadequate diagnosis and treatment at peripheral centers as well as most of them did not receive any antenatal care.

There were 49 perinatal deaths due to eclampsia. 23.08% stillbirth and 14.62% were early neonatal death. Fetal asphyxia, prematurity, low birth weight were common causes of perinatal mortality. Results were similar to a study done by Khanum et al.<sup>(13)</sup>

## Conclusion

Eclampsia still remains an intractable obstetric emergency in the underprivileged world and a leading cause of maternal death. It is concluded that inadequate antenatal care, delay in women seeking help, delay in diagnosis and inadequate management of eclampsia patient at the peripheral center and delay in referral are the major contributors to the poor outcome of eclamptic women. By providing better health care facilities at all level, improving socioeconomic and education status of females, adequate antenatal supervision, timely identification of high-risk cases and timely intervention will improve maternal and fetal outcome in eclampsia.

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