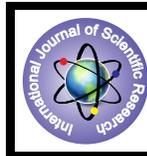


# Study of Eclampsia at Tertiary Care Center



## Medical Science

**KEYWORDS:** Eclampsia, Perinatal mortality, Maternal mortality

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### ABSTRACT

*Eclampsia is one of the commonest cause of maternal and perinatal morbidity and mortality. The various factors influencing maternal and perinatal out come were evaluated in the present study. Eclampsia accounted for 1.09% of the total deliveries conducted during the study period. Majority of the patients i.e. 90.10% patients were in age group 16 to 25 years. Antepartum eclampsia was the commonest type of eclampsia (75.82%), followed by postpartum eclampsia (13.19%) and intrapartum eclampsia (9.34%). 54.15% patients of eclampsia were delivered vaginally and 45.85% underwent caesarean section for various obstetric indications. The perinatal mortality rate in eclampsia patients was 295 per 1000 total births in eclampsia patients*

### INTRODUCTION

The reference to the convulsive disorders in the pregnancy is made in the ancient Egyptian, Chinese, Indian and Greek medical literature, without mentioning it specifically as eclampsia which was grouped together along with other convulsive disorders.

The oldest source of eclampsia literature starts from 2,200 B.C, when Kahun Papyrus mentioned the use of a wooden stick to prevent the mother from biting her tongue on the day of delivery. A maternal mortality of 3 to 4 % and perinatal mortality of 30 to 40 % may occur following eclamptic convulsions ( Davey, 1995)<sup>1</sup>. According to the WHO report 2005, eclampsia still accounts for 12% of the maternal deaths throughout the world<sup>3</sup>. In India, the maternal and perinatal morbidity and mortality due to eclampsia is very high<sup>2,3</sup>. The figure of maternal mortality due to eclampsia ranges from 8 to 14%<sup>7</sup>. A low maternal mortality of 2.2% was reported by Menon<sup>4</sup>. The perinatal mortality ranges from 14.6% to 47.4%, because eclampsia still kills<sup>4</sup>

### MATERIAL AND METHODS

This is prospective, observational and analytic study.

#### Inclusion Criteria

- Patient with antepartum, intrapartum or postpartum convulsions

#### Exclusion criteria

- Patient with convulsions due to causes other than eclampsia

### RESULTS

During the period of two years from November 2010 to October 2012, total 16,622 deliveries were conducted at the institute. During this study period there were 182 eclampsia cases.

**Table 1 : The age distribution of eclampsia cases**

Age group (years)	Number of cases	Percentage
≤ 15	01	0.55
16-20	73	40.10
21-25	91	50.00
26-30	14	07.69

≥ 31	03	01.66
<b>Total</b>	<b>182</b>	<b>100</b>

Maximum i. e. 164 out of 182 (90.10%) of total eclampsia patients were in the age group 16 to 25 years. And there was only one case of eclampsia (0.55%) in less than 15 years age group.

**Table 2: Mean age and standard deviation of age of the eclampsia cases**

Mean age (years)	21.94
Standard Deviation(years)	03.11

The mean age was 21.94 years with a standard deviation of 3.11 years.

**Table 3: Distribution of eclampsia patients according to parity**

Parity	No. of cases	Percentage
G <sub>1</sub> P <sub>0</sub>	137	75.27
G <sub>1</sub> P <sub>1</sub>	22	12.09
G <sub>1</sub> P <sub>2</sub>	16	08.79
≥ G <sub>1</sub>	7	03.85
<b>Total</b>	<b>182</b>	<b>100</b>

The maximum number of eclampsia cases were primigravida, total 137 cases i.e. 75.27% and only 7 cases i.e. 3.85% of all eclampsia were grand multipara i.e. fourth gravida or above.

**Table 4: Gestational age of the patients of eclampsia in weeks at the time of onset of eclamptic convulsions.**

Gestational age (weeks)	No. of cases	Percentage
≤ 28	23	12.63
29-32	28	15.38
33-36	38	20.87
≥ 37	93	51.12
<b>Total</b>	<b>182</b>	<b>100</b>

51.12% i.e. 93 eclampsia patients had convulsions at term (at or after 37 weeks of gestation) and 23 patients, 12.63% of all eclampsia cases had convulsions before 28 weeks of pregnancy.

**Table 5: Mean gestational age of eclampsia patients in weeks and standard deviation:**

Mean gestational age in weeks	31.02
Standard deviation	4.19

**Table 6 : Distribution of eclampsia patients according to the type of Eclampsia**

Type	No. of Cases	Percentage
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Antepartum Eclampsia	141	77.47
Intrapartum Eclampsia	17	9.34
Postpartum Eclampsia	24	13.19
<b>Total</b>	<b>182</b>	<b>100</b>

Antepartum Eclampsia constituted the major bulk of total eclampsia cases i.e. 141 cases constituting 77.47% of the total eclampsia cases.

**Table 7: Gestational age of the patients of eclampsia in weeks at the time of onset of eclamptic convulsions.**

Gestational age (weeks)	No. of cases	Percentage
≤ 28	23	12.63
29-32	28	15.38
33-36	38	20.87
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51.12% i.e. 93 eclampsia patients had convulsions at term (at or after 37 weeks of gestation) and 23 patients, 12.63% of all eclampsia cases had convulsions before 28 weeks of pregnancy.

**Table 8: Mean gestational age of eclampsia patients in weeks and standard deviation:**

Mean gestational age in weeks	31.02
Standard deviation	4.19

**Table 9 :Distribution of eclampsia patients according to Blood pressure on admission:**

B.P. on admission (mm of Hg)	No. of cases	Percentage
≤ 140/90	27	14.84
140/90 - 160/110	77	42.30
≥ 160/110	78	42.86
<b>Total</b>	<b>182</b>	<b>100</b>

78 patients of eclampsia (42.86%) had blood pressure ≥ 160/110mm of Hg and 77 patients of eclampsia (42.30%) had BP < 160/110 mm of Hg but > 140/90 mm of Hg.

**Table 10: Distribution of eclampsia patients according to proteinuria on admission:**

Urine Albumin	No. of cases	Percentage
Nil	4	2.19
< 2+	38	20.89
≥ 2+	140	76.92
<b>Total</b>	<b>182</b>	<b>100</b>

140 cases of eclampsia 76.92% had ≥ 2+ proteinuria at the time of admission. 4 patients (2.69%) of eclampsia did not have proteinuria.

**Table 11: Mode of Delivery in eclampsia patients:**

Mode of delivery	No. of cases	Percentage
Vaginal	98	54.15
LSCS	83	45.85
<b>Total</b>	<b>181*</b>	<b>100</b>

\* 1 patient died undelivered.

54.15% i.e. 98 patients of eclampsia out of 181 deliveries of eclampsia patients delivered vaginally and 83 patients i.e. 45.85% underwent caesarean section for various obstetric indications.

**Table 12: Distribution of eclampsia patients according to onset of convulsion to admission interval in hours.**

Time (in hours)	No. of cases	Percentage
≤ 5	124	68.14
6-10	31	17.04
11-15	11	6.04
16-20	8	4.39
> 20	8	4.39
<b>Total</b>	<b>182</b>	<b>100</b>

68.14% patients had onset of convulsion to admission interval less than 5 hours. While 14.82% had convulsion to admission interval more than 10 hours. Group of patients with convulsion admission interval more than 20 hours included 3 patients of intercurrent eclampsia.

**Table 13: Perinatal outcome in eclampsia patients**

Total number of deliveries	181	
Total number of twin deliveries	5	
Total births	186	100%
Total live births	153	82.25%
Total still births	33	17.76%
Total neonatal deaths	22	29.56%
Total premature deliveries (< 37 weeks)	93 (85+4 sets of twins)	50%

**Table 14: Maternal complications in eclampsia patients**

Complication	No. of Cases	Percentage
Aspiration Pneumonitis	18	9.89
Pulmonary edema	12	6.59
Disseminated Intravascular Coagulation	9	4.94
Postpartum hemorrhage	7	3.85
MgSO <sub>4</sub> injection abscess	5	2.75
HELLP Syndrome	2	1.10
Acute Renal Failure	2	1.10
Abruptio Placentae	2	1.10
Retinal Detachment	1	0.55

Many eclampsia patients had more than one complication. Aspiration Pnuemonitis was the most common complication observed in 18 patients i.e. 9.89% of all patients while retinal detachment was seen only in 1 patient.

46 patients had one or more of above mentioned complications. Among the patients who had complications, 60% were from rural area, 22 patients were referred cases from outside. 52.17% patients did not receive any antenatal care. 84.79% patients were cases of antepartum eclampsia. 37% patients had onset of convulsion to admission intervals of more than 6 hours. At admission 58.69% patients had BP > 160 /110 mm Hg, 67.39% had proteinuria of ≥ 3+, and 76.08% patients had generalised edema. 48.68% patients were delivered after 10 hours of onset of convulsions.

## DISCUSSION

In this study incidence of eclampsia was 1.09%. So incidence of eclampsia among total number of deliveries reported from our institute is similar to the incidence of eclampsia reported by many other Indian workers such as Kameshwari Devi et al (1974), Bhattacharya et al (1990), Shah, Dandekar (1992).

The higher incidence in our study is because of the high referral

rate and poor antenatal coverage in rural areas draining into our hospital and also due to negligence of patients of pre-eclampsia who do not get admitted for management of PIH or for induction of labour as advised during their ANC visits.

maximum patients amongst all eclampsia cases were below 25 years of age indicating that majority of eclamptics were young and teenager which is an important risk factor for developing eclampsia.

In the present study 52 (28.57%) patients had mild Hypertension i.e. blood pressure less than 140/90 mm of Hg at admission and 32.96% did not had edema, and in 36 patients, 19.88% of all any of the pre-monitory symptom was absent. 23.08% patients had non significant protienuria i.e.  $\leq 2+$  on dipstic examination of urine.

According to Sibai Baha M<sup>5</sup> 32% did not have edema, 23% had relative hypertension and 19% did not have proteinuria at the time of convulsions. Proteinuria is usually a late development in the course of pre-eclampsia.

From the present study we can infer that even in the absence of either edema, hypertension, protienuria and without any preceding pre-monitory symptoms the patient may still develop eclampsia.

In their study, Kameshwari Devi et al<sup>3</sup> also noted that 74.6% of all their patients of elampsia showed all the three signs of toxæmia in addition to convulsion. In 14.3% there was no edema and in 11.1% there was no protienuria.

According to Vern L. Katz MD<sup>6</sup> (2000) incidence of Antepartum eclampsia was 53% and that of postpartum eclampsia was 11%. DJ Tuffnell D, Jankowicz<sup>7</sup> (2005) 55% was incidence of Antepartum eclampsia 55% and postpartum eclampsia accounted for 32% of all eclampsia cases.

In this study the there were 54.15% vaginal deliveries and 45.85% patients underwent cesarean section. There was no significant difference between these two. These results are similar to those reported by Sibai, and Goswamy et al. The LSCS rate quoted in literature ranges from 7% (Porapakkham) to 56.70% (Lopez Llera). The present value of 45.85% falls within this range. Many centres (Sibai et al 1981, Leitch et al 1997) were liberal to do more abdominal deliveries in an expectation of better maternal and fetal outcome<sup>8</sup>. Liberalisation of caesarean section has been possible in practice due to marked improvement in anaesthesiology.

Maternal complications among eclampsia patients (percentage of total number of eclampsia cases):

Complication	Pora-pakkham <sup>9</sup> UK (1979) (%)	Lopez Llera <sup>10</sup> UK (1982) (%)	Mohanti et al <sup>11</sup> India (1990) (%)	Present study (2012) (%)
Aspiration Pneumonitis				9.89
Pulmonary edema		4.5	4.4	6.59
Disseminated Intravascular Coagulation		25.6		4.94

Postpartum hemorrhage	3.7	5.8	10.6	3.85
MgSO4 Abscess				2.75
HELLP Syndrome		5.4		1.10
Acute renal Failure	11.1	19.8	15.0	1.10
Abruptio Placentae	1.3	11.6		1.10
Retinal Detachment (visual complications)			25.5	0.55
Puerperal psychosis	1.0		22.6	1.09

**CONCLUSIONS**

Eclampsia is an end point of the clinical spectrum of hypertensive disorders of pregnancy starting from PIH to pre-eclampsia and resulting in eclampsia if untreated. So, certainly the high incidence of eclampsia can be reduced by proper antenatal care, diagnosing, admitting and treating the mild and severe pre-eclampsia cases. Antenatal care, early diagnosis, primary management and referrals need to be improved. Need for proper antenatal care in preventing eclampsia is of unequivocal importance. But mere ANC registration at early gestational age and immunization is not the antenatal care expected here. Proper supervision of pregnancy through all the three trimesters specially in third trimester is the need to reduce the incidence of eclampsia as most of the cases of the eclampsia develop convulsions near term gestation. Eclampsia is a disease of young primigravidae. So, specially in rural areas the girls who get married in their teens and embrak on their first pregnancy in the late teens are at risk of eclampsia. So increasing the age of marriage and first child birth will reduce the at risk population of eclampsia and result in decrease in the incidence of eclampsia.

Early diagnosis and management of pre-eclampsia and eclampsia at the peripheral health centres need to be improved. The medical officers and nurses working at periphery should be trained properly regarding proper and early management of pre-eclampsia and eclampsia in the form of antihypertensive therapy and need for giving standard loading dose of inj. MgSO<sub>4</sub> according to Pritchard's regime. The referral transport services should be improved to cover the large distances in our country in short time.

Main trigger of management should be directed towards the reduction of incidence of eclampsia which can be achieved by improvement in the education and empowerment of women, improving the health and welfare of women and widespread adequate antenatal coverage to all pregnant women upto grass root level of the community & giving special attention to at risk cases.

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