

# A Prospective Study of Fetomaternal Outcome in Eclampsia in a Tertiary Care Centre in Western Rajasthan

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**Abstract:** *Background:* Eclampsia is the occurrence of convulsions or coma unrelated to other cerebral condition with signs and symptoms of pre-eclampsia. Objective of the present study is to compare the maternal and fetal outcome of women with more than 28 weeks gestation complicated by antepartum eclampsia when terminated either by caesarean section or by vaginal delivery. *Method:* This is a prospective observational study done among admitted women with ante partum eclampsia in obstetrical ward/ICU from Jan 2019 to Dec 2019 in the Department of Obstetrics and Gynecology, Umaid Hospital, Dr. S.N. Medical College, Jodhpur, Rajasthan, India. A total of 200 patients with ante partum eclampsia were included in the study. *Results:* This study showed that ante partum eclampsia is more common in women with age 20-25 years (63%) and in primigravida (61.5%). Most of the patients belong to low socio economic status (66.5%). Maximum number of patients presented at gestational age of 37 - 42 weeks (52%). LSCS was the most common mode of delivery in 57.5% patients. 6.5% patients died due to eclampsia. As far as fetal outcome is concerned, alive born babies were 153 (76.5%) and 47 (23.5%) were dead born, and among live born 43 babies died. *Conclusion:* Eclampsia is still one of the important and common obstetric emergencies, which has a significant role in maternal and perinatal outcome. Regular Antenatal Care (ANC), proper health education, improvements of socioeconomic conditions and spreading of awareness in the community has major roles in prevention of eclampsia. Timely and appropriate intervention including primary management, early referral and judicious termination of pregnancy help in reducing morbidity and mortality of both mother and fetus.

**Keywords:** Eclampsia, fetomaternal outcome, vaginal delivery, caesarean section operation

## 1. Introduction

As quoted by J. Whitridge Williams, an eclamptic convulsion occurs without warning, “*like a bolt from a clear sky*”, in women who are apparently in perfect health.

Eclampsia is the occurrence of convulsions or coma unrelated to other cerebral condition with signs and symptoms of pre-eclampsia. The diagnosis is usually established by the presence of hypertension, proteinuria and edema with the history of convulsion with or without unconsciousness. Eclampsia is an important cause of maternal morbidity and mortality as well as a significant contributor to higher incidences of perinatal morbidity and mortality. Eclampsia is more common in the third trimester of pregnancy and becomes increasingly more frequent as term approaches (1). Approximately 1 in 2000 deliveries is complicated by eclampsia in developed countries, whereas the incidence in developing countries varies from 1 in 100 to 1 in 1700 cases(2). The incidence of eclampsia in India is 0.94 to 1.8% in all pregnancies.

The National Eclampsia Registry (NER) FOGSI -ICOG interim statistics reveals that the incidence of hypertensive diseases during pregnancy to be high with a substantial incidence of eclampsia. The incidence may be higher because many eclampsia cases which are managed by peripheral health workers remain unreported.

Eclampsia is essentially a disease of poor and a product of ignorance and neglect. Illiteracy, lack of health awareness, poverty, poor linkage of community with comprehensive health facilities and superstitious beliefs prevent women from seeking medical advice during pregnancy and all of these combined together contributes to eclampsia.

It is characterised by premonitory stage, tonic stage, clonic stage and stage of coma & when fits occur in quick successions it is called status eclampticus. The convulsions in eclampsia are usually generalized tonic clonic in nature and may appear at any time i.e.

- 1) Antepartum eclampsia (before onset of labor) 35-40%
- 2) Intrapartum (during labor) 15-20%
- 3) Postpartum (after labor) 35-40%

Maternal mortality in eclampsia is very high in India and varies from 2-30 %, much more in rural hospital based than in the urban counterpart(3). The perinatal mortality is very high to the extent of about 30-50%. Eclampsia is the third commonest causes of maternal mortality, after haemorrhage and infection in the developing countries. Mostly eclampsia is preceded by pre-eclampsia but in 15-20% of the cases it may arise without any symptoms of pre-eclampsia too. It is recommended to make a diagnosis of eclampsia for possible existence, in patients who present with convulsions during pregnancy, labour or puerperium. Some clinical causes of maternal deaths that are followed after eclampsia are cardiopulmonary failure, acute renal failure, cerebrovascular accident (CVA), HELLP syndrome (Haemolysis, Elevated liver enzymes and Low platelets) and premature separation of placenta.

The purpose of this study is to evaluate the incidence of eclampsia, maternal and perinatal and morbidity/mortality associated with it.

## 2. Methodology

This is a prospective observational study done among admitted women with ante partum eclampsia in obstetrical ward/ICU from Jan 2019 to Dec 2019 in the Department of

Obstetrics and Gynecology, Umaid Hospital, Dr S.N. Medical College, Jodhpur, Rajasthan, India.

A total of 200 patients with ante partum eclampsia were included in the study.

Maternal variables analysed were age, parity, booking status, gestational age, blood pressure, maternal morbidities, maternal mortality, mode of delivery and duration of hospital stay. Foetal outcome variables were preterm delivery, live birth, birth weight, dead born and early neonatal death. Patients were followed up from admission upto discharge. Maternal and foetal outcome variables were presented as frequencies and percentages.

The research protocol was approved by Ethical committee. As it was an observational study not an interventional study, no informed consent was needed.

Data was compiled in MS Excel and checked for its completeness and correctness. Then it was analysed.

### 3. Results

Total 200 antepartum eclampsia cases were included in the study. Maximum number of cases 126(63%) were in the age group between 20-25 years, while 33 (16.5%) were having age of < 20 years, 36 (18%) were in the age group between 25- 30 years and 5 (2.5%) were in the age between 31-40 years. Analysis of their booking status showed 147 (73.5%) cases were unbooked and the remaining 53 (26.5%) cases were booked.

**Table 1: Maternal age**

Maternal age (years)	No	Percentage
<20	33	16.5
20-25	126	63
25-30	36	18
31-40	5	2.5
Total	200	100

**Table 2: Booking status**

Booking Status	No	Percentage
Unbooked (Irregular ANC)	147	73.5
Booked	53	26.5
Total	200	100

Most of the cases 121 (61.5%) were primigravida, 42 (21%) were second gravida, while 20 (10%) were third gravida, while only 17(8.5%) were fourth gravida and above. It was observed that 64 (32%) cases presented at gestational age of 31-36 weeks, while 104(52%) had gestational age of 37-42 weeks. Those who were at 24-30 weeks of gestation constituted 32 (16%).

**Table 3: Parity status**

Gravida	No	Percentage
Primigravida	121	61.5
G2	42	21
G3	20	10
G4 and above	17	8.5
Total	200	100

**Table 4: Gestational age**

GA (weeks)	No	Percentage
24-30	32	16
31-36	64	32
37-42	104	52
Total	200	100

Most of the patients were from lower socio economic status i.e. 133(66.5%), 46(23%) belong to middle socio economic status while only 21(10.5%) belong to high socio economic status.

**Table 5: Socio economic status**

SES	No	Percentage
Lower	133	66.5
Middle	46	23
High	21	10.5
Total	200	100

In our study, the systolic blood pressure on admission was >160 mm Hg in 86 (43%) patients, 140-159 mm Hg in 104 (52%) patients and the systolic blood pressure was <140 mmHg in 10 patients (5%) while the diastolic pressure was >110 mmHg in 82 patients (41%). 98 patients (49%) had their diastolic blood pressure in the range 90-109 mmHg and only 20 patients (10%) had their diastolic blood pressure <90 mmHg.

**Table 6: Systolic blood pressure**

Systolic B.P. (mmHg)	No	Percentage
>160	86	43
140-159	104	52
<140	10	5
Total	200	100

**Table 7: Diastolic blood pressure**

Diastolic B.P. (mmHg)	No	Percentage
>110	82	41
90-109	98	49
<90	20	10
Total	200	100

In our study, LSCS was the mode of delivery in 115 patients(57.5%) and 83 patients (41.5%) delivered vaginally. In 2 patients (1%) hysterotomy was done.

**Table 8: Mode of delivery**

Mode of Delivery	No	Percentage
Vaginal	83	41.5
LSCS	115	57.5
Hysterotomy	2	1
Total	200	100

In our study, there were no maternal complications seen in 141(70.5%) patients. 46(23%) patients had complications due to eclampsia while 13(6.5%) patients died due to eclampsia.

**Table 9: Maternal outcome**

Maternal outcome	No	Percentage
Maternal mortality	13	6.5
Maternal morbidity	46	23
No maternal complication	141	70.5
Total	200	100

As far as fetal outcome is concerned, alive born babies were 153 (76.5%) and 47 (23.5%) were dead born. Among live birth 43 babies died. 16 (37%) died due to septicaemia, 15 (35%) babies died due to prematurity and respiratory distress syndrome, 9 (21%) died due to birth asphyxia and 3 (7%) died due to meconium aspiration syndrome.

**Table 10:** Fetal outcome

Fetal outcome	No	Percentage
Live birth	153	76.5
Dead born	47	23.5
Total	200	100

**Table 11:** Causes of early neonatal mortality

Causes	No	Percentage
Septicaemia	16	37
Prematurity/Respiratory distress syndrome	15	35
Birth asphyxia	9	21
Meconium aspiration syndrome	3	7
Total	43	100

#### 4. Discussion

Hypertension is a leading problem that may complicate and result in additional disorders during pregnancy. One such complication is eclampsia which causes devastating results, though it is preventable. The epidemiological figures of eclampsia are not consistent worldwide, in fact the incidence of eclampsia varies geographically according to the standard antenatal care facilities provided in that area. Now with advancements in the field of anaesthesiology, caesarean section promises reassuring maternal and perinatal outcome(3).

In our study 63% of patients belong to the age group 20- 25 years which are consistent with the data reported by Sunita TH et.al. (4), Sarika C etal (5), Raji C etal (6). All these studies reflects the fact that eclampsia is a disease of relatively younger age group. Majority of the eclamptic cases 147 (73.5%) were unbooked. Hemkanta et al (7), Prabhakar et al (8), Pradeep et al (9) and Chaudhury(10) reported similar results. So it can be concluded from above studies and supported with our present study that an increasing trend of eclampsia is seen in women who do not have access to basic antenatal care services ie unbooked cases. In our study majority of the patients i.e. 66.5% belong to low socio economic status Study done by Chaudhary (10) has shown that 95% patients belonged to low socioeconomic group and 73.5% of patients in the study of El-Nafaty et al (12).

Majority of the cases 121 (61.5%) were primigravidae, which is comparable to studies conducted by Sunita TH et al (4), Hemkanta et al (7) and Pradeep et al (9). It indicates that primigravidae are the main victim for eclampsia. Recent epidemiologic studies suggest that multiparous women with different partners have a higher risk for preeclampsia than multiparous woman with the same partner, perhaps because of a protective effect of repeated exposure to specific antigens (11). In our study, highest numbers of eclamptic patients were found in the gestational age  $\geq 37$  weeks 104(52%) followed by below 37 weeks gestation 64 (32%). Only 32 (16%) eclamptic patients were found in gestational

age less than 30 weeks. Similarly, Sunitha et al (4), Prabhakar et al (8) and Chaudhary et al (10) also found highest number of eclamptic patients in gestational age  $\geq 37$  weeks.

In our study, the systolic blood pressure on admission was  $>160$  mmHg in 86(43%)patients, 140-159 mm Hg in 104(52%) patients and the systolic blood pressure was  $<140$  mmHg in 10 patients(5%) while the diastolic pressure was  $>110$  mmHg in 82 patients(41%). 98 patients(49%) had their diastolic blood pressure in the range 90-109 mmHg and only 20 patients(10%)had their diastolic blood pressure  $<90$  mmHg. Similar results were identified in the studies conducted by Raji C etal (6), Pradeep et al(9) and Matter F et al (13). So adequate control of blood pressure in pregnancy is of utmost importance in prevention of eclampsia.

The definitive treatment of eclampsia is termination of pregnancy, irrespective of gestational age. Therefore, the patient must be delivered within 24 hours in case of severe pre-eclampsia, and within 12 hours in a patient with eclampsia (1). Lower segment caesarean section was the commonest mode of delivery. In our study 115 (57.5%) patients were delivered through LSCS while only 83 (41.5%) patients delivered vaginally . Similar observation was found in studies by Chaudhary et al (10) and Manjusha et al (14). The percentage of live birth and stillbirth in our study was 76.5% and 23.5% respectively. Significant association of eclampsia is reported with high perinatal mortality and morbidity. It is observed in this study that the patients undergoing cesarean section showed a better maternal outcome with fewer incidences of recurrent convulsions and other maternal complications.

Septicaemia (37%) and Prematurity (35%) were the major cause for early neonatal death. As this is an established fact that early deliveries reduce maternal mortality and morbidity however expose the babies to the risks of prematurity. Similar results were noted in studies conducted by Raji C et al (6) and Chaudhary et al (10). Perinatal mortality is published around 432.6/1000 with prematurity where IUGR remains the main culprit and is considered to be responsible for most of the complications.

#### 5. Conclusion

This study reveals that eclampsia is still an important obstetric emergency in the community contributing to significant maternal and perinatal morbidity and mortality in developing countries like India. A rational therapy for general management including management of hypertension and convulsion has been established in our setup, but the obstetric management is the area, where controversy still exists.

Certainly the high incidence of eclampsia can be reduced by proper antenatal care, diagnosing, admitting and treating the mild and severe pre- eclampsia cases. However, eclampsia can occur bypassing the preeclamptic state and as such, it is not always a preventable condition. Antenatal care, early diagnosis, primary management and referrals need to be improved.

The study showed a definite shift towards cesarean delivery, which correlated very well with lower maternal morbidity, maternal mortality and perinatal mortality. It was found that the earlier deaths were mainly due to the delay in convulsion to delivery interval.

## References

- [1] Singh BM, Mishra R. Hypertensive disorders. Mishra R, editor. *Ian Donalds Practical Obstetric Problem*, Seventh edition, BI Publications Pvt Ltd: New Delhi; 2014:142-75.
- [2] Dukkit K, Harrington D. Risk factors for preeclampsia at antenatal booking: systemic review of controlled studies. *BMJ*. 2005 Mar;330(7491):565.
- [3] Williams Obstetrics. 22nd Ed. McGraw Hill Co. Inc. chapter 40. 2005:761-808.
- [4] Sunita TH, Desai RM. Eclampsia in a Teaching Hospital: Incidence, clinical profile and response to Magnesium Sulphate by Zuspan's regimen. *IOSR Journal of Dental and Medical Sciences (IOSRJDMS)*. 2013;4(2):1-5.
- [5] Sarika C, Bharat R, Nerges M. Availability of Treatment for Eclampsia in Public Health Institutions in Maharashtra, India *J Health Popul Nutr*. 2013 March;31(1):86-95.
- [6] Raji C, Poovathi M, Nithya D. Prospective study of fetomaternal outcome in eclampsia in a tertiary care hospital. *Int J Reprod Contracept Obstet Gynecol* 2016;5:4329-34.
- [7] Sarma HK, Talukdar B. Eclampsia: a clinical prospective study in a referral hospital. *Journal of Obstetrics and Gynaecology Barpeta*. 2014;1(1):57-61.
- [8] Prabhakar G, Shinde MA, Jadhav CA. Clinical study of eclampsia patients at DR. V M. Government Medical College Solapur, India. *IOSR Journal of Dental and Medical Sciences*. 2015;13(7):10-6.
- [9] Pradeep MR, Shivanna L. Retrospective Study of Eclampsia in a Teaching Hospital. *Int J Recent Trends in Science and Technology*. 2013;8(3):171-3.
- [10] Choudhary P. Eclampsia: A hospital based retrospective study. *Kathmandu University Medical Journal*. 2003; 1(4):237-41.
- [11] Pridjian G, Puschett JB. Preeclampsia. Part 1: Clinical and pathophysiologic considerations. *Obstet Gynecol Surv* 2002; 57: 598-618.
- [12] El-Nafaty AU, Melah GS, Massa AA, Audu BM, Nelda M. The analysis of eclamptic morbidity and mortality in the Specialist Hospital Gombe, Nigeria. *J Obstet Gynaecol* 2004; 24: 142--147.
- [13] Mattar, F, Sibai BM. Eclampsia. VIII. Risk Factors for maternal morbidity. *Am J Obstet Gynecol*. 1990;163:1049-55.
- [14] Manjusha S, Vandana N, Sneha M, Atmaram PP. Eclampsia: A retrospective study in a tertiary care centre. *Indian Journal of Pharmacy Practice*. 2013;6(1):69-73.