



RISK FACTORS FOR MORBIDITY AND MORTALITY IN ECLAMPSIA – A PROSPECTIVE STUDY

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ABSTRACT

Objective: To know risk factors for morbidity and mortality in eclampsia and analysing the preventable and non-preventable factors for development of eclampsia.

Material & Methods: The present study was conducted on a prospective basis for one and half year, from 1st Jan 2014 to 30th June 2015 in the Department of Obstetrics and Gynaecology, Govt. Medical College and Rajindra Hospital, Patiala in all cases of eclampsia.

Results: Total deliveries during this study period were 5494 with total cases of eclampsia were 185. Thus incidence came out to be 3.36%. The risk factors for eclampsia as observed in study were age group 20-25 years; primigravida; patients coming from rural area with low socioeconomic status with no or irregular antenatal checkups. About 74 patients had complications. The risk factors associated with maternal morbidity in cases of eclampsia were low socioeconomic status (70.27%); rural background (63.51%) and illiterate (40.54%); no or irregular antenatal checkups (66.22%). Primigravida (59.46%) in age group 20-25 years (56.76%) had more complications. Maternal morbidity was also increased in referred cases (74.33%) and that too distance beyond 60 kms (45.40%). More complications were also observed in patients when fit-treatment >3 hours (58.11%) after onset of convulsions. Antepartum eclampsia (70.27%) also significantly contribute to maternal morbidity. The maternal mortality was 1.62%.

Conclusions: Eclampsia is still common cause for maternal morbidity and mortality. The preventable factors for eclampsia in present study were No or irregular antenatal checkups; Non-compliance with anti-hypertensives; No treatment at referral center; Delayed treatment (prolonged fits-treatment interval); Delay between onset of convulsions and admission to hospital. In 16.21% eclampsia occurred suddenly and hence it was not preventable in these cases.

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INTRODUCTION

Hypertensive disorders complicate 5-10% of all pregnancies, and together they form one member of the deadly triad, along with haemorrhage and infection, that contribute greatly to maternal morbidity and mortality.^[1] This group includes pre-eclampsia, eclampsia, gestational hypertension and chronic hypertension. Hypertensive disorders of pregnancy are an important cause of severe acute morbidity, long term disability and death among mothers and babies.^[2] Eclampsia is an unpredictable multi organ disease unique to pregnancy.^[3] The mortality in eclampsia is mainly due to the complication that develops during the course of the disease.^[4]

The seizures are generalised and may appear before, during or after labour.^[1]

Incidence: The reported rate of eclampsia in western world is 1 in 2000 to 1 in 3000 deliveries.^[5] Incidence of eclampsia in India is 0.94%-1.8% in all pregnancies.^[3] In India, maternal mortality rate in eclampsia is very high. The figure ranges from 8-14% and perinatal mortality varies from 24-34%.^[6]

Risk factors for morbidity and mortality

1. Antepartum onset
2. Sudden onset
3. High SBP and DBP
4. Gestational Age < 32 weeks
5. Late Referral (distant villages)
6. Not treating hypertension adequately
7. No. of convulsions >15
8. Delay between start of seizures and admission to hospital.
9. Inadequate/lack of treatment prior to transportation

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10. Inadequate use of magnesium sulphate
11. Failure to consider timely delivery (Prolonged induction delivery interval)^[4]
12. Lack of Antenatal Care^[7]
13. SBP > 200 mmHg
14. Non response to treatment
15. Oligouria
16. Jaundice
17. Coma due to convulsions
18. Temperature >102⁰F^[8]

Prevention: Because we do not know the pathogenesis of eclampsia, our strategies for prevention are limited. Given this situation, our focus for prevention can be primary by preventing the development of preeclampsia or secondary by using pharmacologic agents that prevent convulsions in women with established preeclampsia. Prevention can also be tertiary by preventing subsequent convulsions in women with established eclampsia.^[9] This study aimed at identifying the risk factors for adverse maternal outcome among women with eclampsia.

MATERIAL AND METHODS

The open experimental prospective study was conducted in Department of Obstetrics and Gynaecology, Govt. Medical College, Rajindra Hospital, Patiala from Jan 2014 to June 2015. All cases admitted as eclampsia were included in the study after taking consent.

Inclusion criteria

All cases of antepartum, intrapartum and postpartum eclampsia.

Exclusion criteria

Epilepsy
 Neurological disorder and
 Electrolyte imbalance
 All other causes of convulsions
 All the information was entered in a predesigned proforma and analyzed statistically.

RESULTS

A total of 185 patients of eclampsia with 5494 delivered during study period. Thus, incidence during study period was 3.36%. out of 185 cases, 114 APE; 21 IPE and 50 PPE. The demographic profile were shown in table 1. Majority of patients were primigravida (68.65%) with 63.54% patients were of age group 20-25 years. About 64.86% patients from rural background and 68.64% belonged to low socioeconomic status. Most of patients had come from distance >60km from hospital. Around 28.11% of patient did not have antenatal checkups and another 41.62% had inadequate antenatal checkups.

As per table 2, out of 185, majority 136 patients were referred with 54.41 %cases didnt received treatment for convulsions at referral center (fig 1). About 25 patients develop eclampsia who was already admitted.

Table 1 Demographic Profile of patients with eclampsia

Age group (in years)	No. of cases (n=185)	%age
<20	11	5.94
20-25	117	63.24
25-30	38	20.55
30-35	15	8.11
>35	4	2.16
Mean age	23.51+4.02	
Residence		
Rural	120	64.86
Urban	65	35.14
Gravida		
Primigravida	127	68.65
Multigravida	58	31.35
Socioeconomic status		
Upper	1	.54
Middle	57	30.81
Lower	127	68.64
Distance from hospital (in km)		
Upto 20	40	21.63
21-40	25	13.51
41-60	46	24.86
>60	74	40.0
Antenatal checkups		
Regular	56	30.27
Irregular	77	41.62
nil	52	28.11

Table 2 Group Division according to admission

	Direct Admission	Referred	Inpatients	Total
APE	16	93	5	114
IPE	2	11	8	21
PPE	6	32	12	50
Total	24	136	25	185

APE: antepartum eclampsia; IPE:intrapartum eclampsia; PPE:postpartum eclampsia

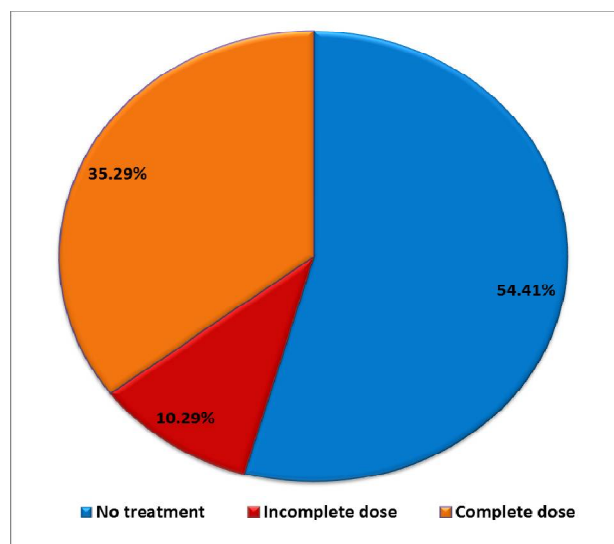


Fig 1 Distribution of cases according to treatment of convulsions at

In present study, 74 patients had complications with distribution of it shown in table 3. Table 4 enumerates the risk factors as observed for eclampsia in the study. The table 5 shows the risk factors associated with maternal morbidity in cases of eclampsia. The complications were seen more in patients with low socioeconomic status (70.27%) with rural background (63.51%) and also who were illiterate (40.54%) and had no or irregular antenatal checkups (66.22%).

Table 3 Maternal Complications

Complications	No. of cases	%age
pHELLP	30	16.21
Pulmonary Complications	16	8.64
Cerebrovascular complications	16	8.64
Abruption	8	4.32
HELLP	7	3.78
ARF	7	3.78
DIC	6	3.24
Postpartum Psychosis	5	2.70
PPH	5	2.70
Temporary Blindness	4	2.16

Table 4 Risk Factors As Observed For Eclampsia in the Study

Risk factors	%age
Age group 20-25 years	65.24
Rural area	64.86
Low socioeconomic status	68.64
Primigravida	68.65
Nil antenatal checkups	28.11
Irregular antenatal checkups	41.62
>37 weeks POG (APE and IPE)	48.88
Within 12 hrs PPE	70.00

Table 5 Risk Factors for Increased Maternal Morbidity In Cases of Eclampsia

Parameter	No. of cases (out of 74)	%age
Age group (20-25 years)	42	56.76
Rural area	47	63.51
Lower Socioeconomic status	52	70.27
Illiterate	30	40.54
Distance from our hospital(>60km)	30	45.40
Primigravida	44	59.46
Antepartum eclampsia	52	70.27
Nil antenatal checkups	27	36.49
Irregular antenatal checkups	22	29.73
Referred cases	55	74.33
No awareness of rise in BP	36	48.64
Fit - treatment interval >3hrs	43	58.11

BP: Blood Pressure

Primigravida patients (59.46%) in age group 20-25 years (56.76%) had more complications. Maternal morbidity was also increased in referred cases (74.33%) and that too distance beyond 60 kms (45.40%). More complications were also observed in patients when fit-treatment >3 hours (58.11%) after onset of convulsions. Antepartum eclampsia (70.27%) also significantly contribute to maternal morbidity.

Also, out of 74 patients with complication, 54.55% patients did not receive any treatment at referral centre. This shows that delayed treatment leads on increased morbidity in cases of eclampsia. Out of 19 patients with history of recurrent convulsions even after complete loading dose of magnesium sulphate, 63.15% had increased morbidity. This means morbidity increases with number of convulsions. About 48.64% patients with complications (n=74) had no awareness of rise in blood pressure. Thus, importance of health awareness and antenatal checkups for diagnosis of hypertension. Those who were aware of rise in blood pressure i.e. 28 patients out 74 with complications; 19 (67.85%) were non-compliant with antihypertensives despite awareness of rise in blood pressure. This interprets that uncontrolled blood pressure leads to increased morbidity. So, patient education is much more important.

The table 6 shows preventable and non-preventable factors in cases of eclampsia. The various preventable factors were: no (28.11%) or irregular antenatal checkups (41.62%); hypertension not diagnosed (47.02%) or patients non-compliant with antihypertensives (24.32%); in cases

Table 6 Preventable and Non-Preventable Factors (N=185)

Factors	%age
No antenatal checkups	28.11
Irregular antenatal checkups	41.62
Hypertension not diagnosed	47.02
Non-compliance with antihypertensives	24.32
No treatment at referral centre	54.41
Fit-treatment interval >3hrs	53.52
Fit -admission interval >3hrs	80.62
Sudden onset	16.21

where no treatment was given at referral centre (54.41%) and patients where fit-treatment interval > 3hrs (53.52%) or fit - admission interval > 3 hours (80.62%). These all are preventable factors with health awareness among females and good antenatal care.

In 16.21% of cases eclampsia occurred was sudden onset and therefore in these cases it was not possible to prevent it.

DISCUSSIONS

Eclampsia is one of the most challenging problem of obstetrics. It is one of most common cause of maternal mortality and morbidity. There were 185 eclampsia cases during the study period. Thus incidence came out to be 3.36%. The present study has 61.63% of antepartum eclampsia cases which is similar to that done by Naz *et al* [10]; Akhtar *et al* [11]; Chuni and Khanna [12]; Choudhary [13] and Shaheen *et al* [14]. In present study, 68.65% patients were primigravida which is comparable to study by Trivedi *et al* [15]; Pradeep and Shivanna [16]; Naz *et al* [10]; Akhtar *et al* [11] and Shaheen *et al* [14]. The mean admission delivery interval in present study is 11.78 ± 9.7 hours which is almost comparable to study conducted by Shaheen *et al* [14]. In our study 10.27% patients had convulsions even after treatment which is less than those reported by Naz *et al* [10] with 13.69%; Chuni and Khanna [12] with 16.04% and Choudhary [13] with 19.15% cases. In our study 40% patients developed complications, which is higher than that quoted by Dasari and Victor [4] and Akhtar *et al* [11]. This is because of various demographic factors in those patients. The most common one in present study was partial HELLP syndrome (16.21%) which is quite high than reported by Dasari and Victor [4] with 7.3%. The others complication reported in cases of eclampsia were HELLP, DIC, abruption, ARF as in our study. Present study shows 16.21% patients had sudden onset eclampsia, which is almost similar to Sibai [9] and Chuni and Khanna [12] whereas Dasari and Victor [7] reported in 55% patients. The case fatality rate of eclampsia in present study is considerably lower than that quoted by several authors from studies i.e. by Vijayasree and Murali [17]; Naz *et al* [10] and Akhtar *et al* [11]. The rate of various preventable factors in cases of eclampsia in present study is quite different from that reported by study Dasari and Victor. [4]

CONCLUSIONS

From the present study it is concluded that the non-preventable factor is sudden onset. The preventable factors for eclampsia in present study were:

No or irregular antenatal checkups

Non-compliance with anti-hypertensives

No treatment at referral center

Delayed treatment (prolonged fits-treatment interval)

Delay between onset of convulsions and admission to hospital.

Late referrals.

So, improvement in antenatal care and essential obstetric care will reduce morbidity and mortality if auxiliary health workers are educated in recognizing premonitory signs and symptoms; and doctors at first referral units are trained and instructed in giving anticonvulsants therapy (i.e. complete loading dose of magnesium sulphate) at the earliest time before transferring patients by suitable transport to tertiary health care centre. The such single step will help to reduce morbidity and mortality in eclampsia cases.

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