



## Maternal Outcome of Eclamptic Patients Admitted in Gazi Medical College Hospital

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### Abstract

**Background:** Eclampsia is one of the major causes of maternal and perinatal mortality. Eclampsia is more common in developing countries compared to developed countries. This study aimed to assess the maternal outcome in eclamptic patients. **Material & Methods:** This cross-sectional study was conducted in the Department of Obstetrics and Gynecology, Gazi Medical College, Khulna, Bangladesh, during the period from September 2017 to February 2019. **Results:** The mean age of study people was 23.84 years (SD±5.03 years), among them 58% had postpartum eclampsia and 42% had antepartum eclampsia. Most of the study people (62%) did not take regular antenatal check-ups during pregnancy and 47% of study people had 1-4 convulsions before admission, and most of the study people (80%) had high blood pressure stage 2 ( $\geq 140/\geq 90$  mmHg), Oedema was presented in 98% of study people, 44% of study people and 3gm/l(+++) albumin in the urine. In this study, 56 % had LUCS delivery and 44% had a vaginal delivery, 7% of study people had pulmonary oedema, 7% had renal failure, 2% had DIC, 7% had CVA, 9% had abruption placenta 16% had PPH, 31% needed admission in ICU. There was no maternal death, mean duration of hospital stay was 7 days (SD±3 days). For most of the study people (56%), BP on discharge was normal ( $\leq 120/\leq 80$  mmHg) and for all study people, urine albumin was nil. **Conclusions:** Eclampsia was a major cause of maternal and fetal mortality and morbidity in Bangladesh. Race and age appear to be risk factors for eclampsia with Bangladeshi women and those at the extremes of reproductive age at greater risk. Antenatal care is important in reducing perinatal mortality and possibly maternal complications.

**Keywords:-** Maternal Outcome and Eclamptic Patients.

### INTRODUCTION

Eclampsia is defined as the development of convulsions in a woman who fits the criteria for pre-eclampsia during pregnancy, birth, or

within 42 days after delivery that are not caused by coincidental neurological illness.<sup>[1]</sup> Eclampsia was discovered to be the third most common direct obstetric cause of maternal



death.<sup>[2]</sup> Eclampsia is defined as the occurrence of tonic-clonic convulsions during pregnancy, labour, or within 42 days of birth that are not caused by epilepsy or other convulsive diseases.<sup>[3]</sup> Eclamptic seizures occur in the second part of pregnancy, and some writers believe they can occur up to 10 days after birth.<sup>[4]</sup> Any seizure in preeclamptic women which cannot be attributed to another cause is due to eclampsia. Though mortality and morbidity due to eclampsia have been reduced dramatically in the developed world, it continues to be major health of concern for developing and poorly performing countries. In the western world, the reported incidence of eclampsia is 1 in 2000 but in developing countries, its incidence may be as high as 100 cases per 10,000 live birth.<sup>[5]</sup> Due to the better health care facility and liberal use of prophylactic magnesium sulphate the maternal mortality rate due to eclampsia is reduced significantly. But still, it continues to be the second leading cause of death after thromboembolic disease in the western world. The high incidence of maternal mortality in developing countries is due to poor health care facilities, inadequate antenatal care, delay in referral, multiple episodes of seizure before admission and lack of transport.<sup>[6]</sup> The pathogenesis of eclampsia continues to be the subject of debate and extensive research. It is not clear whether the possible changes as observed in cerebral edema with vasospasm, hypertensive encephalopathy, vasogenic edema and endothelial damage are due to the cause or effect of eclampsia.<sup>[6]</sup> In Africa and Asia, nearly ten percent of all maternal deaths are associated with hypertensive disorders of pregnancy.<sup>[7]</sup> Among the disorders that complicate pregnancy, pre-eclampsia and eclampsia were

found to be major causes of maternal and perinatal morbidity and mortality. Eclampsia was found to be third among the direct obstetric causes of maternal mortality.<sup>[8]</sup> Deaths due to eclampsia are secondary to preventable factors like cerebrovascular haemorrhage, Acute Renal Failure (ARF), coagulation failure, aspiration pneumonia, pulmonary oedema, Ante Partum Haemorrhage (APH) or Postpartum Haemorrhage (PPH).<sup>[8,9,10]</sup> Perinatal mortality is reported to be 5% to 11% in developed countries whereas it is as high as 40% in developing countries.<sup>[11,12]</sup> Other than early detection of preeclampsia, there are no reliable tests or symptoms for predicting the development of eclampsia. Hypertension is considered the hallmark of the diagnosis of eclampsia. But in many of the cases onset of preeclampsia is often insidious and pathological changes start early in the course of the disease and symptoms usually occur late. In 16% of the cases, hypertension may be absent.<sup>13</sup> In a series of 399 women with eclampsia, substantial Proteinuria was present in only 48% of the cases, whereas Proteinuria was absent in 14% of the cases.<sup>[13]</sup> In the developed world the incidence of eclampsia is on a declining trend due to the availability of health care facilities to all pregnant women. 6 Whereas in developing countries universal provision of antenatal care is still lacking. Provision of timely and effective care to women diagnosed with preeclampsia and eclampsia is important for avoiding the majority of morbidity and mortality caused by this disorder. Hence there lies the importance of continued efforts in monitoring and reviewing the line of treatment and analyzing factors affecting the outcome. Hypertension, proteinuria, and oedema are usually always, but not always, associated with the illness.<sup>[4,5]</sup>



Although the prevalence of eclampsia has decreased significantly in industrialized nations, it remains a source of maternal morbidity and death.<sup>[6,7,8]</sup> In poor nations, however, there has been no decrease in frequency, and eclampsia contributes significantly to maternal and neonatal morbidity and mortality.<sup>[9,10,11,12,13]</sup> The high prevalence of problems in poor nations has been linked to a lack of prenatal and intrapartum care for a large proportion of the obstetric population.<sup>[5,6,7,8,9,10,11]</sup> It can happen during the antepartum, intrapartum, or postpartum periods, with the antepartum and intrapartum periods having a greater incidence than the postpartum period.<sup>[4,5,13,14]</sup> Premonitory symptoms of eclampsia include growing fear, worry, and agitation, severe headache, visual abnormalities, epigastric pain, vomiting, fast rise in blood pressure, significant proteinuria, rapidly developing widespread oedema, oliguria, hyperreflexia, and clonus. However, 38% did not have established proteinuria or hypertension before the first fit, and less than 60% had antecedent symptoms.<sup>[4,5,6,7,8,9,10,11,12,13,14,15]</sup> Although transient neurological impairments are prevalent, permanent deficits are uncommon.<sup>16</sup> Kidney dysfunction Prolonged renal insufficiency might occur as a result of severe eclampsia. Eclampsia accounted for 67.2 percent of all obstetrical causes of acute renal failure that required dialysis.<sup>[17]</sup> Liver parenchymal damage, periportal necrosis, and, in rare circumstances, hepatic rupture induce hepatic dysfunction.<sup>[16]</sup> Diastolic dysfunctions, increased heart effort, and left ventricular indices, as well as signs of myocardial damage, have all been associated with preeclampsia. Cerebrovascular accidents are prevalent, and

the risks of cardiac and metabolic illness are raised in the long run.<sup>[18]</sup> Preterm birth, asphyxia, and intrauterine development limitations, which are often linked with the illness, all increase perinatal death in the fetus.<sup>[19]</sup> Both pre-eclampsia and eclampsia are risk factors for cerebral palsy.<sup>21</sup> It has been proven that proper prenatal care can, in some circumstances, avoid the development of eclampsia. As a result, the issue is to balance the timing of pre-eclamptic patients' deliveries before the start of eclampsia with fetal viability. Few types of research have been conducted on the maternal outcome in eclamptic pregnant women. The purpose of this study was to evaluate the maternal outcome in eclamptic individuals.

## MATERIAL AND METHODS

This cross-sectional study was conducted in the Department of Obstetrics and Gynecology, Gazi Medical College, Khulna, Bangladesh, during the period from September 2017 to February 2019. A total of 100 eclamptic pregnant women were included in this study. Consent of the patients and guardians was taken before collecting data. A structured questionnaire was given to each woman. After the collection of data from the interview, all data were checked and cleaned. After cleaning, the data were entered into the computer and statistical analysis of the results was obtained by using windows-based computer software devised with Statistical Packages for Social Sciences (SPSS) version 22. After compilation, data were presented in the form of tables, figures and charts, as necessary. Numerical variables were expressed as mean and standard deviation, whereas categorical variables were counted with percentages. Quantitative data among

groups were analyzed by ANOVA test followed by an exploration of significant differences between all possible paired group means by Bonferroni test. A p-value of less than 0.05 was considered statistically significant.

#### **Inclusion criteria:**

- All pregnant women diagnosed with eclampsia.
- All postpartum women diagnosed with eclampsia.

#### **Exclusion criteria:**

- Patients transferred to another hospital

## **RESULTS**

This present study was conducted on 100 pregnant women with eclampsia. Table-I shows the demographic characteristics of the study people. In this study, most of the study people (48%) were in the age group of 21-30 years. Followed by 40% were in the age group of less than or equal to 20 years and 12% were in the age group of more than 30 years. The mean age was 23.84 years (SD±5.03 years) ranging between 18-35 years. In this study, most of the study people (40%) were from the lower class. [Table 2] shows the obstetric history of the study people. In this study, the mean gestational age was 34.43 weeks (SD±2.42 weeks). In this study, most of the study people (62%) were in the primi gravida. Followed by 8% were multigravida. In this study, most of the study people (57%) took antenatal care irregularly, 40% took it regularly and 3% took it never. In this study, 58% had postpartum eclampsia and 42% had antepartum eclampsia. In this study, most of the study people (62%) did not take any treatment. In this study, most of the study

people (47%) had 1-4 convulsions before admission. [Table 3] shows the clinical features of the study people on admission. In this study, most of the study people (93%) had normal pulse rates. In this study, most of the study people (80%) had high blood pressure stage 2 ( $\geq 140/\geq 90$  mmHg) and 20% had a hypertensive crisis ( $>180/>120$  mmHg). In this study, for most of the people (71%), the respiratory rate was 12-20/minute. In this study, most of the study people (98%) had normal hearts. In this study, most of the study people (91%) had normal lungs. Oedema was presented in 98% of study people. Knee reflex was normal for most in the study people (96%). In this study, most of the study people 44% had 300-1000 mg/dL (+++) albumin in urine. In this study, 56% had LUCS delivery and 44% had a vaginal delivery. [Table 4] shows the investigation findings of the study people. In this study, mean serum creatinine was 1.16 mg/dL (SD±0.82 mg/dL) ranged between 0.6-4 mg/dL. In this study, the mean SGPT was 51.58 IU/L (SD±40.21 IU/L) ranging between 17-103 IU/L. In this study, the mean bleeding time was 3.67 per minute (SD±1.13 /minute) ranging between 2-6 /minutes. In this study, the mean clotting time was 6.40 /minutes (SD±1.45 /minutes) ranging between 4-10 /minutes. In this study, the mean prothrombin time was 14.23 /minutes (SD±1.67 /minutes) ranging between 12-18 /minutes. In this study, the mean platelet count was 258444.44 (SD±102298.71) ranging between 130000-520000. In this study, mean HB% was 11.58 gm/dL (SD±1.74 gm/dL) ranged between 10-13.40 gm/dL. [Table 5] shows the maternal outcome of the study people. In this study, 7% study people had pulmonary oedema. In this study, 7% renal failure. In this study, 2% had DIC. In this study, 7% had CVA. In this study,



9% had abruption placenta. In this study, 16% had PPH. In this study, 2% had an obstetric shock. In this study, 31% needed admission to ICU. In this study, there was no maternal death. [Table 6] shows the maternal outcome on discharge. In this study, the mean duration of

hospital stay was 7 days (SD±3 days) ranging from 3-15 days. In this study, for most of the study people (56%), BP on discharge was normal ( $\leq 120/\leq 80$  mmHg). In this study, for all study people, urine albumin was nil.

**Table 1:** Demographic characteristics of the study people (N=100)

Characteristics		n	%
Age (Years)	$\leq 20$	40	40.00
	21-30	48	48.00
	>30	12	12.00
	Mean± SD	23.84±5.03	
	Range	18-35	
Socioeconomic Status	Lower	40	40.00
	Lower Middle class	32	32.00
	Middle class	19	19.00
	Higher	9	9.00

**Table 2:** Obstetric history of the study people (N=100)

Obstetric History		N	%
Gestational age (week)	Mean± SD	34.43±2.42	
Gravida	Primi	62	62
	Multi	38	38
ANC	Regular	40	40
	Irregular	57	57
	None	3	3
Type eclampsia	Antepartum	42	42
	Intrapartum	0	0
	Postpartum	58	58
Treatment received	Yes	38	38
	No	62	62
No. of convulsion before admission	1-4	54	47
	5-9	38	38
	$\geq 10$	8	8

**Table 3:** Clinical features of the study people on admission (N=100)

Assessment Criteria		N	%
Pulse	Abnormal (<60)	0	0
	Normal (60-100)	93	93
	Abnormal (>100)	7	7



Blood pressure	Normal ( $\leq 120/\leq 80$ mmHg)	0	0
	Elevated (120-129/ $< 80$ mmHg)	0	0
	High blood pressure-stage 1 (130-139/80-89 mmHg)	0	0
	High blood pressure-stage 2 ( $\geq 140/\geq 90$ mmHg)	80	80
	Hypertensive crisis ( $> 180/> 120$ )	20	20
Respiratory rate (/minute)	$< 12$	0	0
	12-20	71	71
	$> 20$	29	29
Temperature	Normal	90	90
	Abnormal	10	10
Heart	Normal	98	98
	Basal Creptr	2	2
Lung	Normal	91	91
	Create	9	9
Oedema	Present	98	98
	Absent	2	2
Knee Reflex	Normal	96	96
	Brisk	2	2
	Colonus	0	0
	Absent	2	2
Urine albumin	30-100 mg/dL (+)	24	24
	100-300 mg/dL (++)	20	20
	300-1000 mg/dL (+++)	44	44
	$> 1000$ mg/dL (++++)	11	11
Mode of delivery	Vaginal	44	44
	LUCS	56	56

**Table 4:** Investigation findings of the study people (N=100)

Characteristics	Mean $\pm$ SD	Range
Serum creatinine (mg/dL)	1.16 $\pm$ 0.82	0.6-4
SGPT (IU/L)	51.58 $\pm$ 40.21	17-103
Bleeding time (/minutes)	3.67 $\pm$ 1.13	2-6
Clotting time (/minutes)	6.40 $\pm$ 1.45	4-10
Prothrombin time (/minutes)	14.23 $\pm$ 1.67	12-18
Platelet count	258444.44 $\pm$ 102298.71	130000-520000
HB% (gm/dl)	11.58 $\pm$ 1.74	10-13.40

**Table 5:** Maternal outcome of the study people (N=100)

Characteristics	N	%
Pulmonary oedema	7	7.00
Renal failure	7	7.00

DIC	2	2.00
CVA	7	7.00
Abruptio Placenta	9	9.00
PPH	16	16.00
Obstetric shock	2	2.00
Admission to ICU needed	31	31.00
Maternal death	0	0.00

**Table 6:** Maternal outcome on discharge (N=100)

Characteristics		N	%
Duration of hospital stay (days)	Mean± SD	7±3	
	Range	3-15	
BP on discharge (mmHg)	Normal ( $\leq 120/\leq 80$ mmHg)	56	56.00
	Elevated (120-129/<80 mmHg)	20	20.00
	High blood pressure-stage 1 (130-139/80-89 mmHg)	24	24.00
	High blood pressure-stage 2 ( $\geq 140/\geq 90$ mmHg)	0	0.00
	Hypertensive crisis ( $>180/>120$ )	0	0.00
Urine albumin	Nil	100	100.00

## DISCUSSION

This present study was conducted on 100 pregnant women with eclampsia. In this study, most of the study people (48%) were in the age group of 21-30 years. Followed by 40% were in the age group of less than or equal to 20 years and 12% were in the age group of more than 30 years. The mean age was 23.84 years (SD±5.03 years) ranging between 18-35 years. In the study of Yakasai IA. Et al., similar results were found where among 688 eclamptic patients, the majority of the patients were teenagers (50.14%); mean age, 20.6 years; and standard deviation (SD) of 5.<sup>[14]</sup> In this study, most of the study people (40%) were from the lower class. In this study, the mean gestational age was 34.43 weeks (SD±2.42 weeks). In the study of Lal AK et al., among 191 eclamptic patients, the mean gestational age was 36.7 weeks (SD± 3.4).<sup>15</sup> In this study, most of the study people (62%) were in the primi gravida. Followed by

38% were in multi-gravida. In the study of Yakasai IA. Et al., among 688 eclamptic patients, primigravidae accounted for 81.4%, mean parity of about 2, and SD of about 2.<sup>[14]</sup> In this study, most of the study people (57%) took antenatal care irregularly, 40% took regularly and 3% took it never. In the study of Ndaboine EM et al., of all 76 eclamptic patients, 73 had attended an antenatal clinic before admission which is not similar to our study.<sup>[16]</sup> In this study, 58% had postpartum eclampsia and 42% had antepartum eclampsia. In the study of Onuh SO et al., sixty-seven (65%) had antepartum eclampsia, 22(21.4%) intrapartum eclampsia and 14 (13.6%) had postpartum eclampsia.<sup>[17]</sup> In this study, most of the study people (62%) did not take any treatment. In this study, most of the study people (47%) had 1-4 convulsions before admission. In this study, most of the study people (93%) had normal pulse rates. In this study, most of the study



people (80%) had high blood pressure stage 2 ( $\geq 140/\geq 90$  mmHg) and 20% had a hypertensive crisis ( $>180/>120$  mmHg). In this study, for most of the people (71%), the respiratory rate was 12-20/minute. In this study, 90(90%) patients had a normal temperature and 10(10%) patients had an abnormal temperature. In this study, most of the study people (89%) had normal hearts. In this study, most of the study people (91%) had normal lungs. Oedema was presented in 98% of study people. Knee reflex was normal for most in the study people (96%). In this study, most of the study people 44% had 300-1000 mg/dL (+++) albumin in urine. In this study, 56% had LUCS delivery and 44% had a vaginal delivery. In the study of Abdullah A. et al., among 45 eclamptic patients, C-section was the mode of delivery in 26(58%) while vaginal delivery (spontaneous+instrumental) was seen in 19 (42%) cases.<sup>18</sup> In this study, mean serum creatinine was 1.16 mg/dL (SD $\pm$ 0.82 mg/dL) ranged between 0.6-4 mg/dL. In this study, the mean SGPT was 51.58 IU/L (SD $\pm$ 40.21 IU/L) ranging between 17-103 IU/L. In this study, the mean bleeding time was 3.67 per minute (SD $\pm$ 1.13 /minute) ranging between 2-6 /minutes. In this study, the mean clotting time was 6.40 /minutes (SD $\pm$ 1.45 /minutes) ranging between 4-10 /minutes. In this study, the mean prothrombin time was 14.23 /minutes (SD $\pm$ 1.67 /minutes) ranging between 12-18 /minutes. In this study, the mean platelet count was 258444.44 (SD $\pm$ 102298.71) ranging between 130000-520000. In this study, mean HB% was 11.58 gm/dL (SD $\pm$ 1.74 gm/dL) ranged between 10-13.40 gm/dL. In this study, 7% study people had pulmonary oedema. In this study, 7% renal failure. In this study, 2% had DIC. In this study,

7% had CVA. In this study, 9% had an abruptio placenta. In this study, 16% had PPH. In this study, 2% had an obstetric shock. In this study, 31% needed admission to ICU. In this study, there was no maternal death. In the study by Pannu D., among 83 cases, seven maternal deaths were given a case fatality rate of 8.4%.<sup>19</sup> The majority of women suffered from at least one major complication. 14.5% of women suffered from pulmonary edema, 13.2% had HELLP syndrome, 12% had ARF, 12% required ventilation, 9.6% had PPH, 6% had Septicaemia, 4.8% had APH, 3.6% had transient cortical blindness 2.4% had a brain haemorrhage, and 2.4% had DIC. In this study, the mean duration of hospital stay was 7 days (SD $\pm$ 3 days) ranging between 3-15 days. In this study, for most of the study people (56%), BP on discharge was normal ( $\leq 120/\leq 80$  mmHg). In this study, for all study people, urine albumin was nil.

### Limitations of the study:

In our study, there was a small sample size and an absence of control for comparison. The study population was selected from one centre in Khulna city, so may not represent a wider population. The study was conducted over a short period.

### CONCLUSIONS

In low and middle-income countries eclampsia is one of the leading causes of maternal and perinatal mortality. It is because eclampsia involves almost every organ of the body. Maternal and fetal outcomes can be improved by the better provision of health care facilities, antenatal care, and improvement of socioeconomic conditions.



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