

## Original Article

### Analysis of Maternal Death Related to Eclampsia in a Tertiary Care Centre

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#### Abstract:

*Eclampsia is an acute and life threatening complication of pregnancy and leading contributor to maternal mortality. This study was aimed to analyze maternal death related to eclampsia in a tertiary care centre. Patients of eclampsia with complications (eclampsia associated with cardiac failure, pulmonary edema, cerebral hemorrhage, renal failure, HELLP syndrome, aspiration pneumonia, disseminated intravascular coagulopathy etc.) were studied and followed up. After detailed history, thorough clinical examination and necessary investigations only the death cases were included for the study. The majority of death occurred in antepartum period (66.33%) and the fetal outcomes were mostly still birth (53.33%), followed by live birth in 43.33% and undelivered in 3.33% patients. Most common etiological factor in eclamptic death was HELLP syndrome (66%) and other causes in decreasing frequency were acute renal failure (26.66%), cerebrovascular accident (33.33%), disseminated intravascular coagulation (23.33%), multiorgan failure (20%), pulmonary edema (16.66%), shock (16.66%) and septicaemia (13.33%).*

**Key words:** Eclampsia, Maternal death.

#### Introduction:

Eclampsia, is an acute and life threatening complication of pregnancy and leading contributor to maternal mortality<sup>1</sup>. Eclampsia is defined as the new onset grandmal seizures in a woman with preeclampsia that cannot be attributed to other causes<sup>2</sup>. Most cases of eclampsia present in the third trimester of pregnancy. Eclampsia occurs during antepartum period in 35-45%,

intrapartum period in 15-20% and postpartum period in 35-45% of the cases<sup>3</sup>.

Eclampsia and pre eclampsia accounts for approximately 63,000 maternal deaths worldwide annually<sup>4</sup>. In developed countries, the maternal death rate has been reported as 0-1.8%<sup>5</sup>. The maternal

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mortality rate is as high as 14% in developing countries<sup>6</sup>. The greater risk of maternal death is found in pregnancies when eclampsia develops before 28 weeks of gestation<sup>7</sup>.

In different studies, it was found that cerebrovascular accidents were the leading cause of death in eclampsia followed by heart failure<sup>7</sup>. The other causes of maternal death were pulmonary edema, aspiration pneumonia, cerebral haemorrhage, pulmonary embolism, acute renal failure, postpartum shock, puerperal sepsis etc<sup>8</sup>. A majority of maternal deaths associated with eclampsia had concurrent HELLP syndrome. Eclampsia is a major obstetric emergency that requires mobilization of efforts and adequate management to avoid catastrophic events<sup>9</sup>.

Dhaka Medical College Hospital (DMCH) is a tertiary referral centre where there is a separate eclampsia unit with improved facilities to deal with a large number of critically ill patients. A group of doctors, nurses and staffs are present to serve the eclampsia patients round the clock. More over many patients are referred in this hospital from every part of the country when complicated. So DMCH is selected to be the study place to find out the magnitude of the problems related to mortality in eclampsia. This study was aimed to analyze maternal death related to eclampsia in this tertiary care centre so that future workers and researchers can try to reduce the mortality due to eclampsia.

### Materials and Methods:

This hospital based cross sectional analytical study was done in the department of Gynaecology and Obstetrics, DMCH, Dhaka, during the period from July 2010 to June 2011. All the patients of eclampsia with complications (eclampsia associated with cardiac failure, pulmonary edema, cerebral hemorrhage, renal failure, HELLP syndrome, aspiration pneumonia, disseminated intravascular coagulopathy etc.) cases were enrolled for the study with informed written consent and were followed up. Detailed history was taken, a thorough clinical examination was performed, necessary investigations were done and finally only the death cases (60 cases) were included for the study. Confidentiality was maintained strictly as per medical ethics. Data were collected in an approved data collection form. All the data entry and analysis was done manually.

### Results:

A total of 60 cases were studied who had died from eclampsia with different complications. Majority of the study subjects were 20-25 years of age (Table I).

**Table I:** Distribution of patients according to Age (n=60)

Age group	Number of patients (%)
<20	8 (13.33%)
20-25	30 (50%)
26-30	12 (20%)
>30	10 (16.66%)

According to comparison of patients by times of eclamptic deaths, the majority of deaths 38 (63.33%) occurred in antepartum period (Table II).

**Table II:** Distribution of patients according to time of eclamptic death (n=60)

Types of eclampsia	No. of patients (%)
Antepartum	38 (63.33%)
Postpartum	22 (36.66%)

Estimation of the fetal outcomes in eclamptic death patients revealed that stillbirth was in 32 (53.33%) patients followed by live birth in 26 (43.33%) patients (Table III)

**Table III:** Distribution of patients according to fetal outcomes (n=60).

Outcome	No. of patients (%)
Live birth	26 (43.33%)
Stillbirth	32 (53.33%)
Undelivered	2 (3.33%)

Analysis of etiological factors in eclamptic deaths demonstrated that majority of deaths were due to HELLP syndrome (66%). Other causes in decreasing frequency were acute renal failure, cerebrovascular accident, disseminated intravascular coagulation, multiorgan failure, pulmonary edema, shock and septicaemia (Table IV). Some patients had more than one aetiological factor.

**Table IV:** Distribution of patients according to aetiological factors in eclamptic death (n=60).

Etiolog	No. of patients (%)
HELLP Syndrome	36 (66%)
ARF	20 (33.33%)
CVA	16 (26.66%)
DIC	14 (23.33%)
Multi organ failure	12 (20%)
Pulmonary edema	10 (16.66%)
Shock	10 (16.66%)
Septicaemia	8 (13.33%)

**Discussion:**

The most common cause of maternal death in Bangladesh is obstetrical hemorrhage<sup>10</sup>. Eclampsia is the second most common cause of maternal death in our country. There are several contributing factors in the development of eclampsia, such as young primigravida, familial tendency, genetic factors, low socioeconomic status, poor dietary habit, obesity, chronic hypertension, poor antenatal care, hyperplacental status (multiple pregnancy, hydatidiform mole, polyhydramnios, diabetes mellitus) and previous history of preeclampsia/eclampsia<sup>11,12</sup>.

In different studies in our country, cerebrovascular accident is found as the commonest cause of death in eclampsia and DIC as the second most common cause. In the majority of cases multiple causes contribute to the death of the eclamptic patients<sup>13,14</sup>. In our study, HELLP syndrome is the most common cause of death in eclampsia and it accounts for 60% of eclamptic death. Acute renal failure (ARF) is the second most common cause and accounts for 33.33%. Among the other causes cerebrovascular accidents (CVA) contribute 26.66%, DIC 23.33%, multiple organ failure 20%, shock 16.66%, septicaemia 13.33% etc. These findings are almost similar to the findings of Nasima who critically analysed maternal death cases in eclampsia at DMCH during 2005. There are many studies in this country having almost consistent findings.

**Conclusion:**

Critical analysis of death cases of eclampsia has revealed that most of the patient who died presented late in complicated form from where recovery was not possible even after providing high dependency care in a tertiary care level. The most common final cause of death was HELLP syndrome, next being ARF. The deaths and severe morbidities due to eclampsia could be prevented by experience of the physicians in managing these patients, use of standardized protocol for eclampsia, vigorous antihypertensive therapy, timely referral and availability of appropriate intensive care facilities.

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