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Fetomaternal Outcome of Eclampsia in Shaheed Suhrawardy Medical College and Hospital, Dhaka, Bangladesh

Shabnam Rahman [a†], Kamrun Nessa [b*#], Khaled Kaisar [c≡] and Runa Laila [dφ]

[a] Classified Specialist in Obst & Gynae, Armed Forces Medical College Hospital, Bangladesh.
[b] BRB Hospital Ltd, Dhaka, Bangladesh.
[c] Department of Anaesthesia, National Institute of Traumatology and Orthopaedic Rehabilitation, NITOR, Dhaka, Bangladesh.
[d] City Medical College Hospital, Dhaka, Bangladesh.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Original Research Article

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ABSTRACT

Background: Eclampsia is an important cause of maternal and perinatal morbidity and mortality. The incidence varies widely from country to country. This study is carried to detect the prevalence and fetomaternal outcome of Eclamptic patients admitted in Obstetrics and gynaecology department of ShSMCH.
Methods: This cross-sectional prospective study done from Dec'2014 to May'2015. 100 cases were taken for study. The data was analyzed by computer software SPSS 22.
Results: Among 3482 Obstetric admissions, the Eclampsia patient was 382. The incidence of Eclampsia is 7.03%. 67% patient were primi, 82% between 15 to 25 years of age, 75% were illiterate or had only primary education. 52% came from low socio-economic group and 56% Patients had convulsion after 37 weeks of pregnancy. At the time of admission 63% were unconscious. 60 patients were delivered by LSCS. 6% patients expired and 13% patients had

[†] Classified Specialist in Obst & Gynae;
[#] Senior Consultant (Obs & Gynae);
[≡] Assistant Professor;
[φ] Associate Professor Obs & Gynae;
**Corresponding author: E-mail: knessa3@gmail.com;*

developed pulmonary oedema, HELLP (haemolysis, elevated liver enzymes, low platelet count) syndrome, DIC, renal failure and obstetric shock. Among the perinatal death, 28% were stillbirth and 9% were early neonatal death. Maternal age <20 years, primigravida without antenatal care and number of convulsions >10 were associated with higher stillbirth rate.

Conclusion: Eclampsia is one of the major causes of maternal death in Bangladesh. Poor social status, lack of education and lack of maternal care are the main factors. It can be prevented by regular antenatal care, early diagnosis and management of pre-Eclampsia and hypertensive disease. Health education and creating general public awareness can decrease the incidence of Eclampsia and its complications.

Keywords: Eclampsia; still birth; convulsion; HELLP syndrome; DIC.

1. INTRODUCTION

Eclampsia is one of the serious complications of preeclampsia where high blood pressure results in seizures during pregnancy. Seizures comprises of episodes of staring, decreased alertness, and convulsions.

Eclampsia remains an important cause of maternal and perinatal mortality and morbidity. The incidence varies widely in different countries and even in the different zones of the same country. The incidence of eclampsia in developed countries approximately 1 in 2000 deliveries [1]. In developing countries, it is between 1 in 100 to 1 in 1700 [2,3,4]. More than 5 lac women die of pregnancy related causes in each year and 99% deaths occur in the developing countries [5,6]. Among them 50,000 maternal deaths occur due to eclampsia every year [7]. In Bangladesh, about 4500 women die due to eclampsia which contributes 16% of the maternal mortality in one year [8].

At present, the perinatal mortality rate in Bangladesh is 65 per 1,000 live births [9]. Eclampsia is associated with increased rates of perinatal mortality and morbidity. Two different studies in Bangladesh showed perinatal mortality rate due to Eclampsia were 28% and 32% [10,11]. The cause behind the high incidence of maternal and perinatal mortality and morbidity are lack of antenatal care, low socio-economic status, illiteracy, ignorant of disease, sub-standard care, shyness and religious belief etc. Besides poor communication facilities and social superstation are also important factors.

In Bangladesh, around 80% of the people live in rural area where services do not exist to manage the patients of eclampsia. Many of those patients were referred from a distance. Maternal complications like pulmonary edema, intracerebral hemorrhage, disseminated intravascular coagulopathy (DIC), acute rental failures etc are serious reasons causing maternal mortality and morbidity [12-17]. The most common cause of foetal deaths are pre-maturity and birth asphyxia.18 Our research showed the maternal and foetal outcome of Eclampsia in ShSMCH including the influencing factors. This research might give some guideline to yield the plans in improving maternal and perinatal outcome and will create some interest for further research.

2. MATERIALS AND METHODS

This Cross-sectional prospective study done in Eclampsia ward of Obstetrics and Gynaecology department of ShSMCH which is a 2000 beded Tertiarry Medical college Hospital situated in the City of Bangladesh. During study period which was from December 2014 to May 2015 total 5,428 patients were admitted in Obstetrics & Gynaecology Department of ShSMCH. Among them 382 eclamptic patients were admitted.

Out of them 100 cases were taken for study by considering the prevalence of Eclampsia as 7% of ShSMCH. Sample size was calculated from the formula, n=Z2pq/d2. Simple Random Sampling is used to take the cases. The study variables were age, socio demographic factors including educational level of Patient, occupation of husband and socio economic status, parity, gestational age, type of eclampsia, level of consciousness, type of anti convulsant used, mode of delivery, complication of mothers, maternal outcome, fetal outcome, weight of baby, causes of neonatal death, relation of maternal factors with perinatal death.

Data were collected through semi-structured interviewer administered questionnaire designed to answer the research question arranged according to variables. Questionnaire was translated into Bangla. Questionnaire was pre-

tested. Finalized version was developed by incorporating inputs from the pre-testing. Data were collected using final version of the questionnaire. Other data were taken from the History sheets. All the patients and their baby were observed with the help of a standard data record form containing relevant information about the study topic.

Patients had high blood pressure, proteinuria and convulsion were included in this study. All cases of convulsion during pregnancy other than clinically confirmed Eclampsia were excluded.

The study was ethically approved by ethical review committee of ShSMCH. Data were analyzed by using SPSS 22. All the responses obtained from the Participants was coded numerically and entered into the SPSS, version 22 for analysis. Descriptive statistical analysis was used to calculate the frequencies and Percentages. The descriptive analysis of data was showed as figures and tables. P value <0.05 was taken as significant.

3. RESULTS

This cross-sectional prospective study was done on eclamptic patient in Shaheed Suhrawardy Medical college Hospital from 1st December 2014 to 30th may 2015.

Among 3482 Obstetric admissions, the patient of eclampsia was 382. The incidence of Eclampsia was 7.03%. Among them 67% patient were primi and 33% patient were multigravida. 82% patients were in between 15 to 25 years of age, about 56% patients came at >37 weeks of pregnancy, 32% patients came between 33-37 weeks of pregnancy and 10% patients came between 28-32weeks of pregnancy.

75% were illiterate or had only primary education. 52% came from low socio-economic group and 46% patients had <4 times convulsion at home, 44% had 4-10 convulsion and 10% had >10 convulsions before admission in Hospital. At the time of admission 63% were unconscious.42% patients had diastolic blood pressure 90-109 mm of Hg and58% patients diastolic blood pressure>110 mm of Hg. 27% patients had 4+ urinary albumin, 26% patients had 3+ albumin, 24% had 2+ albumin, 11% had 1+ and 12% had no urinary albumin.96% patients were treated by MgSo4 and 4% patients were treated by Diazepum. 60 patients were delivered by LSCS. 6% patients expired and 13% patients had developed pulmonary oedema, HELLP syndrome, DIC, renal failure and obstetric shock. Among the perinatal death, 28% were stillbirth and 9% were early neonatal death.33% newborn need NICU. Maternal age <20 years, primigravida without antenatal care and number of convulsions >10 was associated with higher stillbirth rate.26% baby born with weight >2.5 kg, 24% had weight 1.6-2.4 kg, 13% baby had weight 1-1.5 kg and 1% baby had weight 1 kg.

Table 1. Distribution of patient according to type of eclampsia (n=100)

Type	Number	Percentage
Antepartum Eclampsia	73	73
Intrapartum Eclampsia	15	15
Postpartum Eclampsia	12	12

Table 1 showed that 73 patients (73%) came with antepartum Eclampsia, 15 patients (15%) had intrapartum Eclampsia and 12 patients (12%) had postpartum Eclampsia on admission.

Table 2. Age distribution of study subjects. (n=100)

Age group (Years)	Number of patients	Percentage
15-20	54	54
21-25	28	28
26-30	12	12
>30	6	06

Table 2 showed that 54% of the patients were between the age group 15-20 years. 28% patients were between 21-25 years, Maximum patients (82%) were below the age of 25 years only 6% were above 30 years.

Fig. 1 is showing most of the patient (52%) were from low socio-economic status, and their husband were day labor (42%) Maximum number of patient 41% was illiterate and 34% had primary education. None of the patients were graduate.

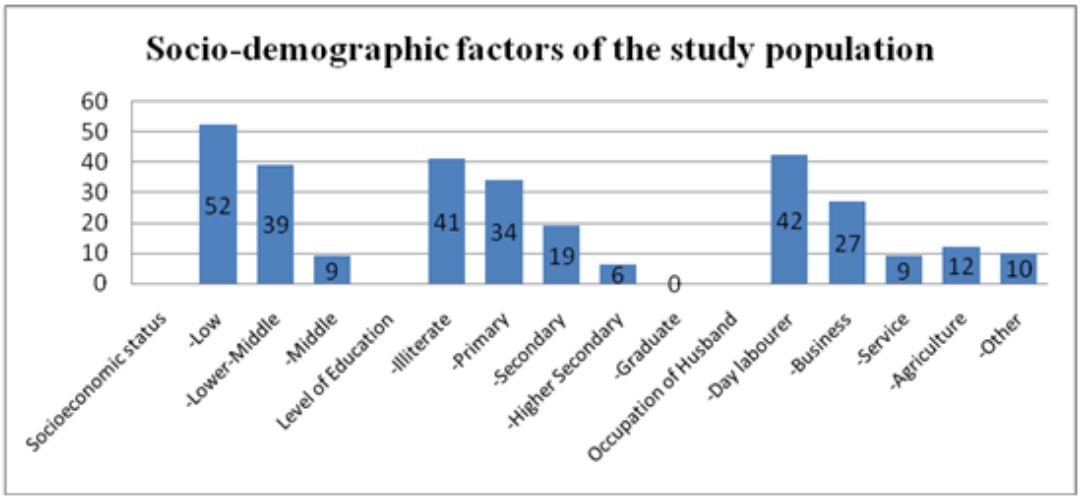

Fig. 1. Distribution of Socio-demographic factors of the study population (n=100)

Table 3. Distribution of study subjects according to parity. (n=100)

Parity	Number of patients	Percentage
0	67	67
1	16	16
2	7	7
3	1	1
>3	9	9

Table 3 showed that 67% of the patients were primigravida and only 9% of the patients had more than three children.

Table 4. Distribution of study subjects according to gestational age (n=100)

Gestational Age (Weeks)	Number of patients	percentage
<28	02	2
28-32	10	10
33-37	32	32
>37	56	56

Table 4 showed 56% Eclampsia patient had gestational age more than 37 weeks.32% patients came between 33-37 weeks of pregnancy and 10% patients came between 28-32weeks of pregnancy. Only 2% was below 28 Weeks of pregnancy.

Fig. 2 showed that 63% Patient were unconscious and 37% were conscious at the time of admission.

Table 5. Distribution of study subjects according to type of anti-convulsant used (n=100)

Anti-convulsant	Number of patients	P value (Z-test)
MgSO4	96(96%)	<0.001***
Diazepam	04(4%)	

Table 5 showed that MgSO4 was used as anticonvulsant in 96% patients. In the remaining 4% due to some contraindications, diazepam was used. The test is highly significant as P value was <.001.

Fig. 3 showed that vaginal delivery needed in 40% cases and 60% cases required LUCS.

Table 6. Distribution of study subjects according to complications. (n=100)

Complications	Number of Patient	Percentage
None	81	81
pulmonary edema	05	5
HELLP Syndrome	03	3
Coagulopathy (DIC)	0	0
Renal failure	03	3
Obstetric Shock	02	2
Death	06	6

Table 6 showed that 13% developed complications and among them pulmonary oedema was the highest (5%), HELLP syndrome (3%), renal failure (3%), Obstetric Shock (2%).

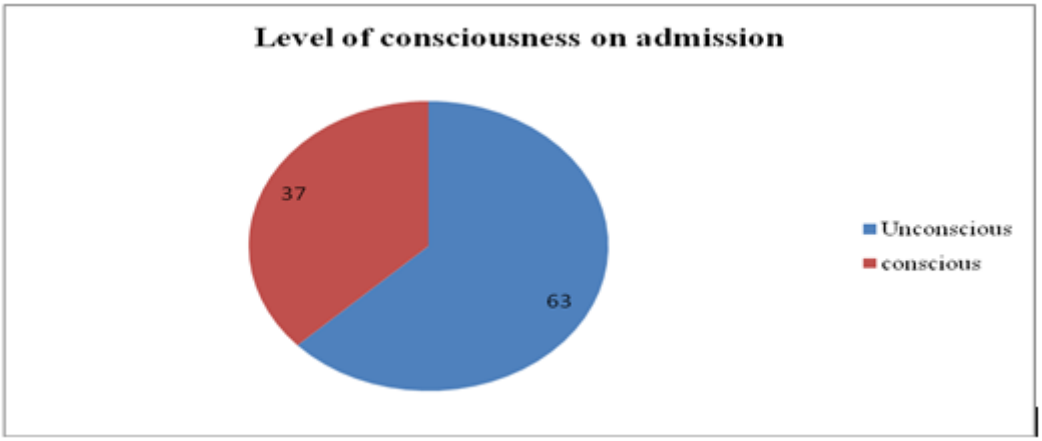

Fig. 2. Distribution of study population according to level of consciousness on admission

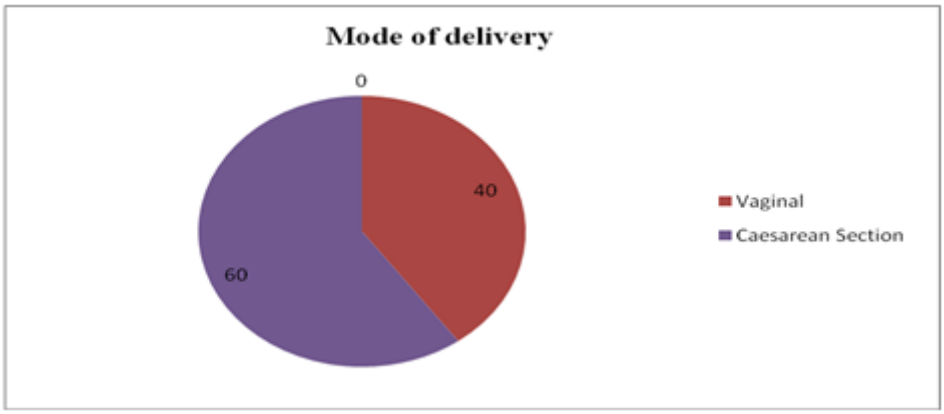

Fig. 3. Distribution of study population according to mode of delivery (n=100)

Table 7. Distribution of study subjects according to maternal outcome (n=100)

Parameter	Patient No	Percentage
Final outcome		
Recovered	94	94
Expired	06	06

Table 7 showed that 06 (6%) patients were expired and 94 (94%) were discharged healthy.

Table 8. Distributions of study subjects according to fetal outcome

Parameters	Number of patients	Percentage
Pregnancy outcome (n=100)		
Live birth	72	72
Stillborn (SB)	28	28
Neonatal outcome (n=72)		
Referral to NICU	33	45.83%
-Early neonatal death	09	27.27%
-Recovered	24	72.72%
Final outcome (n=100)		
-Live birth	63	63%
-perinatal death (SB+END)	37	37%

Table 8 showed that among 100 patients 28(28%) were stillbirth and 72% live birth. Among 72 liveborn baby, 33 newborn needed NICU. From NICU 24(72.72%) were discharge healthy and 09 (27.27%) early neonatal death.

Table 9 showed that 40.60% neonates had birth weight 2.5kg or more and 60% neonates had birth weight less than 2.5kg , among them about 14% had extreme prematurity (<1.5 kg).

Fig. 4 showed that 55.60% neonates died due to birth asphyxia, 22.20% due to septicemia and 22.20% due to prematurity.

4. DISCUSSION

In this study we found the mean age of the patients was 21.35 years, and the minimum and maximum ages were 15 and 35 years respectively. Onuh and Aisien in their study reported that the mean age of the study subjects was 27.1±5.6 years [18]. Bugalho et al, in their study showed that maternal age below 18 years is one of the risk factors of eclampsia [19]. In our study, most of the eclamptic patients (54%) were below 20 years of age. In this study 75% patients were either illiterate or got primary education only. These are comparable with other's studies19-21. In the present study, over 42% of patients husband were day labour, 27% were garments workers and the remaining 12% were agricultural worker. 52% of the patients were poor, and the remaining 48% belonged to the lower middle class. Dare in a similar study reported that majority of the patients 86.7% were from the low socio-economic class or of low educational status keeping consistency with findings of the present study [20].

In this study 67% of the patients were primigravida. Various studies also showed primigravida 61.03%, 60% and 56% [21,22,23]. in this study 73% patient developed convulsion before delivery. In Sibai's study 71%, Taner's study 89.41% and Kamrun's study 42.85% patient had convulsion before delivery [24,25,23]. In present study 63% patients were unconscious at the time of admission, 53% patients had 3+ or more proteinuria, patients with poor outcome having convulsion delivery interval more than 12 hours (59%) and diastolic blood pressure equal or more than 110 mm of Hg (58%). In this study 60% had LUCS and 40% vaginal delivery. That was very close to other studies [13,16,23].

About 3% of patients had acute renal failure, 3% developed HELLP syndrome, and 5% developed pulmonary oedema. Majority 94% of the mothers recovered and 6% died. In different studies maternal mortality varies, 9.46%, 4%, 9.3%, 8.57% [22,26,23,25].

Table 9. Distribution of study subjects according to weight of baby (n=64)

Weight (kg)	Number of patients	Percentage
<1	01	1.50
1.0-1.5	13	20.31
1.6-2.4	24	37.50
≥2.5	26	40.60

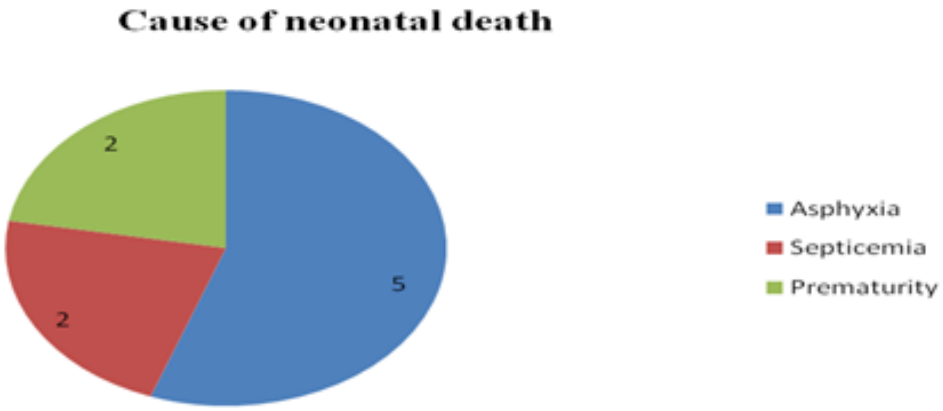

Fig. 4. Distribution of study population according to cause of neonatal death (n=9)

In this study, the stillbirth was 28% and death within one week was 9%, so perinatal death was 37%; rest 63% was discharged healthy from the hospital. In two different studies in Bangladesh, perinatal death was found to be 32.10% and 28% [12,21]. In a review of four different studies presented at the first international conference of Obstetrics and Gynaecology held in Bangladesh, perinatal mortality in Eclampsia patient was shown from 31%-41% [27]. In this study we found primigravida age less than 20 years had poor or no antenatal cheek up had more perinatal death. Ikechebelu J.I, 2002 May, in their study found that perinatal mortality rate is significantly higher among those who had inadequate antenatal care than those who had adequate antenatal cheek up [26].

In Shahabuddin's study (Rangpur Medical College Hospital) stillbitrth was 24.50% and neonatal death was 8.40% [11]. They found gestational age at delivery and number of fits before delivery significantly influenced perinatal mortality rate. In this study 40.60% babies birth weight were found equal or more than 2.5kg and 59.40% were less than 2.5 kg. Irin's study at DMCH showed birth weight of 31% of babies were equal or more than 2.5kg and 70% were low birth weight (less than 2.5 kg) [21]. Shamsuddin's study in Bangladesh showed that 49.05% babies who died had weight equal or more than 2.5kg [10]. All studies showed perinatal deaths were higher in low-birth-weight babies [10,21]. In this study 33 newborn were referred to neonatal ICU. Among the neonatal complications 24.24% babies had respiratory distress, 21.21% had jaundice, and 3.03% had septicaemia. Regarding the cause of neonatal death, 55.60% was due to birth asphyxia, 22.20% was septicemia, and 22.20% was due to prematurity. Irin's Study showed that the common causes of foetal deaths are birth asphyxia and prematurity [21]. In shahabuddin's study, carried in Bangladesh, asphyxia was a major cause of neonatal loss with or without prematurity [11].

5. CONCLUSION

Eclampsia is still a major cause of maternal mortality in Bangladesh. It is recorded in most part of the world having incidence of Eclampsia between 0.15% and 2.2% of the pregnant women. High mortality is due to poor socio-economic condition, lack of education and inadequate care. Though pre-eclampsia is not completely preventable, Eclampsia is mostly preventable by early diagnosis and management of pre-eclampsia and hypertensive disease. Health education and creating general public awareness can decrease the incidence of Eclampsia and its complications. Stillbirth is one of the tragic perinatal outcomes. Use of MgSO4, early referral of patients, good transportation, better obstetric management and improved neonatal management facilities will improve the maternal and foetal outcome of Eclampsia.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

The study was ethically approved by ethical review committee of ShSMCH.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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