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**Original Research Article**

# A Clinical Study on Feto-maternal Outcome of Severe Pre-eclamptic Patient

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## Abstract

***Background:*** Pre-eclampsia is a multisystem disorder of pregnancy characterized by Hypertension and proteinuria. It is a common pregnancy related disorder that originates in the placenta and causes variable maternal and fetal problems. ***Objective:*** To find out the feto-maternal outcome of severe pre-eclamptic patient. ***Methodology:*** It was a cross-sectional study among the pregnant woman who were admitted with severe pre-eclampsia in labour and in antenatal ward in the hospital during the study period in Department of Gynaecology, Dhaka Medical College and Hospital, Dhaka from July 2015 to January 2016. A total of 50 pregnant women with severe pre-eclampsia were included in the study. After detailed history, clinical examination, blood pressure measurement and bedside urinary protein levels, patients were diagnosed as severe pre-eclampsia. The data were analyzed by SPSS. ***Results:*** Commonest age group of the patients suffering from severe pre-eclampsia was found to be ranging from 15-35 years of age and the mean age was 26 years. Majority of the study, patients were primiparous (56%) coming from rural areas (56%). Literacy has a great impact on the incidence of pre-eclampsia which was reflected from the study of educational status. The study revealed that 40% of patients were under secondary school level and only 28% of them were graduates or above HSC. Data was collected regarding their occupation, which showed 80% of them were house-wives and 12% were day laborer. Most of them gave a positive family history of hypertension and 32% of them gave no relevant history. Incidence of antenatal care was assessed which showed majority (60%) were on irregular antenatal care which again contributes to the progress of severity of the disease. 92% of severe pre-eclamptic patients were found to be present in last trimester. Blood pressure levels were assessed and 80% of patients had systolic pressure more than 160 mmHg and 76% had diastolic pressure more than 110 mmHg. Among the various symptoms of severe pre-eclampsia most common symptom were Oedema (76%), headache (40%), epigastric pain (12%) and Insomnia (32%). Study of blood biochemistry levels showed high levels of uric acid (72%) and raised serum creatinine levels (26%). Caesarean section rate was found to be extremely high. 72% of the patients underwent caesarean section and rest was delivered vaginally. Overall neonatal outcome was- healthy babies 40%, premature 20%, IUGR 20% and IUD was 8%. Most of them had average birth weight (56%). And overall maternal outcome was Eclampsia 4%, HELLP Syndrome 4%, Abruptio placenta 4%, Renal Insufficiency2% and maternal death 2%. ***Conclusion:*** The incidence of morbidity and mortality related to sever pre-eclampsia are remarkably higher in developing countries like Bangladesh. Therefore, measures should be taken to control this deadly condition through Behavioral Change Communication (BCC) regarding antenatal care, danger signs, delivery plan etc. involving public and private sector.

**Keyword:** Pre-eclampsia, hypertension, primiparous, Oedema, IUGR, HELLP Syndrome.



## INTRODUCTION

Hypertensive disorders are among the commonest medical disorders during pregnancy ranging from chronic and gestational hypertension to eclampsia. They are associated with increased risk of both adverse maternal and fetal outcome [1]. Pre-eclampsia is a multisystem disorder of unknown etiology characterized

by development of hypertension to the extent of 140/90 mmHg or more with proteinurea after the 20th week in a previously normotensive and non-proteinuric patient [2]. Pre-eclampsia is the leading cause of both maternal and fetal morbidity in developing countries like Bangladesh. Recent estimates indicate that over 63,000 women die world-wide death each year because of pre-eclampsia and its complications with 98% of these occurring in developing countries [3]. Pre-eclampsia may be classified as mild or severe depending upon the blood pressure elevation and the presence of symptoms and signs of end-organ damage. Pre-eclampsia is mild if the systolic blood pressure is <160 mmHg and the diastolic pressure is less than 110 mmHg and the patient does not have any of the sign symptom associated with severe pre-eclampsia. Severe pre-eclampsia is when systolic blood pressure is ≥ 160mmHg and diastolic blood pressure is ≥ 110 mmHg on two occasions at least 6 hours apart while the patient is in bed-rest. Criteria for severe pre-eclampsia are: proteinuria of 5 gm or higher in a 24-hour urine specimen, oliguria ≤ 500 ml in 24 hours, cerebral or visual disturbances, pulmonary oedema or cyanosis, epigastric or right upper quadrant pain, impaired liver function, thrombocytopenia and fetal growth restriction [1]. The development of strategies to prevent and treat the disorder has been challenging due to an incomplete understanding of the underlying pathogenesis. The pathogenesis of pre-eclampsia originates in the placenta [2]. Defective invasion of the spiral arteries by cytotrophoblast cells is observed during pre-eclampsia. Recent studies have shown that cytotrophoblast invasion of the uterus is actually a unique differentiation pathway in which the fetal cells adopt certain attributes of the maternal endothelium they normally replace. In pre-eclampsia, this differentiation process goes away [4]. Recently it has been found that women with pre-eclampsia have increased levels of soluble fms-like tyrosine kinase (sFlt)-1, is a variant of vascular endothelial growth factor receptor (VEGFR)-1. Another factor is endoglin (sEng), a modified form of the transforming growth factor (TGF)-B Co-receptor, is shown to have been increased in pre-eclampsia [2]. Pre-eclampsia is more common among nulliparous women with multiple pregnancies, aged below 20 and above 35 yrs, low socio-economic classes as well as women with family history of pre-eclampsia [5]. Depending on ethnicity, the incidence of pre-eclampsia ranges from 3% to 7% in healthy nulliparous and 1% to 3 % in multiparous [6]. Pre-eclampsia occurs in around 15% of women who had pre-eclampsia in their first pregnancy [7]. Other risks factors have been identified, including a medical history of chronic hypertension, kidney disease, diabetes, obesity, age ≥ 35 yrs, twin or molar pregnancy, previous pre-eclampsia or fetal congenital abnormality. In India, the incidence of pre-eclampsia is 7.6% during pregnancy of which 3.3% is categorized as severe pre-eclampsia [8]. Pre-eclampsia is principle cause of fetal morbidity and mortality, also the leading reasons of maternal ICU admissions and responsible for 15 - 20 % of maternal deaths worldwide [9] the highest maternal mortality rate due to pre-eclampsia reported in developing country is 0.4% [10]. According to Women and children first Organization 2016, the maternal mortality rate (MMR) is 170 per 100,000 live births and neonatal mortality rate (NMR) is 24 per 1000 live births [11]. Pre-eclampsia being one of the cause for this maternal mortality rate. The course of early severe pre-eclampsia is associated with a progressive deterioration of the maternal condition [12]. Pre-eclampsia tends to progress to eclampsia, which is a grave situation. HELLP, Hemolytic Anemia, Acute Renal Failure and DIC, are the other complications. It appears to be associated with an increased long term risk of cardiovascular disease, including HTN, IHD, Stroke and Venous thromboembolism. Fetal risks are IUD, IUGR, Prematurity, asphyxia [3]. One complication, affecting approximately 5% of women with pre- eclampsia that can progress rapidly to life threatening condition, is the HELLP Syndrome which is characterized by all or some of the following signs that is hemolysis, abnormal elevation of liver enzyme levels and low platelet counts. The HELLP syndrome may at first appear deceptively benign, with initial enzyme elevations and thrombo-cytopenia of borderline severity. Such presentations require inpatient management, often termination of the pregnancy if the disease progresses and although postpartum recovery is usually rapid, the disease may persist for almost a week [13]. One of the rare effects of severe pre-eclampsia on the eye is sudden loss of vision due to involvement of the occipital cortex or the retina [14]. Subcapsular hepatic hematoma caused mainly by the development of DIC is one of the rare complications [14]. Pre-eclampsia is a leading cause of iatrogenic premature delivery [15]. Because pre-eclampsia is a progressive disorder, delivery minimizes severe maternal morbidity although it increases neonatal morbidity and mortality because of prematurity [15]. Still birth represents an important cause of fetal loss in severe pre-eclampsia. It represents significant risk factor for intrauterine fetal demise, with estimated still birth rate of 21 per 1000 [16] Zhang *et al.*, found there is an increased risk of still birth with proteinuria and a reduced likelihood of still birth in the absence of proteinurea [17]. Fetal growth is a useful marker for fetal well-being [18]. Pre-eclampsia, a condition characterized by decreased utero-placental blood flow with ischemia, is a significant risk factor in the development of IUGR [19]. Psychological stress may contribute to risk of hypertensive disorders via neuroendocrine mechanism including adrenocorticotropic hormone and cortisol and the inflammatory response associated with stress. In addition, in an animal model studying the effect of chronic stress in pregnancy, high levels of stress have been demonstrated to increase both systolic and diastolic blood pressure, increase levels of proteinuria, decrease vascular relaxation and result in increased adrenal weight, which are similar to the symptoms of pre-eclampsia in humans [20]. It was shown ACTH levels increased blood pressure in humans by increasing cortisol levels. In terms of an inflammatory mechanism,

research in pregnant woman has found significant positive associations between psychological stress measures of C-reactive protein (CRP), a marker of inflammation. Tumor necrosis factor alpha (TNF-α), another pre-inflammatory cytokine, in serum is higher in women who experience high stress in pregnancy relative to those who experience low stress. TNF- α measured in early pregnancy is increased in pregnant women who subsequently develop pre-eclampsia. Therefore, it is plausible that increased stress affects risk of pre-eclampsia through this pathway [21]. In normal pregnancy, platelet count can fall below normal level because of the normal maternal blood volume expansion. In pre-eclampsia, the platelet count falls further and are associated with increased consumption and intravascular destruction [22]. Serum concentration of uric acid falls in normal pregnancy because renal excreation increases. In pre-eclampsia, there can be a raise in uric acid concentration that correlates with poor outcome for both mother and baby [23]. Delivery of the infant and placenta is the only effective treatment. Delivery at an earlier gestational age, however, is associated with an increased risk of adverse neonatal outcome [24]. Women with pre-eclampsia have an increased rate of caesarian section consequent upon the high incidence of IUGR, fetal distress and prematurity [12]. Therefore, life style modification, regular blood pressure monitoring, use of anti-hypertensive drugs are recommended before and after delivery in order to avoid complications in subsequent pregnancies and to reduce maternal cardiovascular risk in future [25]. The main purpose of this study was to find out the fetomaternal outcome of severe pre-eclamptic patient and also to highlight the lapses to reduce the incidence and improve the maternal and fetal outcome.

## OBJECTIVE OF THE STUDY

**General Objective:**

- To find out the feto-maternal outcome of severe pre-eclamptic patient

**Specific Objective:**

- To assess the maternal mortality and morbidity of severe pre-eclamptic patient
- To assess the fetal mortality and morbidity of severe pre-eclamptic patient
- To find out the complication of severe pre-eclampsia

## MATERIALS AND METHODS

This was a descriptive cross-sectional study. The patients were selected purposively. A total of 50 patients were included in this study. The study was conducted in the Department of Obstetrics and Gynaecology, Dhaka Medical College & Hospital (DMCH), Dhaka, Bangladesh from July 2015 to January 2016. Data were analyzed by SPSS.

**Inclusion Criteria:**

- Pregnancy with severe pre-eclampsia who fulfill the criteria, with diastolic blood pressure 110 mm of Hg or greater, systolic blood pressure 160 mm of Hg or greater together with proteinuria (> 5gm/ 24hr)
- Both primi- and multi-gravida with severe pre-eclampsia
- Gestational age >20 weeks of duration and most frequently at term.
- Pregnant woman who had given written consent, willing to comply the study procedure.

**Exclusion Criteria:**

- Eclamptic patients
- Patients with heart disease, CRF
- Multiple pregnancy
- Pregnant women who will be unwilling to co-operate towards the study

**Ethical Implications**

The ethical clearance of the study was taken from the Ethical Committee of DMCH. The aims and objective of the study along with its procedures alternative diagnostic methods, risk of benefits will be explained to the patients. Informed consent was taken from each patient.

**Study Procedures**

After taking informed consent of eligible patient, history taken with particular scrutiny of menstrual and obstetrical history. Physical examination will be performed and complications and fetal outcome will be evaluated. Maternal outcome determined by mother's generalized condition. Fetal outcome detected by APGAR score at birth and duration of nursery stay.

## RESULTS

**Table 1: Studied Patients according to Socio-demographic profile. (N=50)**

| Characteristics | Frequency(n) | Percentage (%) |
|---|---|---|
| **Age in years** | | |
| 15-20 Yrs. | 21 | 42 |
| 21-25 Yrs. | 9 | 18 |
| 26-30 Yrs. | 8 | 16 |
| 31-35 Yrs. | 12 | 24 |
| **Residence** | | |
| Urban | 22 | 44 |
| Rural | 28 | 56 |

| Characteristics | Frequency(n) | Percentage (%) |
|---|---|---|
| | | |
| **Occupation** | | |
| Housewife | 40 | 80 |
| Day laborer | 6 | 12 |
| Service holder | 4 | 8 |
| **Educational Status** | | |
| Illiterate | 16 | 32 |
| Primary - SSC | 20 | 40 |
| HSC | 14 | 28 |
| **Parity** | | |
| Primigravida | 28 | 56 |
| Multigravida | 22 | 44 |

Table 1 showed majority of the patients belonged to an age group of 15-20 years (44%). Mean age was found to be 26 years. 56% patients came from rural areas; most patients were house wife below secondary school level & primigravida.

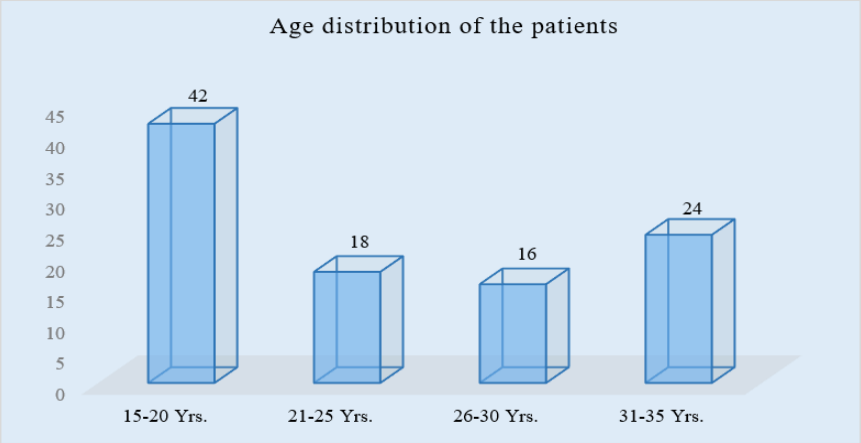


**Figure I: Column chart showed age wise patients distribution (N=50)**

**Table 2: Studied patients according to incidence of family history of HTN. (N=50)**

| Family History | Frequency(n) | Percentage (%) |
|---|---|---|
| Positive | 26 | 52 |
| Negative | 8 | 16 |
| Unknown | 16 | 32 |

Table 2 showed 52% patients had positive family history of hypertensive diseases. This implies that maximum patients usually visited the doctor with high risk of hypertension

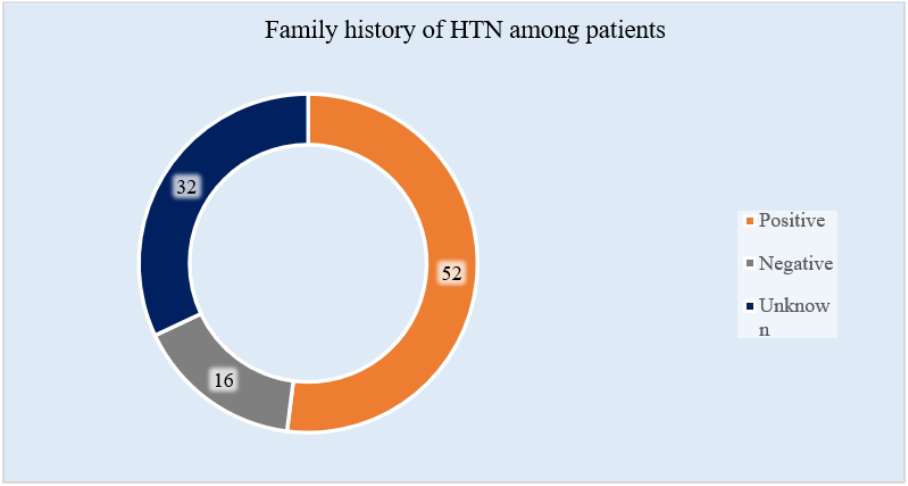


**Figure II: Ring chart showed family history of HTN wise patients (N=50)**

**Table 3: Studied patients according to incidence of antenatal checkup. (N=50)**

| Antenatal Care | No. of Patients | Percentage (%) |
|---|---|---|
| Regular | 16 | 32 |
| Irregular | 30 | 60 |
| No care | 4 | 8 |

Table 3 showed among the studied patients, only 32% received regular antenatal check-up/care. Majority of them, 60% had irregular antenatal check-up/care and rest 8% had no opportunity or faced other constraints to receive any antenatal check-up.

**Table 4: Studied patients according to gestational age (weeks) (N=50)**

| Gestational Age (weeks) | Frequency(n) | Percentage (%) |
|---|---|---|
| 21-27 weeks | 1 | 2 |
| 28-31 weeks | 3 | 6 |
| 32-36 weeks | 20 | 40 |
| 37-40 weeks | 26 | 52 |

Table 4 showed among the 50 cases, 52% of pre-eclamptic women visited in last trimester of pregnancy, 40% at 32- 36 weeks and only 6% at 28-31 weeks of gestation. This shows that most of the patients had no tendency for antenatal visits at an early stage and this lead to progress of the disease to severe pre-eclampsia.

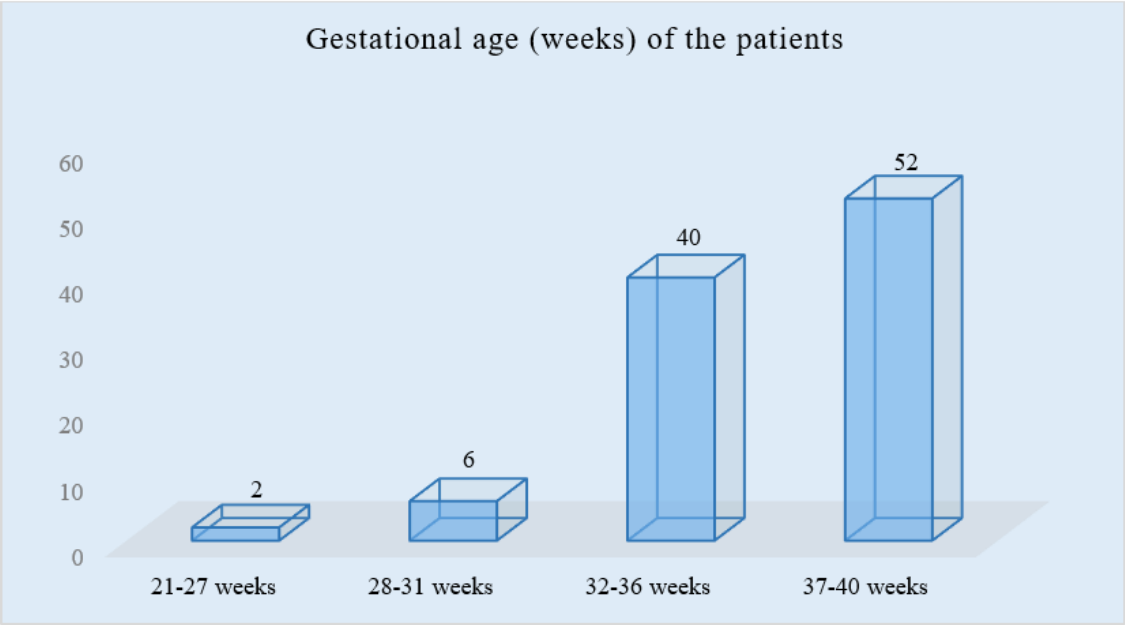


**Figure III: Column chart showed gestational age (weeks) wise patients (N=50)**

**Table 5: Studied patients according to blood pressure levels. (N=50)**

| Blood pressure (mmHg) | Frequency(n) | Percentage (%) |
|---|---|---|
| Systolic blood pressure | | |
| Below 160 | 10 | 20 |
| Above 160 | 40 | 80 |
| Diastolic blood pressure | | |
| Below 110 | 12 | 24 |
| Above 110 | 38 | 76 |

Table 5 showed the study of blood pressure values among the severe pre-eclamptic patients. The study revealed that the systolic blood pressure more than 160 mmHg is in 80% of the patients and diastolic blood pressure more than 110 mmHg is in 76% of the patient

**Table 6: Studied patients according to various symptoms (N=50)**

| Symptoms | Frequency(n) | Percentage (%) |
|---|---|---|
| Oedema | 38 | 76 |
| Headache | 20 | 40 |
| Epigastric pain | 6 | 12 |
| Blurring of vision | 8 | 16 |
| Per-vaginal Bleeding | 4 | 8 |
| Oliguria | 2 | 4 |

Table 6 showed oedema and headache were the predominant symptoms. 76% of patients had oedema, 40% patients presented with headache. Various combinations of symptoms were also observed in a large number of patients.

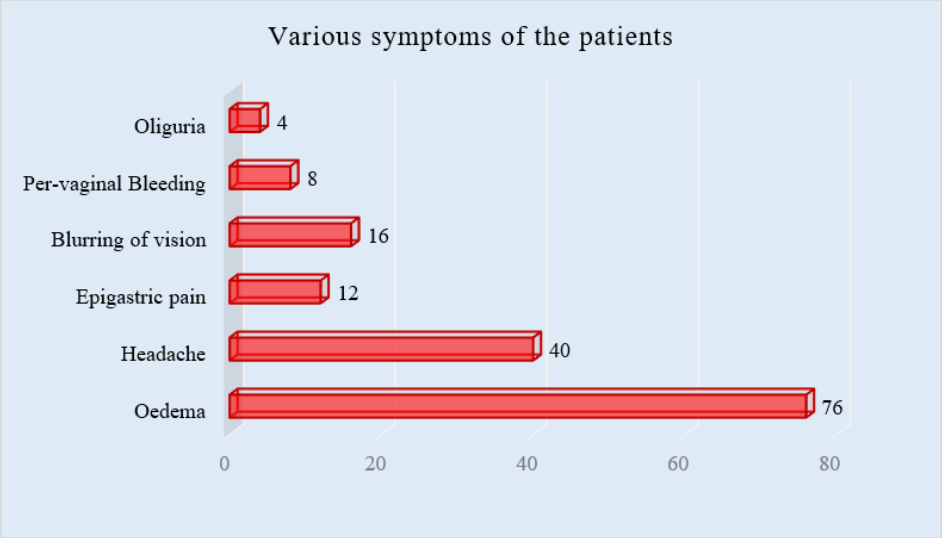


**Figure IV: Bar chart showed various symptoms wise patients (N=50)**

**Table 7: Studied patients according to raised blood bio-chemistry (N=50)**

| Investigation | Frequency(n) | Percentage (%) |
|---|---|---|
| Serum uric acid | 36 | 72 |
| Serum creatinine | 13 | 26 |
| Blood urea | 4 | 8 |

Table 7 showed 68% women had elevated biochemistry, among them 72% patients had raised serum uric acid, 26% showed raised levels of serum creatinine and raised blood urea in 8% patients.

**Table 8: Studied patients according to incidence of obstetrical interventions with severe pre-eclampsia. (N=50)**

| Investigation | Frequency(n) | Percentage (%) |
|---|---|---|
| Caesarean Section | 36 | 72 |
| Vaginal Delivery | 14 | 28 |

Table 8 showed among the studied 50 cases, more than half of the patients, 72% were delivered by caesarean section and rest 28% delivered vaginally. This shows that there is high incidence of surgical intervention in severe pre-eclampsia. As the treatment of the disease is termination of pregnancy and removal of placenta.

**Table 9: Distribution of Birth weight of the babies (N=50)**

| Weight (kg) | Frequency(n) | Percentage (%) |
|---|---|---|
| 2.5-3.5 | 28 | 56 |
| 1.5-2.5 | 14 | 28 |
| 1.0-1.4 | 3 | 6 |

Table 9 showed 56% of the neonates had average birth weight, low birth weight 28% and very low birth weight 6%.

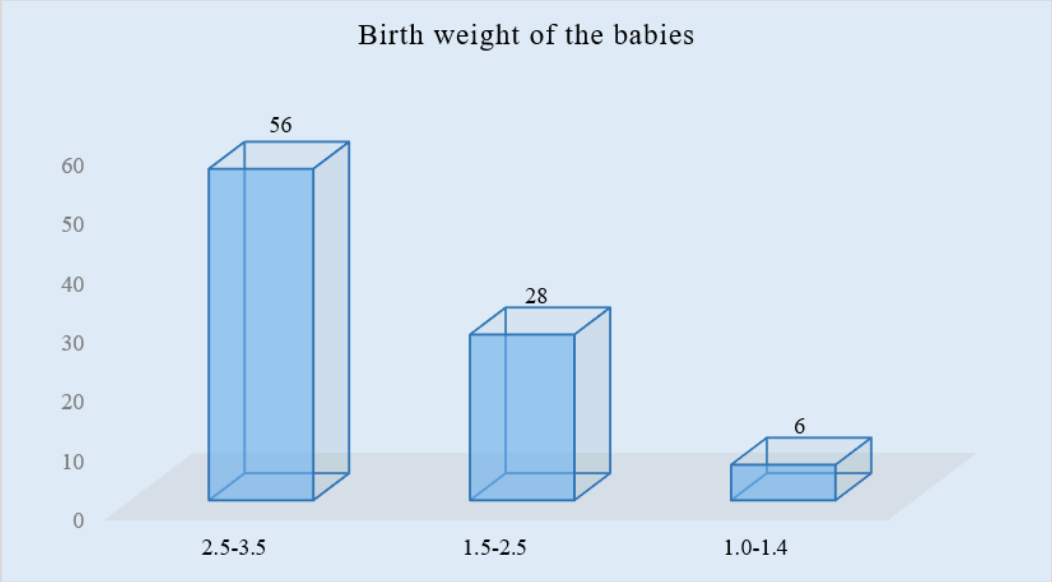


**Figure V: Column chart showed distribution of the babies by birth weight (N=50)**

**Table 10: Studied patients according to overall fetal outcome. (N=50)**

| Fetal Outcome | Frequency(n) | Percentage (%) |
|---|---|---|
| Mature | 20 | 40 |
| Premature | 10 | 20 |
| IUGR | 10 | 20 |
| IUD | 4 | 8 |
| Neonatal death | 3 | 6 |
| Asphyxia | 3 | 6 |

Table 10 showed out of 50 neonates born, 40% were found Mature, 20% premature and 20% were IUGR

**Table 11: Studied patients according to overall maternal outcome (N=50)**

| Maternal Outcome | Frequency(n) | Percentage (%) |
|---|---|---|
| No Complication | 42 | 84 |
| Eclampsia | 2 | 4 |
| HELLP Syndrome | 2 | 4 |
| Abruptio Placenta | 2 | 4 |
| Renal Insufficiency | 1 | 2 |
| Death | 1 | 2 |

Table 11 showed 84% of the patient had no complication while 4% had Eclampsia, 4% HELLP Syndrome, 4% showed Abruptio Placenta, 2 % Renal Insufficiency and rest 2%succumbed to death.

## DISCUSSION

Severe pre-eclampsia remains a serious problem in obstetrics. Its management is challenging and still widely discussed, it is associated with significant morbidity and' mortality for mother and baby, but it resolves completely post-partum. Up to now the only treatment is termination of pregnancy by "immediate delivery" and thereby removal of the placenta. A total of 50 patients suffering from severe pre-eclampsia were studied to find out the feto-maternal outcome in Department of Obstetrics and Gynecology of Dhaka Medical College and Hospital, during the period of study, July 2015 to January 2016. Age is an important contributing factor for severe pre-eclampsia. In this study, mean age of the patients with severe pre-eclampsia was 26 years with age ranging between 15-35 years. This study was found to be consistent with the study of J Hyperlens. *et al.*, [26], observed the mean age of severe pre-eclamptic patients in both nulliparous and multiparous as 30.10 ±t4.6 years and 33 ±4.1years, respectively. In another study, by Ulrike Rattinger *et al.*, [27], found the mean age as 30±5 and the average age ranging between 17 to 44 years. Therefore, from both the studies it is conclusive that severe pre-eclampsia is a disease of extremes of ages. Majority of pre-eclamptic

patients in this study was found to be primigravida (56%) and only 44% of the patients were multigravida. Roberta B Ness also gave the same inference in his study, that nulliparous women had higher incidence of severe pre-eclampsia (4.2%) when compared to multiparous women (I .3%) [28]. Boyd and Scott (1985) also found that pre-eclampsia was significantly more likely to be in primigravida [29]. Therefore, it implies from these studies that severe pre-eclampsia is more prevalent in nulliparous women. Literacy has got a major impact on pre-eclampsia thus evaluation of the educational status was done where the study showed that majority of patients were less educated (below SSC) 62%, and only 28% were highly educated (HSC and above). A research study, conducted by Khan et al, showed that literacy rate is extremely low among women living in Bangladesh with only 13.4% of women being the poorest and 54.8% of women being the wealthiest group who are literate [30]. Incidence of patient according to their residence was studied, it revealed that 56% of pre-eclamptic women came from rural areas and remaining 44% were from urban areas. This implies the fact that most of the patients came from rural areas where probably due to poor transport facilities, minimum access to health care system and regular antenatal check-up. Savita *et al.,* [31], also found similar observations in their analysis, patients from rural areas were 84%, illiterate were 39% and un-booked cases were 82% in their study. Kalim *et al.,* (2009) [30], found a significant relationship between maternal education, literacy rates, and the utilization of skilled birth attendants and maternal mortality rates amongst the Bangladeshi women. Our findings regarding occupation are consistent with the observation of other native studies that majorities are house-wives (80%) and day laborer (12%) and rest are service-holders. A positive family history of hypertension (52%) was found in patients with severe pre-eclampsia, Eskenza *et al.,* [32], also found that pre-eclampsia in a previous pregnancy and family history of hypertension were the risk factors. Most of the patients (60%) had no regular antenatal care, only 32% of patients received regular antenatal care in this study. This predicts the fact that regular antenatal care could reduce the incidence of mild pre-eclampsia which later progressed to severe pre-eclampsia. The present study also justifies the statement. In the study, 92% of pre-eclamptic patients presented in their third trimester (32-40 weeks). In the study of blood pressure levels in severe pre-eclamptic patients, about 84% of patients had systolic pressure more than 160 mmHg and16% had diastolic pressure more than 110 mmHg. OlumideOJodenet. Al [33] studied systolic blood pressure ranged between 80 and 253mmHg with mean of 156.24±26.52 mmHg, and the diastolic blood pressure ranged from 50 to 153 mmHg with mean of 95.19±15.9 mmHg. The study showed no significant difference. Various symptoms of severe pre-eclamptic patients were studied and the study revealed that swelling of both leg was the most common symptom of all patients (76%), Headache (40%), Blurring of vision (16%), Epigrastic pain (12%), Per-vaginal Bleeding (8%), Oliguria (4%). Douglas *et al.,* [34], reported patients with headache, epigastric pain and blurring of vision in 50%, 20% and 19% respectively, this was almost similar to this study. Study of raised biochemistry revealed that 72% of patients had raised uric acid levels, 26% with raised creatinine, only 8% with raised blood urea. Dong Jae *et al.,* [35], in their study also found significantly high levels of serum uric acid, serum creatinine, and blood urea which correlates with the present study. Obstetrical intervention was observed in the study, it showed greater incidence of caesarean section 72% and 28% vaginal delivery in severe pre-eclamptic patients. This observation was similar to the study by Firoza (2009) [36] in Dhaka Medical College and Hospital, 64% of pre-eclamptic patients were delivered by caesarean section. It is interesting that 86% mothers did not have any complication, while 4% patient developed HELLP Syndrome. It correlates with the overall 10% occurrence of HELLP syndrome as a complication of severe pre- eclampsia. This result correlates with the result of Emmanuel Bujold, [37]. Similar result was reported by Am J Hyperlens *et al.,* [26]. In this study there was no maternal death. Neonatal outcome according to the weight of the babies of severe pre-eclamptic patients were studied. The study shows 56% of neonate was of average weight (2.5-3.5kg) and 28% were low birth weight. Overall outcome of neonates was studied, which showed as healthy, premature, intra-uterine growth retardation (IUGR), IUD, neonatal death and asphyxia as 40%, 20%, 20%, 8%, 6% and 6% respectively. Aferdita *et al.,* [38], in their studies showed higher incidence of preterm birth 6.4% in pre-eclamptic mothers. Rekha *et al.,* [39], found 16.9% as stillborn and 4.23% cases of neonatal death during their study of neonatal outcome of severe pre-eclamptic patients. Both the studies were nearly similar to the present study.

## STUDY LIMITATION

Some patients were unable to respond correctly to the given questionnaire. Though the patient's attendant(s) were helpful but were less informative and sometimes gave inaccurate or no information. Various types of essential investigations were difficult to carry-out on emergency basis due to lack of facilities and lack of co-operation from patient's side. Certain data were recorded as per the statement of the patient, such as, educational status, family income, gestational age which may not be accurate.

## RECOMMENDATIONS

Proper antenatal check-up must be ensured for all pregnant women to minimize the incidence of unfortunate fatality. All of them must go for thorough screening periodically. If proper healthcare facility is not available, then the pregnant women should be checked by trained health workers or mid wives periodically. Health care for rural people or general public for creating alertness of health issues and highlighting the risk factors are of vital significance. The public awareness agenda

may have a positive impact in reducing morbidity and mortality. Early detection and timely initiation of antihypertensive therapy is mandatory for reducing pregnancy related complications. High risk pregnancies should be documented well ahead before inception of crises. These kinds of patients should be referred to tertiary hospitals as early as possible. Doctors in remote villages should be trained properly and certified by the acting authorities to handle hypertensive cases of pregnancy, which will create unnecessary journey to distant hospitals and causality during long transfer time.

## CONCLUSION

Pregnancies complicated by pre-eclampsia are directly or indirectly responsible for a large proportion of maternal and fetal morbidity and mortality. Women with little or no antenatal care are at greater risk. Proper care must be given to all pregnant women to prevent and screen for pre-eclampsia. The study reflects pregnant women less than 20 years of age and primigravida from rural areas with low socio-economic status are more prone to develop severe pre-eclampsia. A family of hypertension, previous obstetrics with history of pre-eclampsia or eclampsia add to its contributory factor. The incidence of morbidity and mortality related to sever pre-eclampsia are remarkably higher in developing countries like Bangladesh. Therefore, measures should be taken to control this deadly condition through Behavioral Change Communication (BCC) regarding antenatal care, danger signs, delivery plan etc. involving public and private sector.

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