

Study on Outcome in Patients with Pre-eclampsia in DMCH

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ABSTRACT

Introduction: Pre-eclampsia (PE) is new-onset hypertension after 20 weeks' gestation with proteinuria, maternal organ dysfunction, or uteroplacental issues. Diagnosis requires blood pressure $\geq 140/90$ mmHg plus one additional sign. PE is a leading cause of maternal and fetal morbidity and mortality. This study evaluates outcomes in affected patients. **Methods & Materials:** It was a cross-sectional study carried out in the Department of Obstetrics & Gynaecology in Dhaka Medical College & Hospital, Dhaka, during the period of July to December 2015. A total of 60 pre-eclamptic women who were admitted during the study period were included in this study. **Result:** Among 60 pregnancies, 56.7% of mothers had no complications, while eclampsia occurred in 18.3%, postpartum haemorrhage in 11.7%, HELLP syndrome, retinal detachment, and acute renal failure each in 3.3%, and pulmonary oedema and stroke each in 1.7%. Of the neonates, 83.3% were live born (65.0% term, 18.3% preterm), with 11.7% requiring NICU care; stillbirths and intrauterine deaths occurred in 6.7% and 10.0%, respectively. APGAR scores ≤ 7 were observed in 41.7% at one minute and 28.3% at five minutes. Birth weight was 1.5–2 kg in 15.0%, 2–2.5 kg in 30.0%, and >2.5 kg in 55.0% (mean 2.35 ± 0.35 kg). Among live-born infants, 34.0% had IUGR, 22.0% were premature, 18.0% developed ARDS, 14.0% had infections, 6.0% jaundice, 4.0% cerebral palsy, 2.0% necrotizing enterocolitis, and 34.0% had no complications. **Conclusion:** Preeclampsia significantly increases maternal complications and low birth weight. Enhancing public awareness, educating health workers, and improving socio-economic conditions can improve maternal and neonatal outcomes.

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Keywords: Pre-eclampsia, Postpartum, Intrauterine Growth Restriction

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INTRODUCTION

Pre-eclampsia is a disorder of widespread vascular endothelial malfunction and vasospasm that occurs after 20 weeks' gestation and can present as late as 4-6 weeks postpartum. It is clinically defined as new onset hypertension after 20 weeks gestation with new-onset proteinuria or new-onset maternal organ dysfunction (kidney, liver, neurological, hematological) or new-onset uteroplacental dysfunction (fetal growth restriction, abnormal doppler). Diagnosis requires elevated blood pressure ($\geq 140/90$) with at least one of these additional signs^[1]. The global incidence of preeclampsia has been estimated at 5-14% of all pregnancies. In developing nations, the incidence of the disease is reported to be 4-18% with hypertensive disorders being the second most common obstetric cause of stillbirths and early neonatal deaths^[2]. Pre-eclampsia complicated by eclampsia is a major cause of maternal and foetal mortality and morbidity^[3,4]. Its incidence is 2-10% worldwide, depending on the population studied and the definition of pre-eclampsia used. The precise aetiology of pre-eclampsia is still unknown. Factors that appear to have a role include the abnormal placentation, maternal immune response, genetic predisposition, and maternal

vascular disease^[5,6]. Morbidity and mortality in preeclampsia are related to the following conditions: systemic endothelial dysfunction, vasospasm and small-vessel thrombosis leading to tissue and organ ischemia, CNS events, such as seizures, strokes, and hemorrhage, acute tubular necrosis, coagulopathies, and placental abruption in the mother^[7]. Women aged 35 years and older have a markedly increased risk of preeclampsia. Preeclampsia in a first pregnancy, with delivery between 32- and 36-weeks' gestation, increased the risk of preeclampsia in a second pregnancy from 14.1% to 25.3%. Fetal growth 2-3 standard deviations below the mean in a first pregnancy increased the risk of preeclampsia from 1.1% to 1.8% in the second pregnancy^[8]. Aside from these maternal manifestations, preeclampsia has significant adverse fetal effects. These include decreased fetal growth (intrauterine growth retardation or IUGR), intrauterine fetal demise (IUFD), placental abruption and decreased amniotic fluid levels. Often these complications precede the maternal clinical manifestations of preeclampsia^[9]. Obstetric risk factors for preeclampsia include multiple gestations, hydatidiform moles, fetal triploidy and hydrops. Medical conditions constituting risk factors include chronic hypertension, diabetes, renal

disease, and systemic lupus. Many acquired or inherited tendencies to thrombosis (especially the antiphospholipid antibody syndromes) have also been associated with an increased incidence of preeclampsia^[10]. Fetal growth is a useful marker for fetal well-being^[11]. Pregnancies complicated by intrauterine growth restriction (IUGR), defined as a pathological process of reduced fetal growth, have been associated with an increase in perinatal mortality^[12]. There are a limited number of therapeutic options in the management of preeclampsia with known benefit to the fetus. Antepartum management routinely involves administration of antenatal steroids in anticipation of preterm delivery. Antenatal administration of corticosteroids for as few as 12-24 hours before delivery has been shown to decrease morbidity and improve survival rates of infants born before 34 weeks' gestation^[13]. Pre-eclampsia in Bangladesh have an impact on the prevention of the adverse effects of pre-eclampsia on the mother and the foetus. The main purpose of this study is to identify the outcome of pre-eclamptic patients concerning maternal complications and fetal outcome in Dhaka Medical College Hospital.

METHODS & MATERIALS

This cross-sectional study was conducted in the Department of Obstetrics and Gynaecology at Dhaka Medical College & Hospital from July to December 2015. A total of 60 patients diagnosed with pre-eclampsia after 20 weeks of gestation were included using a purposive consecutive sampling technique. Patients with multifetal pregnancy, premature rupture of membranes, known fetal anomalies,

pregnancy-induced hypertension, chronic hypertension with pregnancy, and pre-eclampsia with diabetes mellitus were excluded. Data were collected using a pre-designed data collection sheet through detailed history taking, clinical examination, and relevant investigations. All data were tabulated and analysed using SPSS software (Windows version 20). Ethical approval was obtained from the Department of Obstetrics & Gynaecology

and the Ethical Committee of Dhaka Medical College Hospital.

RESULTS

Table I shows maximum 40% were age group 26-30. Most patients were housewives. Maximum 38.3% had a secondary education level, and maximum 51.7% had a monthly income of 11000-15000 taka. Maximum 53.3% was gravida 2nd-4th.

Table I

Demographic characteristics of the study subjects ($n=60$).

Characteristics	Number	Percentage (%)
Age in years		
<20	10	16.7
20-25	19	31.7
26-30	24	40.0
31-35	5	8.3
36-40	2	3.3
Mean±SD	26.40±4.84	
Occupational status		
House wife	53	88.3
Service holder	4	6.7
Others	3	5.0
Educational status		
Illiterate	4	6.7
Primary	11	18.3
Secondary	23	38.3
Higher Secondary	19	31.7
Graduate	3	5.0
Monthly income		
<5000 Tk	3	5.0
6000-10000 Tk	6	10.0
11000-15000 Tk	31	51.7
>15000 Tk	20	33.3
Gravida		
Primi	25	41.7
2 nd -4 th	32	53.3
>4 th	3	5.0
Parity		
0	24	40.0
1	21	35.0
2	9	15.0
3	6	10.0

Table II shows that 53.3 per cent of women were pregnant for 37-40 weeks, 36.7 per

cent of women were pregnant for 32-36 weeks and 10 per cent 28-31 weeks.

Table II

Period of gestation at admitted patients ($n=60$).

Gestational age (Weeks)	Number of patients	Percentage (%)
28-31	6	10
32-36	22	36.7
37-40	32	53.3

Table III shows that spontaneous vaginal delivery was 43.3%, assisted vaginal

delivery was 1.7% and LUCS was 55%.

Table III

Mode of delivery ($n=60$).

Mode of delivery	Number	Percentage (%)
Spontaneous vaginal delivery	26	43.3
Assisted vaginal delivery	1	1.7
LUCS	33	55.0
Total	60	100

Table IV shows that 18.3% had eclampsia, 11.7% had postpartum haemorrhage, 3.3% had HELLP syndrome, 3.3% had retinal detachment, 3.3% had acute renal failure, 1.7% had pulmonary oedema, and 1.7% had stroke.

Table IV
Maternal complications of study subjects (n=60).

Maternal complication	Number	Percentage (%)
Eclampsia	11	18.3
Post-partum haemorrhage	7	11.7
HELLP syndrome	2	3.3
Retinal detachment	2	3.3
Acute renal failure	2	3.3
Pulmonary oedema	1	1.7
Stroke	1	1.7
No complication	34	56.7

Table V shows 28.3% in Apgar score ≤7 and 71.7% in Apgar score >7.

Table V
APGAR score (n=60).

Apgar score	Number	Percentage (%)
At one minute		
≤7	25	41.67
>7	35	58.33
At five minutes		
≤7	17	28.3
>7	43	71.7

Table VI shows 15% had birth weight <1.5-2 kg, 30% had birth weight 2-2.5 kg, and 55% had birth weight > 2.5 kg. The mean birth weight was 2.35 kg.

Table VI
Birth weight (n=60).

Birth weight	Number	Percentage (%)	Mean±SD
1.5-2 kg	9	15.0	2.35±0.35
2-2.5	18	30.0	
>2.5 kg	33	55.0	
Total	60	100	

Among 60 pregnancies, 50 (83.3%) were term and 11 (18.3%) were preterm. NICU admission. There were 4 stillbirths (6.7%) and 6 intrauterine deaths (10.0%) resulted in live births, of which 39 (65.0%) Seven live-born neonates (11.7%) required

Table VII
Fetal outcome of the study subjects (n = 60).

Fetal outcome	Number	Percentage (%)
Live born	50	83.3
Term	39	65.0
Preterm	11	18.3
Required NICU	7	11.7
Stillborn	4	6.7
Intrauterine death (IUD)	6	10.0

Among the 50 live-born neonates, 17 (34.0%) had intrauterine growth restriction (IUGR), 11 (22.0%) were premature, 9 (18.0%) developed ARDS, 7 (14.0%) had neonatal infections, 3 (6.0%) developed jaundice, 2 (4.0%) had cerebral palsy, and 1 (2.0%) developed necrotizing enterocolitis. Seventeen neonates (34.0%) had no complications (Table VIII).

Table VIII
Neonatal complications among live-born neonates (n = 50).

Neonatal complication	Number	Percentage (%)
Intrauterine growth restriction (IUGR)	17	34.0
Neonatal infection	7	14.0
Prematurity	11	22.0
Acute respiratory distress syndrome (ARDS)	9	18.0
Necrotizing enterocolitis	1	2.0
Cerebral palsy	2	4.0
Jaundice	3	6.0
No complications	17	34.0

DISCUSSION

This study found the mean age of the patients was 26.40 ± 4.84 years. A maximum of 40% were age group 26-30 years in the case group. This corresponds with a study where the mean age was 28 years [14]. More than half of the pre-eclamptic women in this study were multiparous. Conde-Aguedelo and Belizán JM also found a similar pattern of risk factors among nulliparous and multiparous women [15]. Pre-eclampsia is generally considered a disorder of primigravida however, it does occur in subsequent pregnancies following a change of partner [16,17]. About 55% of the pre-eclamptic women in this study were delivered by means of caesarean section. This rate of caesarean delivery is higher than that reported by Mashiloane and Moodley and similar to that of Hall et al, where 55% the pre-eclamptic women gave birth by means of caesarean section [18,19]. Al-Mulhim et al in their study also reported that spontaneous vaginal delivery was less frequent (69%) among pre-eclamptic women, who are predisposed to caesarean delivery [4]. Their finding is in accordance with the results of the other studies. The maternal complication rate that was observed in 43.3% of the study group was another study, Lee and his colleagues' report, where 32% of the pre-eclamptic women in their study had major maternal complications [20]. The commonest complications in this study were eclampsia and postpartum haemorrhage. These complications were similar to the findings of Murphy DJ and Stirrat GM [21]. Eclampsia and postpartum haemorrhage were also the commonest maternal complications observed in the study of Al-Mulhim and his colleagues [4]. Fetal complications generally correlated with the severity of pre-eclampsia, and an Apgar score < 5 at 1 minute was associated with poor fetal outcome. Maternal complications are those related to the effect of severe preeclampsia on multiple organ systems, together with those associated with medical complications during pregnancy and the course of labour [22]. In this study, 83.3% of pregnancies resulted in live births, with 65.0% term and 18.3% preterm, while 11.7% of live-born neonates required NICU care; stillbirth and intrauterine death occurred in 6.7% and 10.0% of cases, respectively. Ellis et al. reported similar perinatal patterns in rural Bangladesh, with stillbirth rates of 5–7% and significant NICU admissions due to prematurity and birth complications [23]. Our results align with these findings, highlighting persistent challenges in perinatal care access. Among live-born neonates, 34.0% had intrauterine growth restriction (IUGR), 22.0% were premature, 18.0% developed ARDS, and 14.0% had neonatal infections. Begum et

al. observed prematurity and IUGR as leading contributors to neonatal morbidity in tertiary Bangladeshi hospitals, with similar proportions of respiratory complications [24]. Islam et al. also found 30–35% of growth-restricted infants experienced respiratory distress and infection, matching our cohort's complication profile [25].

LIMITATIONS

This study had some limitations. As a hospital-based study, it lacked complete socioeconomic and family history data. The sample size was small, and preexisting medical conditions could not be entirely excluded. Limited clinical follow-up made it difficult to distinguish between uncontrolled hypertension and progression to preeclampsia. Additionally, the lack of community-level treatment facilities for preeclampsia may have influenced early detection and management.

CONCLUSION

The most common maternal complication was eclampsia. Postpartum haemorrhage, HELLP syndrome, retinal detachment, acute renal failure, pulmonary oedema and stroke were other complications. The common fetal complication was IUGR. IUD, neonatal infection, premature, ARDS, necrotising enterocolitis and jaundice were the other complications.

RECOMMENDATION

- Low-dose acetylsalicylic acid (aspirin, 75 mg) for the prevention of preeclampsia and its related complications should be given before 20 weeks of pregnancy.
- Women with severe hypertension during pregnancy should receive treatment with antihypertensive drugs.
- Magnesium sulphate is recommended for the prevention of eclampsia in women with severe pre-eclampsia in preference to other anticonvulsants.
- In women with severe pre-eclampsia at term, early delivery is recommended.

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CONFLICT OF INTEREST

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