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Maternal and Fetal Outcomes in Pre-eclampsia in a Tertiary Care Hospital

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ABSTRACT

Introduction: *Pre-eclampsia is a multitorgan hypertensive state of pregnancy that is still a leading cause of perinatal and maternal morbidity and mortality throughout the world. It is characterized by the development of hypertension and proteinuria after 20 weeks of gestation, and in more severe cases, involves dysfunction of organs such as kidneys, liver, and coagulation pathway. The aim of the present study was to evaluate the fetal and maternal outcome of pre-eclampsia in patients.*

Methods: *This prospective observational study was done in the Department of Obstetrics and Gynecology at Shaheed Suhrawardi Medical College Hospital in Bangladesh between July 2024 and July 2025. 96 pregnant women with pre-eclampsia, according to the inclusion criteria of blood pressure ≥140/90 mmHg after gestation of 20 weeks or more along with proteinuria or other systemic manifestations, were enrolled*

Result: *Among the 96 pre-eclamptic women, 70.8% had severe disease and 64.6% were delivered by caesarean. Maternal complications included ICU admission in 18.8%, acute kidney injury in 6.3%, and maternal death in 2.1%. Fetal adverse outcomes were high with preterm birth in 41.7%, low birthweight in 39.6%, NICU admission in 35.4%, stillbirth in 12.5%, and early neonatal death in 6.3%, and perinatal mortality was 18.8%.*

Conclusion: *Pre-eclampsia remains a major cause of fetal and maternal morbidity, with a high rate of severe disease, operative delivery, and unwelcome perinatal outcomes. Though maternal mortality was low, preterm birth, low birth weight, and NICU admission were common complications.*

Keywords: *Pre-Eclampsia, Maternal Outcome, Fetal Outcome, Caesarean Delivery*

I. INTRODUCTION

Pre-eclampsia is a pregnancy multisystem disorder characterized by new-onset hypertension after 20 weeks' gestation with proteinuria or evidence of end-organ or uteroplacental dysfunction. Pre-eclampsia remains a significant contributor to maternal and perinatal morbidity and mortality worldwide and is particularly troublesome in low- and middle-income settings where delays in diagnosis and lack of critical-care capacity worsen poor outcomes [1–3]. Pathophysiologically, pre-eclampsia is thought to evolve because of abnormal placentation and impaired uteroplacental perfusion with the resultant release of anti-angiogenic and inflammatory mediators that cause systemic maternal endothelial dysfunction; this cascade is responsible for the wide spectrum of maternal complications (renal impairment, liver dysfunction, HELLP syndrome, pulmonary oedema, stroke) and fetal outcomes (fetal growth restriction, preterm birth, stillbirth) [4–6]. Both multicountry surveys and epidemiologic studies report that hypertensive disorders complicate a notable percentage of pregnancies (commonly quoted as 2–8% globally) and disproportionately contribute to maternal mortality and adverse neonatal outcomes in resource-poor settings [7,8]. Cohort studies and population-based studies uniformly report increased rates of caesarean section, preterm delivery, low birthweight, and perinatal mortality in pre-eclampsia-complicated pregnancies compared to normotensive pregnancies; the magnitude of the risk is modified by severity, gestational age of onset, availability of antenatal care, and timeliness of delivery [7–9]. International recommendations, therefore, are for early diagnosis, risk stratification using clinical and biomarker tools where available, and individualized decisions about surveillance vs. delivery to balance maternal vs.

neonatal risks [2,3,10]. Clinical guidelines (ACOG, ISSHP, and WHO) and recent reviews suggest several pragmatic priorities relevant to tertiary hospitals: routine quantification of blood pressure, selective application of antihypertensives and magnesium sulphate when necessary, monitoring for organ dysfunction, and readiness to deliver when the maternal or fetal condition deteriorates [2,3,10]. Despite more specific diagnostic criteria and more sophisticated predictive algorithms, discrepancies remain between guideline recommendations and reduced mortality and long-term morbidity because of health-system barriers, variable application of prophylactic interventions (such as low-dose aspirin for susceptible women), and limited access to neonatal intensive care for preterm infants in most settings [5,8,10]. In this context, studies from tertiary hospitals are particularly valuable: they both reflect the burden of serious disease referred for specialist care and are revealing of proximate causes of adverse outcomes (timing of presentation, frequency of antenatal visits, management decisions). Local data are required to quantify institutional rates of complications (ICU admission, HELLP, maternal near-miss, perinatal death), compare these with regional and international standards, and identify modifiable risk factors amenable to quality improvement intervention. This study therefore aims to describe maternal and fetal outcomes in women with pre-eclampsia who are treated in a tertiary care hospital

II. METHODS

This prospective observational study was conducted in the Department of Obstetrics and Gynecology at Shaheed Suhrawardi Medical College Hospital in Bangladesh from July 2024 to July 2025. A total of 96 pregnant women diagnosed with pre-eclampsia, based on the criteria of blood pressure ≥140/90 mmHg after 20 weeks of gestation, along with proteinuria or other systemic manifestations, were enrolled. Sociodemographic, obstetric, and clinical data were collected, for example, maternal age, parity, gestational age at diagnosis, severity of disease, and complications. Maternal outcomes that were assessed included mode of delivery, ICU admission, HELLP syndrome, acute kidney injury, postpartum hemorrhage, and maternal mortality. Fetal outcomes were assessed as gestational age at birth, birthweight, NICU admission, stillbirth, and early neonatal death. Data analysis was performed in SPSS 26.0, and descriptive statistics have been expressed as mean ± SD, frequency, and percentage, while associations have been determined by appropriate inferential tests at a $p<0.05$ significance level.

III. RESULTS

Table 1: Sociodemographic and Obstetric Profile of the Study Population (n=96)

Variable	Frequency (%)
Age (years)	
≤20	12 (12.5)
21–30	60 (62.5)
>30	24 (25.0)
Gravida	
Primigravida	52 (54.2)
Multigravida	44 (45.8)
Gestational age at diagnosis	
<34 weeks	32 (33.3)
≥34 weeks	64 (66.7)
Type of pre-eclampsia	
Mild	28 (29.2)
Severe	68 (70.8)

The majority of the patients were between 21 and 30 years of age and were primigravida. Most were diagnosed after 34 weeks of gestation, and more than two-thirds had severe pre-eclampsia.

Table 2: Maternal Clinical Presentation (n=96)

Clinical Feature	Frequency (%)
Headache	72 (75.0)
Visual disturbances	30 (31.3)
Epigastric pain	26 (27.1)
Oedema	78 (81.3)
Seizures (eclampsia)	14 (14.6)
HELLP syndrome	6 (6.3)

Headache and oedema were the most common symptoms, followed by visual disturbances and epigastric pain. Eclampsia was noted in 14.6% of patients, and HELLP syndrome developed in 6.3%.

Table 3: Maternal Complications and Outcomes (n=96)

Maternal Outcome	Frequency (%)
ICU admission	18 (18.8)
Postpartum hemorrhage	8 (8.3)
Pulmonary edema	4 (4.2)
Acute kidney injury	6 (6.3)
Maternal death	2 (2.1)

Nearly one-fifth of the patients required ICU admission. Postpartum hemorrhage and acute kidney injury were the most frequent complications. Two maternal deaths were recorded during the study period.

Table 4: Mode of Delivery (n=96)

Mode of Delivery	Frequency (%)
Vaginal delivery	34 (35.4)
Elective caesarean	22 (22.9)
Emergency caesarean	40 (41.7)

Caesarean section was the predominant mode of delivery, with emergency procedures accounting for the majority of operative deliveries. Vaginal delivery was achieved in just over one-third of patients.

Table 5: Fetal Outcomes (n=96)

Fetal Outcome	Frequency (%)
Live birth	84 (87.5)
Stillbirth/IUFD	12 (12.5)
Preterm birth (<37 weeks)	40 (41.7)
Low birthweight (<2.5 kg)	38 (39.6)
NICU admission	34 (35.4)
Early neonatal death	6 (6.3)

Most pregnancies resulted in live births, although stillbirths accounted for 12.5% of outcomes. Preterm delivery and low birthweight were frequent findings, and over one-third of neonates required NICU admission.

IV. DISCUSSION

In this prospective cohort of 96 women with pre-eclampsia, we have found frequent severe disease (70.8%), caesarean section (64.6%), preterm birth (41.7%), low birthweight (39.6%), NICU admission (35.4%), perinatal mortality (18.8%), and maternal mortality (2.1%). Our findings highlight the large burden of maternal and perinatal morbidity of pre-eclampsia in a tertiary setting. Our results are consistent with previous studies in similar settings. Law et al. reported that in Ghanaian pregnancies with severe eclampsia or pre-eclampsia, over half of the neonates experienced unfavorable outcomes, including NICU admissions and stillbirths as frequent events [11]. The incidence of stillbirth in their publication was slightly lower than in our own (11.9% compared to 12.5%), although NICU admissions were greater (~50% versus 35.4%). Adu-Bonsaffoh et al. observed that preterm birth occurred in about 35% of the pre-eclamptic women, not far from our found 41.7% [12]. Their rate of low birthweight (40.7%) also did not differ significantly from our own 39.6%, suggesting the same pattern of intrauterine growth restriction and pretermness of the pre-eclamptic pregnancies in these environments. Our 64.6% caesarean rate is the need for emergency delivery in cases of maternal or fetal compromise. Data from Paropakar Maternity and Women's Hospital, Nepal also supports this finding with pre-eclampsia being strongly associated with higher odds for caesarean section and preterm [13]. Another study at a university maternity hospital further reported more than 75% of caesarean section rates among eclampsia and pre-eclampsia patients reiterating the trend of operational delivery as the procedure of preference for reducing maternal and perinatal risks [14]. Maternal morbidity in our research, including ICU admissions (18.8%), acute kidney injury (6.3%), and HELLP syndrome (6.3%), is within the same pattern found by Pokharel et al., who reported similar complications such as abruptio placentae, pulmonary edema, and acute renal failure [15]. Our 2.1% maternal mortality rate is slightly lower than some low- and middle-income settings and is likely to reflect the availability

of timely obstetric and critical care within our centre. Fetal and newborn outcome remains a major issue, with a high rate of preterm birth, low birth weight babies, and perinatal mortality. This agrees with reports of a multicentre Ghanaian study that identified fetal growth restriction and birth asphyxia as prevalent complications of pre-eclampsia-complicated pregnancies [16]. Despite enhanced survival for the mother from enhanced obstetric care, adverse fetal outcomes remain highly prevalent, mainly because of prematurity, intrauterine growth restriction, and limited neonatal intensive care services.

Limitations of The Study

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

V. CONCLUSION

Pre-eclampsia remains a major contributor to maternal and fetal morbidity, with high rates of severe disease, operative delivery, and adverse perinatal outcomes. While maternal mortality was low, complications such as preterm birth, low birthweight, and NICU admission were common.

VI. RECOMMENDATION

Strengthening antenatal care with early detection of pre-eclampsia, timely referral to tertiary centers, and close maternal-fetal monitoring is essential. Additionally, improving neonatal care facilities and ensuring prompt interventions can help reduce perinatal morbidity and mortality in affected pregnancies.

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REFERENCES

[1]. Mol BW, Roberts CT, Thangaratinam S, Magee LA, De Groot CJ, Hofmeyr GJ. Pre-eclampsia. The Lancet. 2016 Mar 5;387(10022):999-1011.

[2]. Bello NA, Zhou H, Cheetham TC, Miller E, Getahun D, Fassett MJ, Reynolds K. Prevalence of hypertension among pregnant women when using the 2017 American College of Cardiology/American Heart Association blood pressure guidelines and association with maternal and fetal outcomes. JAMA Network Open. 2021 Mar 1;4(3):e213808-.

[3]. Brown MA, Magee LA, Kenny LC, Karumanchi SA, McCarthy FP, Saito S, Hall DR, Warren CE, Adoyi G, Ishaku S. Hypertensive disorders of pregnancy: ISSHP classification, diagnosis, and management recommendations for international practice. Hypertension. 2018 Jul;72(1):24-43.

[4]. Chappell LC, Cluver CA, Tong S. Pre-eclampsia. The Lancet. 2021 Jul 24;398(10297):341-54.

[5]. Rana S, Lemoine E, Granger JP, Karumanchi SA. Preeclampsia: pathophysiology, challenges, and perspectives. Circulation research. 2019 Mar 29;124(7):1094-112.

[6]. Baylis A, Zhou W, Menkhorst E, Dimitriadis E. Prediction and prevention of late-onset pre-eclampsia: a systematic review. Frontiers in medicine. 2024 Nov 21;11:1459289.

[7]. Abalos E, Cuesta C, Carroli G, Qureshi Z, Widmer M, Vogel JP, Souza JP, WHO Multicountry Survey on Maternal and Newborn Health Research Network. Pre-eclampsia, eclampsia and adverse maternal and perinatal outcomes: a secondary analysis of the World Health Organization Multicountry Survey on M aternal and N ewborn H ealth. BJOG: An International Journal of Obstetrics & Gynaecology. 2014 Mar;121:14-24.

[8]. Nathan HL, Seed PT, Hezelgrave NL, De Greeff A, Lawley E, Conti-Ramsden F, Anthony J, Steyn W, Hall DR, Chappell LC, Shennan AH. Maternal and perinatal adverse outcomes in women with pre-eclampsia cared for at facility-level in South Africa: a prospective cohort study. Journal of Global Health. 2018 Jul 29;8(2):020401.

[9]. Mersha AG, Abegaz TM, Seid MA. Maternal and perinatal outcomes of hypertensive disorders of pregnancy in Ethiopia: systematic review and meta-analysis. BMC pregnancy and childbirth. 2019 Dec 3;19(1):458.

[10]. MacDonald TM, Walker SP, Hannan NJ, Tong S, Kaitu'u-Lino TU. Clinical tools and biomarkers to predict preeclampsia. EBioMedicine. 2022 Jan 1;75.

[11]. Lawrence ER, Beyuo TK, Kobernik EK, Moyer CA, Oppong SA. A comparative analysis of neonatal outcomes in pregnancies complicated by preeclampsia and eclampsia in Ghana. AJOG Global Reports. 2022 Aug 1;2(3):100061.

[12]. Adu-Bonsaffoh K, Ntumy MY, Obed SA, Seffah JD. Perinatal outcomes of hypertensive disorders in pregnancy at a tertiary hospital in Ghana. BMC pregnancy and childbirth. 2017 Nov 21;17(1):388.

[13]. Das S, Maharjan R, Bajracharya R, Shrestha R, Karki S, Das R, Odland JØ, Odland ML. Pregnancy outcomes in women with gestational hypertension and preeclampsia at Paropakar Maternity and Women's Hospital, Nepal: A retrospective study. PLoS One. 2023 Jun 2;18(6):e0286287.

[14]. Xavier IM, Simões AC, Oliveira RD, Barros YE, Sarmento AC, Medeiros KS, Costa AP, Korkes H, Gonçalves AK. Maternal-fetal outcomes of women with hypertensive disorders of pregnancy. Revista da Associação Médica Brasileira. 2023 Jun 2;69:e20230060.

[15]. Pokharel N, Shrestha M, Regmi M. Maternal, fetal, and newborn outcomes in pre-eclampsia and eclampsia: a hospital-based study. Health Renaissance. 2014;12(2):106-10.

[16]. Anto EO, Boadu WI, Ansah E, Tawiah A, Frimpong J, Tamakloe VC, Korsah EE, Acheampong E, Asamoah EA, Opoku S, Adua E. Prevalence of preeclampsia and algorithm of adverse foeto-maternal risk factors among pregnant women in the Central Region of Ghana: A multicentre prospective cross-sectional study. PLoS One. 2023 Jun 29;18(6):e0288079.