

Perinatal Outcomes of Pregnant Women with Hypertensive Disorders: A Single Center Study in Bangladesh

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DOI: [10.36348/sijog.2023.v06i11.005](https://doi.org/10.36348/sijog.2023.v06i11.005)

Received: 13.10.2023 | Accepted: 17.11.2023 | Published: 29.11.2023

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Abstract

Background: Hypertensive disorders during pregnancy, including gestational hypertension and preeclampsia, can lead to adverse outcomes for both the mother and the baby. Exploring the perinatal outcomes of pregnant women with hypertensive disorders is crucial for improving maternal and neonatal health. **Aim of the study:** This study aimed to assess the perinatal outcomes of pregnant women with hypertensive disorders. **Methods:** This cross-sectional study was conducted at the Department of Gynecology & Obstetrics, 250 Bed General Hospital, Meherpur, Bangladesh from January 2021 to December 2021. A total of 87 pregnant women with hypertensive disorders were enrolled in this study as the study subjects purposively. For data analysis, MS Office tools were used. **Results:** In this study, the majority of participants underwent cesarean delivery (55%), with 38% having a normal vaginal delivery, and 7% undergoing instrumental delivery. Maternal complications included HELLP (Hemolysis, elevated liver enzymes, and low platelets) syndrome in 18% of cases, abruption placenta in 8%, and pulmonary embolism in 6%. Normal perinatal outcomes were observed in 51% of cases, while 26% experienced preterm birth, 15% had low birth weight, 6% resulted in stillbirth, and 2% led to intrauterine fetal death (IUFD). **Conclusion:** By administering appropriate interventions, the incidence of cesarean delivery may be reduced in pregnant women with hypertensive disorders. Physicians are strongly encouraged to pay special attention to prevent HELLP (Hemolysis, elevated liver enzymes, and low platelets) syndrome in these cases.

Keywords: Gestational age, Hypertension, Parity, Pregnancy Outcome, Preeclampsia, Eclampsia.

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1. INTRODUCTION

Hypertensive disorders of pregnancy (HDP) pose a significant threat to the health of both mothers and fetuses and are a leading cause of maternal mortality worldwide [1]. Among these disorders, gestational hypertension is the most commonly encountered medical issue during pregnancies, affecting approximately 6-8% of expectant mothers [2]. Conversely, preeclampsia and eclampsia afflict around 10% of pregnant women, resulting in considerable maternal and fetal morbidity and contributing to 15% of maternal mortality [3]. Gestational hypertension and pre-eclampsia are associated with preterm delivery, intrauterine growth restriction, and perinatal mortality. Severe pre-eclampsia can progress to eclampsia and lead to complications such as placental abruption, severe hemorrhage, multi-organ failure, and other serious health issues [4]. It is associated

with an increased likelihood of cesarean delivery, thrombocytopenia, cerebral edema, liver insufficiency, sub-capsular liver hematoma, renal failure, and disseminated intravascular coagulation (DIC) [5]. The incidence of hypertensive disorders of pregnancy (HDP) has been on the rise, increasing from 5.22% in 2011 to 6.40% between 2014 and 2018 [6]. In China, these disorders affect almost 5.22% to 5.57% of pregnant women [7]. The adverse maternal and fetal outcomes associated with HDP have significant implications for public health. As a result, numerous studies have been conducted to enhance the management of HDP and improve perinatal outcomes [8, 9]. Many maternal deaths and complications result from a combination of factors such as limited access to resources (including healthcare, education, and finances), deficiencies in antenatal care, ineffective prevention strategies, and

inadequate diagnosis and management of patients with preeclampsia or eclampsia. Pregnancies affected by hypertensive disorders are at a heightened risk of complications, making careful monitoring essential [10]. Timely detection and proper management of these complications can significantly reduce their impact [11]. Nurses play a crucial role in preventing complications related to gestational hypertension and in collaborating to detect these disorders early and provide appropriate care to mitigate their adverse effects on both mother and infant. Effectively managing preeclampsia and eclampsia necessitates knowledgeable and highly skilled nurses who can assess women's needs and challenges and deliver the necessary nursing care to save lives [12]. The objective of this current study was to assess the perinatal outcomes of pregnant women with hypertensive disorders.

2. METHODOLOGY

This was a cross-sectional study that was conducted at the Department of Gynecology & Obstetrics, 250 Bed General Hospital, Meherpur, Bangladesh from January 2021 to December 2021. A total of 87 pregnant women with hypertensive disorders were enrolled in this study as the study subjects. Properly written consent was taken from all the participants before data collection. A purposive sampling technique was employed for sample selection, focusing on the convenience of selecting participants. Socio-demographic and obstetric data were collected from pregnant and postpartum women who visited obstetric departments from admission to discharge, and the information was de-identified. As per the study's exclusion criteria, patients who did not provide data and those under the age of 16 years were excluded from the study. All demographic and clinical information for the participants was documented, and data processing, analysis, and reporting were performed using MS Office tools.

3. RESULT

In this study, as per the age distribution of study subjects, we observed that the highest number of participants (71%) were from the 21-30 year's age group. In analyzing the gestational age of our total cases, it was found that in more than half of the cases (57%), the gestational age was ≥ 8 weeks. Most of our participants (82%) were married. As per the type of parity distribution, it was observed that about half of the participants (47%) were primiparous. Besides, 33% and 20% of cases were multiparous and grand parous

respectively. In the current study, as per the type of hypertensive disorders of pregnancy, it was found that the majority of the participants (59%) had preeclampsia. Besides, 20%, 13%, and 9% of cases had eclampsia, gestational hypertension, and chronic hypertension, respectively. As per the distribution of blood pressure categories at birth admission of this study subjects, we found that the majority (60%) of cases were found in non-severe stage 2. Besides, 20% and 17% of cases were in severe stage 2 and stage 1. It was found that most of the participants (55%) took ANC regularly and the rest of the cases (45%) did not. As for the mode of delivery distribution, we found that in most of the cases (55%), cesarean, in 38% of cases normal vaginal, and in 7% of cases instrumental delivery occurred. Among our total participants, in 18%, 8%, and 6% of cases HELLP (Hemolysis, elevated liver enzymes, and low platelets) syndrome, abruption placenta, and pulmonary embolism were found as maternal complications respectively. Normal perinatal outcomes were found in 51% of cases. Preterm birth, low birth weight, stillbirth, and intrauterine fetal death (IUFD) in 26%, 15%, 6%, and 2% cases respectively.

Table 1: Age distribution of participants (N=87)

Age (In Years)	n	%
16-20 yrs.	4	5%
21-30 yrs.	62	71%
31-40 yrs.	16	18%
>40 yrs.	5	6%

Table 2: Gestational age distribution (N=87)

Weeks	n	%
1-4	11	13%
5-7	24	28%
≥ 8	50	57%
Unknown	2	2%

Table 3: Marital status of women (N=87)

Marital status	n	%
Married	71	82%
Unmarried	6	7%
Divorced	5	6%
Widowed	5	6%

Table 4: Parity of total women (N=87)

Parity	n	%
Primipara	41	47%
Multipara	29	33%
Grand multipara	17	20%

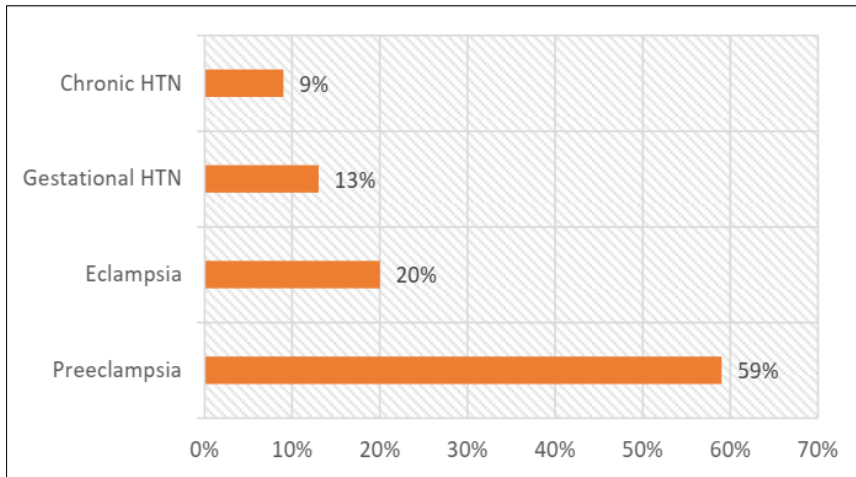


Figure I: Type of hypertensive disorders. (N=87)

Table 5: Blood pressure categories at birth admission (N=87)

Severity	n	%
Normal	1	1%
Elevated	2	2%
Stage 1	15	17%
Non-severe stage 2	52	60%
Severe stage 2	17	20%



Figure II: ANC visits of participants. (N=87)

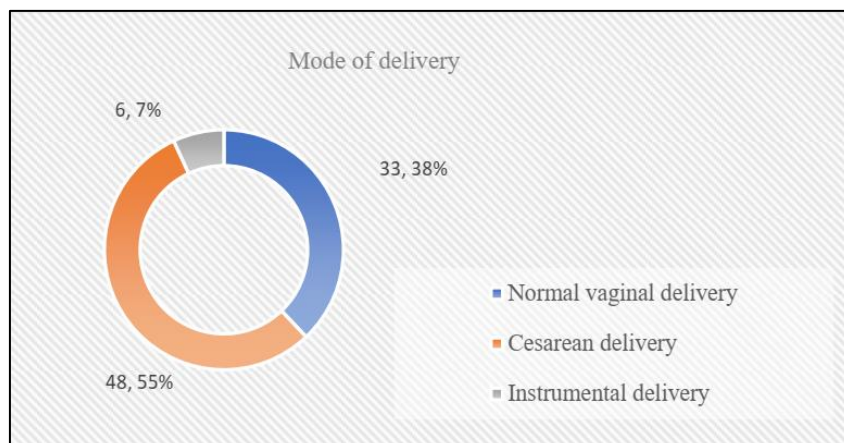


Figure III: Mode of delivery. (N=87)

Table 6: Maternal complications among woman (N=87)

Complications	n	%
HELLP syndrome	16	18%
Abruption placenta	7	8%
Pulmonary embolism	5	6%
DIC	2	2%
Acute renal failure	2	2%

HELLP: Hemolysis, elevated liver enzymes, and low platelets

Table 7: Perinatal outcomes (N=87)

Perinatal outcomes	n	%
Normal	44	51%
Preterm birth	23	26%
Low birth weight	13	15%
Stillbirth	5	6%
IUFD	2	2%

IUFD: intrauterine fetal death

4. DISCUSSION

This study aimed to assess the perinatal outcomes of pregnant women with hypertensive disorders. In this study, when considering the age distribution of the study subjects, it was evident that the largest proportion (71%) fell within the 21- 30 years age group. A similar trend was observed in a study conducted by Mesganew Amare [13], where the majority of participants (84.83%) were in the 20-34 age group. When analyzing the gestational age of all cases in our study, it was revealed that over half of the cases (57%) had a gestational age of ≥ 8 weeks. Similar findings were reported in another study by Yang Y, *et al.*, [14]. Regarding the type of hypertensive disorders of pregnancy in the current study, the majority of participants (59%) were diagnosed with preeclampsia. Additionally, 20% had eclampsia, 13% had gestational hypertension, and 9% had chronic hypertension. Another study highlighted that preeclampsia and eclampsia tend to result in more complications for fetal and neonatal outcomes compared to gestational hypertension [15]. This could be attributed to variations in the severity of complications among each type of HDP. In this study, when assessing the distribution of blood pressure categories at the time of birth admission for the study subjects, the majority (60%) of cases were classified as non-severe stage 2. Additionally, 20% and 17% of cases were in severe stage 2 and stage 1, respectively. Similar results were reported in a previous study [14]. It was noted that the majority of participants (55%) received regular antenatal care (ANC), while 45% did not. This finding aligns with a study conducted in Wolaita Sodo Teaching and Referral Hospital and other cohort studies [16, 17]. The regular ANC follow-up likely provides an opportunity for early screening of hypertensive disorders of pregnancy (HDP) and timely initiation of treatment before further complications develop. Regarding the mode of delivery, the study revealed that in the majority of cases (55%), cesarean sections were performed,

normal vaginal deliveries occurred in 38% of cases, and instrumental deliveries were performed in 7% of cases. Among all the participants, maternal complications were observed in 18% of cases, with HELLP (Hemolysis, elevated liver enzymes, and low platelets) syndrome, abruption placenta in 8% of cases, and pulmonary embolism in 6% of cases. In this study, normal perinatal outcomes were observed in 51% of cases. Preterm birth, low birth weight, stillbirth, and intrauterine fetal death (IUFD) occurred in 26%, 15%, 6%, and 2% of cases, respectively. These findings align with those of a cross-sectional study conducted in the Amhara region [18]. Recent studies [19-21] have reported that maternal complications of preeclampsia may include severe outcomes such as death, pulmonary edema, renal failure, coagulopathy, cardiac failure, liver failure, stroke, HELLP syndrome, placental abruption, and the need for cesarean section. The findings of this current study can serve as valuable insights for further research in this area.

Limitation of the Study

This study was limited in scope, being conducted at a single center with a relatively small sample size. Furthermore, the study had a relatively short duration. As a result, the findings of this study may not be fully representative of the broader situation across the entire country.

5. CONCLUSION & RECOMMENDATION

Administering targeted interventions can potentially lead to a reduction in the incidence of cesarean delivery among pregnant women with hypertensive disorders. It is crucial for healthcare providers to be particularly vigilant in preventing complications such as HELLP (Hemolysis, elevated liver enzymes, and low platelets) syndrome in these cases. These measures could not only improve maternal outcomes but also reduce the need for cesarean sections, contributing to safer and healthier pregnancies for women with hypertensive disorders.

Funding: No funding sources.

Conflict of Interest: None declared.

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