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ORIGINAL RESEARCH

Assessment of hypertensive disorders in pregnancy and outcome of neonates: A tertiary care centre in west Bengal

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ABSTRACT

Background: Hypertension during pregnancy is defined as a blood pressure reading of 140 mmHg or above at the systolic or diastolic levels, or both. Increases in both the systolic and diastolic blood pressure are critical in determining if a patient has pregnancy-induced hypertension.The present study was conducted to assess hypertensive disorders of pregnancy and outcome of neonates. **Materials &Methods:** 102 pregnant mothers were selected. Parameters such as maternal age, mode of delivery, neonatal outcomes such as gestational age, neonate birth weight, asphyxia, NICU admission, and neonatal death was recorded. **Results:** The mode of delivery was vaginal in 65 and cesarean in 37. Past medical history showed hypertension in 25 and IUFD in 6 cases. Hypertensive disorders were pre- eclampsia & eclampsia in 74, pre- eclampsia superimposed on chronic HTN in 15, gestational in 10 and chronic HTN in 3 cases. The difference was significant (P< 0.05). gestational age was pre- term in 25 and term in 78. Neonatal weight was <2500 grams in 32 and 2500-4000 grams in 70. Congenital malformation was seen in 2, respiratory distress in 35 and meconium aspiration syndrome in 1. There were 38 NICU admission and 15 NICU deaths. The difference was significant (P< 0.05). **Conclusion:** Maternal hypertensive disorders were significantly associated with adverse neonatal outcomes.

Keywords: Hypertension, pregnancy, blood pressure

INTRODUCTION

Hypertension during pregnancy is defined as a blood pressure reading of 140 mmHg or above at the systolic or diastolic levels, or both. Increases in both the systolic and diastolic blood pressure are critical in determining if a patient has pregnancy-induced hypertension.[1] When a woman with previously normal blood pressure experiences hypertension after 20 weeks of gestation, it is known as pregnancy-induced hypertension (PIH). Pre-eclampsia, eclampsia, and gestational hypertension are the three general categories of pregnancy-induced hypertension.[2]High blood pressure during pregnancy is defined as 140 mmHg or above in the systolic or diastolic range, or both. Increases in both the systolic and diastolic blood pressure are significant markers of pregnancy-induced hypertension. Pregnancy-induced hypertension (PIH) is a type of hypertension in women with previously normal blood pressure that develops after 20 weeks of gestation. Pre-eclampsia, eclampsia, and gestational hypertension are the three general categories of pregnancy-induced hypertension.[3]

Preeclampsia is a major cause of morbidity and mortality among mothers and newborns, especially in underdeveloped nations. When proteinuria, edema, and/or high blood pressure are present in late pregnancy, the disease is typically diagnosed. Understanding the prevalence, etiology, and pathophysiology of every disease process is essential to its prevention. Medication records should be examined upon initial diagnosis of pregnancy.[4,5]The present study was conducted to assess hypertensive disorders of pregnancy and outcome of neonates.

MATERIALS & METHODS

The study was carried out 102 pregnant mothers. All gave their written consent to participate in the study.

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Data such as name, age, gender etc. was recorded. Parameters such as maternal age, mode of delivery, neonatal outcomes such as gestational age, neonate birth weight, asphyxia, NICU admission, and neonatal death was recorded. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table IMaternal sociodemographic data

Parameters	Variables	Number	P value
Mode of delivery	Vaginal	65	0.01
	Cesarean	37	
Past Medical History	Hypertension	25	0.01
	IUFD	6	
Hypertensive disorders	Pre- eclampsia & eclampsia	74	0.02
	Pre- eclampsia superimposed on chronic HTN	15	
	Gestational	10	
	Chronic HTN	3	

Table I shows that mode of delivery was vaginal in 65 and cesarean in 37. Past medical historyshowed hypertension in 25 and IUFD in 6 cases. Hypertensive disorders were pre- eclampsia & eclampsia in 74, pre-eclampsia superimposed on chronic HTN in 15, gestational in 10 and chronic HTN in 3 cases. The difference was significant (P< 0.05).

Table II Neonatal parameters

Parameters	Variables	Number	P value
Gestational age	Pre- term	25	0.01
	Term	78	
Neonatal weight	<2500	32	0.02
	2500-4000	70	
Congenital malformation	Yes	2	
	No	100	
Respiratory distress	Yes	35	0.04
	No	67	
Meconium aspiration syndrome	Yes	1	0.01
	No	101	
NICU admission	Yes	38	0.03
	No	64	
NICU death	Yes	15	0.01
	No	87	

Table II, graph I shows that gestational age was pre- term in 25 and term in 78. Neonatal weight was <2500 grams in 32 and 2500-4000 grams in 70. Congenital malformation was seen in 2, respiratory distress in 35 and meconium aspiration syndrome in 1. There were 38 NICU admission and 15 NICU deaths. The difference was significant (P< 0.05).

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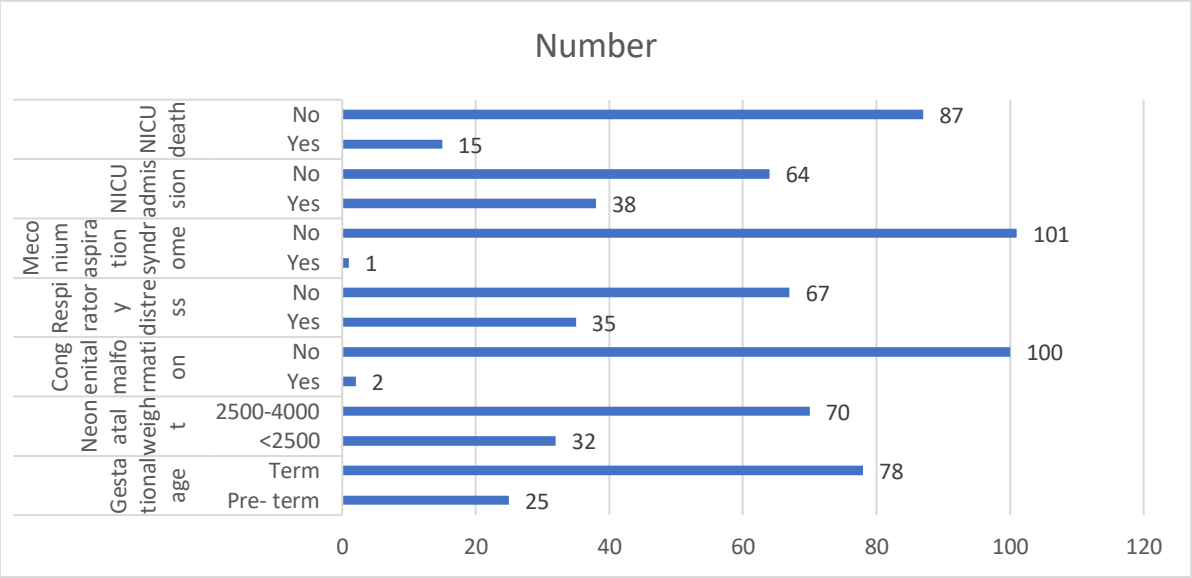
Graph I Neonatal parameters



DISCUSSION

One of the main causes of illness and mortality in mothers and perinatals is pregnancy-induced hypertension. Hypertension is the second greatest cause of maternal mortality in the United States, accounting for around 15% of all maternal deaths.[6] The mother's risk of cardiac failure, heart attack, renal failure, and brain vascular accidents is increased by severe hypertension. Furthermore, the fetus is more vulnerable to problems such as inadequate oxygen transfer throughout pregnancy, growth limitation, premature delivery, placental abruption, stillbirth, and neonatal mortality.[7] With a reported frequency of 5–10%, hypertensive disorders are the most prevalent medical problems associated with pregnancy. Preeclampsia is a major global cause of maternal and newborn morbidity and mortality, with a concentration in developing nations.[8]When proteinuria, edema, and/or high blood pressure are present in late pregnancy, the disease is typically diagnosed. Understanding the prevalence, etiology, and pathophysiology of every disease process is essential to its prevention.[9] The present study was conducted to assess hypertensive disorders of pregnancy and outcome of neonates.

We found that mode of delivery was vaginal in 65 and cesarean in 37. Past medical history showed hypertension in 25 and IUFD in 6 cases. Hypertensive disorders were pre- eclampsia & eclampsia in 74, pre-eclampsia superimposed on chronic HTN in 15, gestational in 10 and chronic HTN in 3 cases. Rocha de Moura et al[10]assessed the impact of gestational hypertensive disorders on premature newborns below 34 weeks and to establish the main morbidities and mortality in the neonatal period and at 18 months.Outcomes during hospitalization and outcomes of interest were evaluated: respiratory distress syndrome (RDS), brain ultrasonography, diagnosis of bronchopulmonary dysplasia (BPD), diagnosis of necrotizing enterocolitis, retinopathy of prematurity, breastfeeding rate at discharge, survival at discharge and at 18 months of chronological age and relationship between weight and gestational age.Newborns with hypertensive mothers had significantly lower measurements of birth weight and head circumference. The G1 group had a higher risk small for gestational age (OR 2.4; CI 95% 1.6–3.6; p <0.00), as well as a greater risk of being born with a weight less than 850 g (OR 2.4; 95% CI 1.2–3.5; p <0.00). Newborns of mothers with hypertension presented more necrotizing enterocolitis (OR 2.0; CI 95% 1.1–3.7); however, resuscitation in the delivery room and the need to use surfactant did not differ between groups, nor did the length of stay on mechanical ventilation, or dependence on oxygen at 36 weeks of gestational age. Survival was better in newborns of normotensive mothers, and this was a protective factor against death (OR 0.7; 95% CI 0.5–0.9; p <0.01). In the follow-up clinic, survival at 18 months of chronological age was similar between groups, with rates of 95.3% and 92.1% among hypertensive and normotensive mothers, respectively. Exclusive breastfeeding at discharge was 73.4% in the group of hypertensive women and 77.3% in the group of normotensive mothers. There were no significant differences between groups.

We found thatgestational age was pre- term in 25 and term in 78. Neonatal weight was <2500 grams in 32 and 2500-4000 grams in 70. Congenital malformation was seen in 2, respiratory distress in 35 and meconium aspiration syndrome in 1. There were 38 NICU admission and 15 NICU deaths. Uwizeyimana P et al[11]assessed the association between maternal hypertension disorders in pregnancy and immediate neonatal outcomes. Neonatal outcomes included low birth weight (75.4%), prematurity (59.6%), admission to neonatal intensive care unit (50.4%), intrauterine growth restriction (32.4%), and neonatal death

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(22.8%). Nearly two-thirds (62%) of mothers had preeclampsia. Significant associations with immediate neonatal outcomes included gestational age, medical history, delivery mode, maternal referral status, preterm birth, prematurity, and abortion.

Bangal et al[12] in their study, there were 50 women with PIH and 50 women without PIH. The women with PIH and without PIH, both groups were matched for their background information. It was found that there was no association with primipara and multipara with PIH. Menstrual history had also no association with present PIH condition. Family history of hypertension and family history of diabetes mellitus also had not association with present PIH. Past history of PIH had strong association with current PIH for women who are multigravida. Also, there was interesting observation that vegetarian had higher chance of getting PIH then mixed diet pattern.

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that maternal hypertensive disorders were significantly associated with adverse neonatal outcomes.

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