

Assessment of the Early Neonatal Outcome in Babies with Low Birth Weight Born to Hypertensive Mothers at a Tertiary Care Centre in Bihar

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Conflict of interest: Nil

Abstract

Background: Pregnancy-induced hypertension (PIH) is responsible for 8–10% of all preterm births, 18% of fetal and infant mortality, and 46% of infants born are small for gestation (SGA). PIH is not by itself an indication for caesarean delivery.

Aims & Objectives: The present study was conducted to assess early neonatal outcome in low-birth weight babies in mothers with hypertensive disorders.

Materials & Methods: In the present prospective cross-sectional study, there were 72 women who delivered low-birth-weight babies and had pregnancies that were complicated by hypertension. There were two groups of 36 patients each. Group I represented vaginal delivery, while Group II represented caesarean delivery. There were measurements made for early neonatal outcome, neonatal problems, and different types of hypertensive disorders in pregnancy.

Results: Socio-economic status (SES) was higher in 4 in group I and 7 in group II, middle in 12 in group I and 10 in group II, and lower in 20 in group I and 19 in group II. Gravidity was Primigravida in 4 in group I and 22 in group II, and multi-gravida in 12 in group I and 14 in group II. The difference was significant ($P < 0.05$). APGAR score at 1 minute < 7 , in group I was 25 and in group II was 26. At 5 minutes < 7 , 13 were seen in group I and 12 in group II. NICU admissions were seen in 22 patients in group I and 28 in group II. Neonatal complications included birth asphyxia, seen in 12 in group I and 10 in group II; meconium aspiration syndrome (MAS), seen in 3 in group I and 2 in group II; and intraventricular hemorrhage (IVH), seen in 2 in group I and 1 in group II. The difference was significant ($P < 0.05$).

Conclusion: Neonatal outcomes are not worsened by spontaneous or induced vaginal delivery in women with hypertension who have good control, and caesarean section decreases morbidity for the mother.

Keywords: Neonatal Outcomes, Pregnancy Induced Hypertension, Preterm Births.

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Introduction

Pregnancy-induced hypertension (PIH) is responsible for 8–10% of all preterm births, 18% of fetal and infant mortality, and 46% of infants born are small for gestation (SGA).[1] PIH is not by itself an indication for caesarean delivery.[1,2] Although the evidence favoring caesarean delivery remains uncertain, in most cases of severe preeclampsia before 34 weeks, approximately 80% of these women will end up having caesarean deliveries.[3,4]

Induction of labor does not worsen neonatal outcomes in women with early-onset severe preeclampsia, although it is rarely successful at < 28 weeks of gestation. Pregnancies complicated by hypertension are associated with an increased risk of foetal and neonatal outcomes, as well as maternal consequences, including intrauterine growth restriction, preterm birth, post- or antepartum hemorrhage, acute renal and hepatic failure, and lastly maternal and perinatal death.[5] Maternal complications—including HELLP syndrome, temporary blindness, abruptio placentae, disseminated intravascular coagulation (DIC), etc. Fetal complications: intrauterine growth retardation, preterm birth, small for gestational age, fetal death, HELLP syndrome, etc. [6,7]

Aims and Objectives: The present study was conducted to assess early neonatal outcomes in low-birth-weight babies born to hypertensive mothers.

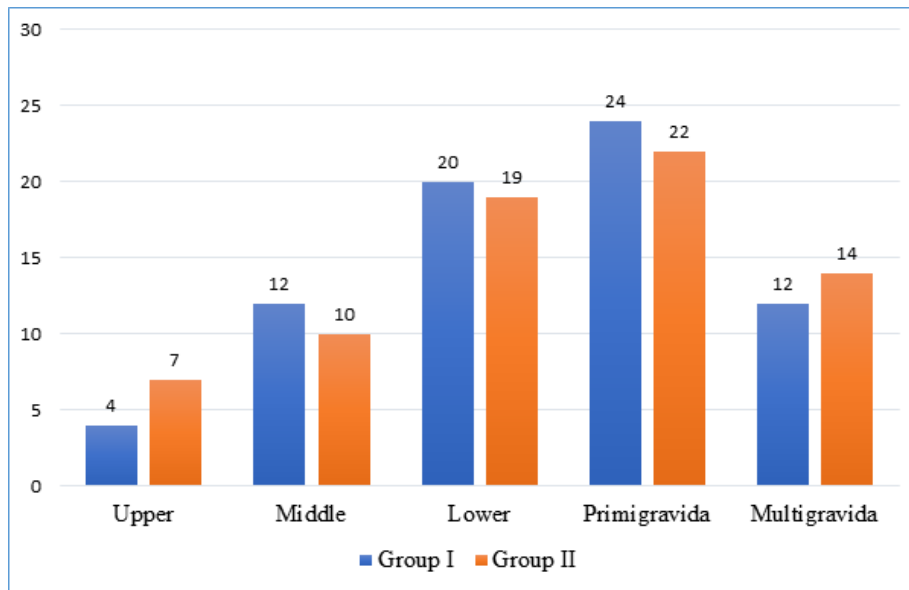
Materials & Methods

In the present prospective cross-sectional study, 72 women who delivered low-birth-weight babies and had pregnancies that were complicated by hypertension participated in the Department of Obstetrics and Gynecology, Government Medical College, Bettiah, Bihar, India. All participants received signed consent after being told about the study. Data such as names, ages, and other information were recorded. The study duration was January 2020 to June 2021. There were two groups of 36 patients each. Group I represented vaginal delivery, while Group II represented caesarean delivery. There were measurements made for early neonatal outcome, neonatal problems, and different types of hypertensive disorders in pregnancy. Continuous variables with median and interquartile ranges are presented for nominal variables along with numbers and frequencies. Differences between groups were assessed using ANOVA tests, where appropriate, for numeric variables and the Chi square test for categorical variables. The SPSS 22.0 software and Microsoft Excel 15 were used to perform the statistical analysis. The obtained data were then analyzed statistically. P values under 0.05 were regarded as significant.

Result

Table 1: Assessment of maternal variables

Parameters	Variables	Group I	Group II	P value
Socio- economic status	Upper	4	7	0.01
	Middle	12	10	
	Lower	20	19	
Gravidity	Primigravida	24	22	0.05
	Multigravida	12	14	



Graph 1: Assessment of material variables

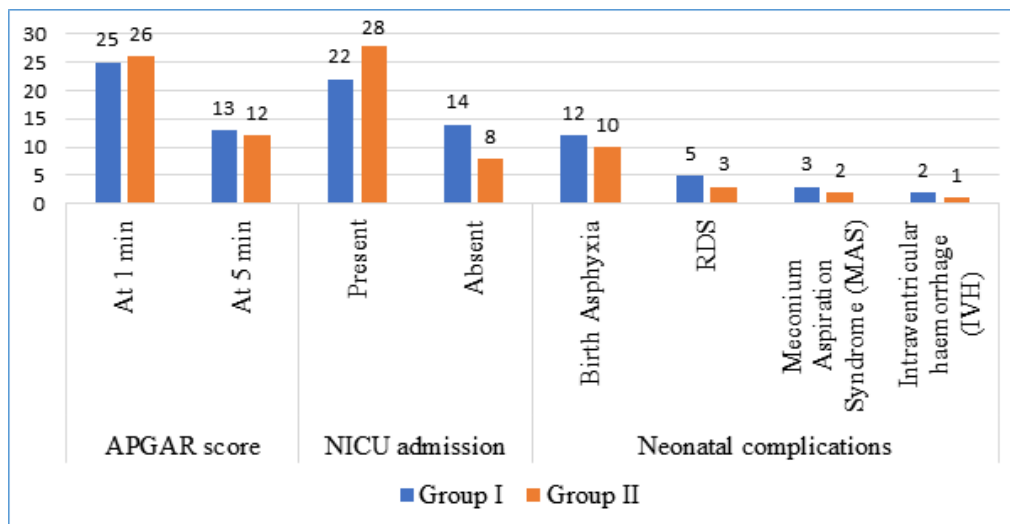
Table I and Graph I shows that SES was upper in 4 in group I and 7 in group II, middle in 12 in group I and 10 in group II, and lower in 20 in group I and 19 in group II. Gravidity was Primigravida in 24 in group I and 22 in group II, and multigravida in 12 in group I and 14 in group II. The difference was significant ($P < 0.05$).

Table 3: Assessment of neonatal outcomes

Parameters	Variables	Group I	Group II	P value
APGAR score	At 1 min < 7	25	26	0.05
	At 5 min < 7	13	12	
NICU admission	Present	22	28	0.02
	Absent	14	8	
Neonatal complications	Birth Asphyxia	12	10	0.05
	RDS	5	3	
	Meconium Aspiration Syndrome (MAS)	3	2	
	Intraventricular haemorrhage (IVH)	2	1	

Table II, Graph II, shows that the APGAR score at 1 minute < 7 , in group I was 25 and in group II was 26. At 5 minutes < 7 , 13 were seen in group I and 12 in group II. NICU admissions were seen in 22 patients in group I and 28 in group II. Neonatal complications included birth asphyxia, seen

in 12 in group I and 10 in group II; meconium aspiration syndrome (MAS), seen in 3 in group I and 2 in group II; and intraventricular hemorrhage (IVH), seen in 2 in group I and 1 in group II. The difference was significant ($P < 0.05$).



Graph 2: Assessment of neonatal outcomes

Discussion

The rate of primary caesarean sections has increased by 50% in the last decade, with preeclampsia contributing 10%.[8,9] Induction of labour in women with severe preeclampsia is not harmful to low-birthweight infants and appears to be a safe mode of delivery.[10] Pregnancies complicated by hypertension are associated with an increased risk of antagonistic foetal, neonatal, as well as maternal consequences, including intrauterine growth restriction, preterm birth, post- or antepartum haemorrhage, acute renal and hepatic failure, and lastly maternal and perinatal death.[11] The present study was conducted to assess early neonatal outcomes in low-birth-weight babies in mothers with hypertensive disorders. We found that SES was higher in 4 in group I and 7 in group II, middle in 12 in group I and 10 in group II, and lower in 20 in group I and 19 in group II. Gravity was Primigravida in 4 in group I and 22 in group II, and multigravida in 12 in group I and 14 in group II. Pili et al.[12] compared the immediate morbidity and survival advantage of LBW babies presented at the vertex with the mode of delivery in hypertensive disorders complicating pregnancies. Babies were followed up for one week following delivery to note the early neonatal outcome. In this study, over all, there was no

statistically significant difference in neonatal outcome in the vaginal delivery and caesarean section groups. However, there was a slight increase in the incidence of prematurity (68% vs. 64%), birth asphyxia (14% vs. 8%), sepsis (8% vs. 6%), IVH (6% vs. 2%), and hyperbilirubinemia (16% vs. 14%) in the vaginal delivery group. while RDS (20% vs. 14%) and NEC (4% vs. 2%) had a higher incidence in the caesarean delivery group. Overall, prematurity and IUGR resulting in LBW contributed to these neonatal complications. We found that the APGAR score at 1 minute < 7 in group I was 25 and in group II was 26. At 5 minutes < 7, 13 were seen in group I and 12 in group II. NICU admissions were seen in 22 patients in group I and 28 in group II. Neonatal complications included birth asphyxia, seen in 12 in group I and 10 in group II; meconium aspiration syndrome (MAS), seen in 3 in group I and 2 in group II; and intraventricular haemorrhage (IVH), seen in 2 in group I and 1 in group II. Moura et al.[13] assessed the impact of gestational hypertensive disorders on premature newborns below 34 weeks and established the main morbidities and mortality in the neonatal period and at 18 months. Newborns with hypertensive mothers had significantly lower measurements of birth weight and head circumference. The G1 group had a higher risk of being small for

gestational age as well as a greater risk of being born with a weight less than 850 g. Newborns of mothers with hypertension presented more necrotizing enterocolitis; 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 new-borns of normotensive mothers, and this was a protective factor against death. 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.

The limitation the study: In present study, sample size is small.

Conclusion

We found that neonatal outcomes are not worsened by spontaneous or induced vaginal delivery in women with hypertension with good control and also decreases morbidity due to caesarean section to the mother.

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