

ORIGINAL ARTICLE

Association of Neonatal Outcome with Time of Onset of Hypertensive Disease of Pregnancy

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ABSTRACT

Background : Severity and progression of Hypertensive Disease of Pregnancy varies in early and late onset disease. Neonatal outcome is dependent on the disease severity.

Study objective : To evaluate the neonatal outcome in early and late onset HDP

Design : Descriptive type of observational case control study

Setting : Hospital based

Sample : Women were included at their first antenatal visit. And followed up, 45 women developed HDP and were considered as cases. Equal number of normotensive women were taken as controls .

Duration of study : From June 2018 to May 2019.

Results : Prematurity was more in early onset HDP. Neonatal complications were also more in those women with early onset HDP.

Conclusion : Close vigilance of the women with HDP should be done from the start and kept under control to prevent neonatal complications

Key Words : Hypertensive Disease of Pregnancy, neonatal, growth restriction

INTRODUCTION

Hypertensive Disease of Pregnancy (HDP) is a leading cause of morbidity and mortality among mothers and infants worldwide¹. HDP is a major contributor of fetal prematurity, resulting from appropriate induced delivery due to impending eclampsia, eclampsia, abruptio placentae, abnormal doppler studies, persistent severe

oligohydramnios or even fetal death². It is also the leading cause of fetal growth restriction³. The objective of the study was to evaluate the fetal outcome in terms of growth restriction, preterm birth, still birth and neonatal intensive care unit admissions (NICU) in early and late onset HDP

MATERIALS AND METHOD

The observational study was done at a tertiary care centre over six months. Singleton pregnant women were enrolled at their first antenatal visit. Blood pressure measurements, investigations and routine examination were done at all visits. Women with pre-existing or gestational diabetes mellitus or chronic disease were excluded from the study. If a women developed systolic >140mm of Hg and diastolic >90mm of Hg after 20 weeks of gestation, on two readings taken 6 hrs apart, it was labeled as HDP. 45 women developed HDP and were considered as cases. Equal numbers of normotensive women were taken as controls. Hypertension that occurred before 34 weeks was labeled as early onset HDP and after 34 weeks as late onset HDP⁴. Women were monitored till delivery. Neonatal outcome was noted. Data collected was tabulated and analysed. P value < 0.05 was taken as significant.

RESULTS

In our study, 13.33% of all women had preterm birth. 75% of them had HDP. 6.66% were among normotensives due to preterm premature rupture of membranes as compared to 20% in HDP group due to abruptio placentae and severe HDP/eclampsia. Prematurity was more in early onset HDP 33.33% as compared to 15.15% in late onset disease. There was no

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statistical difference in mean gestational age at delivery in the three groups. Table 1.

Table 1. Gestational Age at Delivery and Onset of HDP

Gest. age at delivery	Normotensive 45	Early onset HDP 12	Late onset HDP 33
<32 wks	1	2	1
<36 wks	2	2	4
>36 wks	42	8	28
Mean age(wks)	39 weeks 4 days	38 weeks 4 days	39 weeks

There were less number of neonatal complications as the women in the study were under close vigilance. Stillbirth rate was 11.11% in women with HDP, 8.3% in early onset and higher (12.12%) in late onset group. 80% of them had abruption placentae. Table 2.

Table 2. Association of Neonatal Outcome With Onset of HDP

	Normotensive 45	Early onset HDP 12	Late onset HDP 33
Stillbirth	-	1	4
APGAR Score	<4	1	2
	4-7	8	5
	>7	36	22
Birth weight	<2.5kg	3	7
	>2.5kg	42	26
NICU admissions	2	4	6

In our study, 5 out of 40 (12.5%) livebirths born to women with HDP had APGAR score <4, though 70 % of neonates born to women with HDP were healthy with APGAR Score of >7.

Birthweight <2.5 kg was seen in 24.44 % of all women with HDP of which 63 % occurred in late-onset, as compared to 6.66% in normotensive women. 63.64% of babies with weight <2.5 kg were also growth restricted, all of them were born to women with HDP.

NICU admissions were 25% of the livebirths born to women with HDP as compared to 4% in normotensive women 36% livebirths born to women with early onset and 20% of the livebirths of late onset HDP needed NICU admission. Reason of NICU admission was either low birthweight due to prematurity or growth retardation, neonatal asphyxia or meconium aspiration syndrome. Table 3.

Table 3. Reasons for NICU Admissions

Reason	Normotensive 2	Early onset HDP 4	Late onset HDP 5
Low birth weight	1	2	3
Birth asphyxia/ Meconium aspiration Syndrome	1	2	3

DISCUSSION

Women with HDP have a higher proportion of under perfusion placental lesions than women who have a small for gestational age neonate without HDP (55.6% vs. 32.7%)⁵.

Early onset HDP, before 34 weeks represents one quarter of all HDP¹. It is placental mediated, linked to defective trophoblast invasion⁶. The presence of placental lesions such as decidual arteriopathy, infarctions, hypermaturity of villi (which relate to reduced uteroplacental blood flow) are more common in early-onset than in late-onset HDP⁷. These cause greater abruption placentae, intrauterine growth restriction. Late HDP (after 34 weeks) is linked to constitutional factors such as high body mass index⁶.

Thus, early-onset HDP is commonly associated with abnormal uterine artery Doppler and greater adverse maternal and neonatal outcomes^{8,9}. In contrast, late-onset disease is mostly associated with normal or slight increased uterine resistance index, a low rate of fetal involvement, and more favorable perinatal outcomes¹⁰.

In the study of Alsaadi et al¹¹, 54.11% women were found to have early, severe disease while 34.50% were diagnosed as mild HDP. Mean gestational age was 28 ± 3.5 weeks and birth weight was 1000 ± 416 gms.

In severe complicated HDP or eclampsia, termination of pregnancy is preferred. Preterm delivery rates are high and are mostly induced than spontaneous due to severity of HDP or due to complications.

CONCLUSION

In early onset of HDP, the severity was more and the neonatal outcome was poorer. The aim of management of HDP should be early detection and screening to prevent the development of severe disease and improve neonatal outcome.

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