

Mode of delivery in hypertensive disease of pregnancy

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Abstract

Introduction: The only effective treatment for hypertensive disease of pregnancy particularly preclampsia is termination of pregnancy. The aim was to evaluate the mode of delivery in pregnant women with hypertensive disorders. Childbirth is recommended for women with pre-eclampsia or gestational hypertension at term for maternal benefit, although expectant care is recommended for women with any hypertensive disorder of pregnancy at late preterm gestational ages to reduce neonatal respiratory morbidity (associated with labour induction and Caesarean delivery).

Material and Methods: This was a hospital based cross sectional analytical study which included 110 Primigravida females aged 20-30 years, with singleton live pregnancy, attending the antenatal clinic with over 20 weeks of gestation with hypertensive disease of pregnancy and equal number of normotensive pregnancies. Mode of delivery (vaginal/caesarean) was observed among different hypertensive disorder of pregnancy

Results: Most of the hypertensive pregnancy cases underwent LSCS (71.8%), contrary to this most (90.9%) of the controls had vaginal delivery ($p < 0.001$). LSCS was highest in females with eclampsia (100%) and severe preeclampsia (100%), followed by mild preeclampsia (50%) and was minimum in gestational hypertension (44.4%). This difference in mode of delivery was found to be statistically significant ($p < 0.001$).

Conclusion: Rate of caesarean section was more in hypertensive disease of pregnancy than in normotensive pregnancy and that rate was more among eclampsia followed by severe preclampsia than in gestational hypertension. This increased caesarean rate lead to increased morbidity and mortality among pregnant women.

Keywords: Pregnancy, LSCS, Eclampsia

Introduction

Throughout history, care for expectant mothers has been based on one overriding objective that each pregnancy should result in healthy mother and healthy baby. Whilst the majority of pregnancies are progressed satisfactorily

with minimal interventions from caring professionals, there is always a need to identify the high-risk groups for whom a degree of care is required. These “High Risk” groups require early identification and management. Amongst all these high-risk groups, hypertensive disorder of pregnancy contribute greatly to maternal and perinatal morbidity and mortality worldwide.¹

Importantly, more than half of the hypertension related morbidities in pregnancy are preventable². Early identification, proper counselling regarding warning signs and importance of follow up visits, early diagnosis of disease progression by healthcare providers is helpful in prevention and management of maternal and neonatal complications.

Hypertensive disorders in pregnancy can be included into four well defined groups:

- Gestational hypertension
- Pre-eclampsia, eclampsia
- Chronic hypertension
- Preeclampsia superimposed on chronic hypertension

The phrase ‘planned childbirth on the best day is the best way’ alludes to the fact that there is a myriad of considerations regarding timing and mode of childbirth in women with hypertensive disease of pregnancy, particularly preclampsia.³

Hypertensive disorders of pregnancy is accompanied by high maternal and fetal morbidity and mortality. Thus, delivery needs to be planned carefully. The only definitive way for treatment of pre-eclampsia is childbirth. Mode of delivery is usually determined by obstetric indications, however if there is evidence of fetal compromise at a gestational age remote from term, women with a hypertensive disease of pregnancy may benefit from delivery by caesarean. While associated with greater than average rates of Caesarean delivery, the

presence of a hypertensive disorder complicating a woman’s pregnancy is not an automatic indication for Caesarean delivery.

Material and Methods

This Hospital based cross sectional analytical study was conducted at Department of Obstetrics and Gynaecology at one of the largest tertiary care centre of Northern India, from March 2020 to March 2021. Primigravida females aged 20-30 years, with singleton live pregnancy, attending the antenatal clinic with over 20 weeks of gestation with hypertensive disease of pregnancy and equal number of normotensive pregnancies were included in the study. A total of 110 hypertensive disease of pregnancy and 110 normotensive pregnancies were included in the study. Patients were categorised according to severity of disease. Mode of delivery was observed in both the groups and among hypertensive cases. All information was recorded on a predesigned proforma and was entered in Microsoft Excel sheet.

Ethical clearance was obtained from Institutional Ethics Committee.

Statistical Analysis

Categorical variables were summarized as frequency and percentage and were analyzed using Chi square test. Continuous variables were summarized as mean and standard deviation and were analyzed using independent sample t test.

Results

The mean age of cases was 26.34 ± 2.28 years, while in control group it was 25.88 ± 2.29 years. No significant difference was seen among study groups in relation to any socio demographic characteristics (Table 1).

Most of the hypertensive pregnancy cases underwent LSCS (71.8%), contrary to this most (90.9%) of the controls had vaginal delivery ($p < 0.001$). Proportion of

low birth weight was significantly higher ($p < 0.001$) among hypertensive pregnancy cases (67.3%), as compared to control group (33.6%) (Table 2).

It was seen frequency of LSCS was highest in females with eclampsia (100%) and severe preeclampsia (100%), followed by mild preeclampsia (50%) and was minimum in gestational hypertension (44.4%). This difference in mode of delivery was found to be statistically significant ($p < 0.001$).

Table 1: Socio demographic characteristics of study groups

		Case Group	Control Group	P value
Age (years)		26.34 ± 2.28	25.88 ± 2.29	0.137
Religion	Hindu	94 (85.5%)	87 (79.1%)	0.289
	Muslim	16 (14.5%)	23 (20.9%)	
Literacy	Literate	47 (42.7%)	52 (47.3%)	0.588
	Illiterate	63 (57.3%)	58 (52.7%)	
Residence	Rural	56 (50.9%)	53 (48.2%)	0.787
	Urban	54 (49.1%)	57 (51.8%)	
SES	Upper	4 (3.6%)	2 (1.8%)	0.749
	Upper Middle	14 (12.7%)	19 (17.3%)	
	Lower Middle	34 (30.9%)	37 (33.6%)	
	Upper Lower	11 (10%)	9 (8.2%)	
	Lower	47 (42.7%)	43 (39.1%)	
Birth weight	LBW	74 (67.3%)	37 (33.6%)	<0.001 (S)
	NBW	36 (32.7%)	73 (66.4%)	

Table 2: Distribution of study subjects according to mode of delivery

Mode of delivery	Case Group		Control Group		Total	
	N	%	N	%	N	%
LSCS	79	71.8	10	9.1	89	40.5
Vaginal	31	28.2	100	90.9	131	59.5
Total	110	100	110	100	220	100

Chi-square = 87.253 with 1 degree of freedom; $P < 0.001$ (S)

Table 3: Distribution of hypertensive cases according to mode of delivery

Mode of delivery	Gestational Hypertension		Mild Preeclampsia		Severe preeclampsia		Eclampsia	
	N	%	N	%	N	%	N	%
LSCS	4	44.4	26	50.0	33	100	16	100
Vaginal	5	55.6	26	50.0	0	0	0	0
Total	9	100	52	100	33	100	16	100

Chi-square = 34.790 with 3 degrees of freedom; $P < 0.001$ (S)

Pregnancy-induced hypertension (PIH), chronic hypertension, and pre-eclampsia are the common complications of pregnancy, in which labour induction should be considered⁴.

In present study, most of the hypertensive pregnancy cases underwent LSCS (71.8%), while normal vaginal delivery was possible in only 28.2% of cases. Contrary to this most (90.9%) of the controls had vaginal delivery, while only 9.1% required LSCS. This difference was found to be statistically significant ($p < 0.001$). Rate of operative interference may be higher due to early termination of pregnancy to improve maternal and fetal outcome which can be deteriorated due to disease progression.

Most of the newborn delivered to hypertensive pregnancy cases were LBW (67.3%), while in control group only 33.6% were LBW. Rahman LA et al (2008)⁵, Getanch et al⁶ (2020) concluded that preeclampsia significantly increases the risk of iatrogenic preterm birth (delivery) for maternal indications. It was seen frequency of LSCS was highest in females with eclampsia (100%) and severe preeclampsia (100%), followed by mild preeclampsia (50%) and was minimum in gestational hypertension (44.4%).

This is in agreement to prospective cohort study conducted by Melania M R Amorium et al⁷(2015) on maternal outcomes according to mode of delivery in

women with severe preeclampsia in 500 pregnant women with preeclampsia and concluded labour was spontaneous in 22.0% and induced in 28.2% while 49.8% had an elective Caesarean section. They emphasized antenatal care needs to be comprehensive and timely anticipation may lead to reduction in maternal accidents and improvement of overall situation and less operative interference.

Vinodhini et al⁸(2014) on evaluation of platelet count as a prognostic index in eclampsia and preeclampsia which was done in 100 patients (50 cases, 50 controls) and observed significant thrombocytopenia in test groups and increased rate of operative interventions in test groups. LSCS rate being 58% in test group and 26% in control group and Vaginal delivery being 42% in test group and 74% in control group. They observed that in test groups patient with significant thrombocytopenia the mean duration of pregnancy was reduced with higher incidence of either still birth, low birth weight, with an increase in operative intervention and life-threatening complications. Rate of operative interference may be higher due to early termination of pregnancy to improve maternal and fetal outcome which can be deteriorated due to disease progression. To improve maternal and fetal outcomes, early induction in low bishops score is done which can lead to higher operative interference afterwards.

Conclusion

The optimal timing and route of delivery in affected women depend on the onset and severity of the disorders. In severe pre-eclampsia remote from term, management remains controversial. The decision to perform cesarean delivery should be individualized⁹. In mild to moderate hypertensive complications of pregnancy vaginal delivery is generally preferred, although concerns about an unfavorable cervical condition precluding successful

induction of labor and a perceived sense of urgency have led some authors to advocate cesarean delivery¹⁰. Caesareans are often performed in patients with severe preeclampsia and are associated with significant postpartum maternal morbidity. Induction of labour should be considered a feasible option in these patients.

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