

ORIGINAL RESEARCH

Study of feto-maternal outcome in patients with hypertensive disorders of pregnancy

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ABSTRACT

Introduction: Pregnancy-related hypertension is a prevalent medical complication, responsible for a quarter of all antenatal admissions. It poses a significant risk to both maternal and fetal health, often resulting in morbidity and mortality. Global statistics show that hypertensive disorders of pregnancy affect around 10% of pregnant women, with Preeclampsia being a specific concern for 3-5% of pregnancies. This research aims to investigate the gestational age at delivery, delivery methods, maternal health outcomes, and fetal well-being among patients with hypertensive disorders of pregnancy. **Materials and Methods:** This was a prospective study conducted at a tertiary care teaching institute, in Western India, from June 2019 to September 2021. 150 patients fitting as per criteria were included in study and their maternal and fetal outcome was analysed. **Results:** Maximum number of patients (63.3%) were between 21-30 yrs of age and were primigravida (96). 116(77.33%) patients were booked. 75 patients were diagnosed with preeclampsia. Mean gestational age at the time of delivery was 34 weeks in our study. Out of total patients, 111 underwent LSCS and 39 delivered vaginally. Of 67(44.66%) patients having complications, highest was eclampsia followed by abruptio. 122(81.3%) babies required NICU admission. Total perinatal death was 22(14.66%) and 3(2%) maternal mortality occurred. **Conclusion:** Maternal parameters of blood pressure, proteinuria along with premonitory signs and symptoms should be regularly monitored. Fetal well-being should be ensured with serial USG. Nonstress test, modified biophysical profile and fetal doppler studies should be used to detect fetal compromise at the earliest and to decide a timely step for best feto-maternal outcome.

Key words: Eclampsia, hypertension in pregnancy, preeclampsia

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INTRODUCTION

Hypertensive disorders are a significant medical complication during pregnancy and account for around 25% of all antenatal admissions [1]. Such disorders pose a significant risk to maternal and fetal health and are among the most common causes of morbidity and mortality during pregnancy. Hypertensive disorders include preeclampsia, eclampsia, gestational hypertension and chronic hypertension. Globally, around 10% of pregnant women experience such disorders, with preeclampsia

affecting 3-5% of pregnancies [2]. In India, the incidence of preeclampsia is reported to be around 8-10% [3]. When accompanied by haemorrhage and infection, the combination can lead to a deadly triad of complications in around 5% of pregnancies worldwide.

Maternal complications can be severe and include eclampsia, antepartum haemorrhage, disseminated intravascular coagulopathy (DIC), acute renal failure, HELLP syndrome, intra-cerebral haemorrhage and even maternal death. Long-term maternal

complications like persistent hypertension and cardiovascular morbidity are also known risks for mothers who have experienced hypertension during pregnancy. Fetal complications include fetal growth restriction, sudden intrauterine death, stillbirth, preterm birth, low birth weight, and increased need for neonatal intensive care, resulting in increased neonatal morbidity and mortality.

While evidence regarding the optimum methods for diagnosis and management of this complex disease is still emerging, efforts have been made to identify factors that can affect fetomaternal outcomes in women with hypertensive disorders of pregnancy. Such efforts aim to detect such conditions at the earliest and offer better outcomes for both mother and baby.

The aim of this study is to identify the gestational age at delivery along with the modes of delivery, various maternal morbidities, and evaluation of fetal outcome in hypertensive disorders in pregnant lady.

MATERIALS AND METHODS

This was a prospective study conducted at a tertiary care teaching institute, in Western India, from June 2019 to September 2021. Inclusion criteria were singleton cephalic pregnancies with blood pressure $\geq 140/90$ mm hg delivered at our hospital and patients having complications subsequent to hypertension in present pregnancy. Patients having associated other medical disorders were excluded from the study. 150 patients fitting as per inclusion and exclusion criteria were included. Patient's detailed history was taken, all the records of present pregnancy reviewed, General and Obstetric examination were carried out.

Necessary investigations were done on admission and repeated as required. Obstetric ultrasound with fetal doppler was performed. Cases with any abnormalities like Doppler changes, oligoamnios and FGR were planned for termination. Details regarding termination of pregnancy, intrapartum and postpartum complications were noted. Neonatal outcome was noted, babies who were admitted in the NICU were followed up there. Follow up of neonate done up to discharge/death. Maternal complications were noted and patients were followed up till 12 weeks postpartum. Data was collected in an M.S Excel sheet and was analysed.

RESULTS

In present study, spanning from June 2019 to September 2021, the total number of deliveries were 9503. Of which, 150 patients fitting as per criteria were included. Maximum number of patients (63.3%) were between 21-30 yrs of age and were primigravida (96). 116 patients (77.33%) were booked and 34 patients (22.67%) were unbooked. Maximum number of patients (75) were diagnosed with preeclampsia. Mean gestational age at the time of delivery was 34 weeks in our study. Out of total patients, 111 underwent LSCS and 39 delivered vaginally. Of 67(44.66%) patients having complications highest was eclampsia followed by abruption. Of 122 (81.3%) babies requiring NICU admission, the majority were small for gestational age along with RDS. Total perinatal death was 22 (14.66%) which includes 10 IUFD, 4 stillbirths and 8 neonatal deaths. In present study 3 maternal mortality occurred, causes were atonic PPH, DIC and HELLP.

Table 1: Age Distribution

Age (Years)	Number of Patients	Percentage
under 20	28	18.6
20-30	95	63.3
over 30	27	18
TOTAL	150	100

Table 2: Parity

Parity	Gestational Hypertension	Preeclampsia, Eclampsia	Chronic Hypertension	Preeclampsia Superimposed on Chronic Hypertension	Total
PRIMI	28	64	4	0	96
Second	10	24	0	2	36
Third Onward	8	10	0	0	18
Total	46	98	4	2	150

Table 3: Patient Distribution with Various Hypertensive Disorders in Pregnancy

Hypertensive Disorders in Pregnancy	Number of Patients	Percentage
Gestational hypertension	46	30.66%
Preeclampsia, eclampsia	98	65.33%
Chronic Hypertension	4	2.6%
Preeclampsia Superimposed on Chronic Hypertension	2	1.33%

Table 4: Gestational Age at Delivery

GA at Delivery	Gestational Hypertension	Preeclampsia, Eclampsia	Chronic Hypertension	Preeclampsia Superimposed on Chronic Hypertension	Total	Percentage
≤28 weeks	2	10	0	0	12	8%
29-32 weeks	10	18	0	0	28	18.66%
33-36 weeks	12	38	3	0	53	35.33%
≥37 weeks	22	32	1	2	57	38%
Total	46	98	4	2	150	

Table 5: Mode of Delivery

GA at Delivery (Weeks)	Induced		Spontaneous		Total
	Vaginal	Caesarean	Vaginal	Caesarean	
≤28	3	3	0	6	12
29-32	7	6	0	15	28
33-36	12	17	0	22	51
≥37	5	23	12	19	59
Total	27	49	12	62	150

Table 6: Indications for Termination by CS

Indication for Termination	No. of Patients	Percentage
Maternal Causes	87	78.37%
Signs of imminent eclampsia	35	31.53%
Eclampsia	21	18.91%
Uncontrolled hypertension with oral and parenteral antihypertensive	8	7.2%
Abruptio placenta	14	12.61%
Abnormalities in renal function test	3	2.7%
HELLP Syndrome	4	3.60%
DIC	2	1.8%
Fetal Causes	24	21.62%
Doppler abnormalities	12	10.81%
Severe oligohydramnios	6	5.4%
IUGR	6	5.4%

Table 7: Maternal Complications

Maternal Complications	Number of Patients	Percentage
Eclampsia	23	15.33%
Abruption	14	9.33%
Wound infection	12	8%
Pulmonary oedema	6	4%
Postpartum eclampsia	2	1.33%
HELLP	4	2.66%
DIC	2	1.33%
ARF	2	1.33%
Atonic PPH	3	2%
Total	67	44.66%

Table 8: Neonatal Outcome

GA at Delivery	No. of Births	IUD	Still Birth	Live	NICU Admission	Expired	Discharged	Perinatal Mortality
≤28 weeks	12	6	2	4	4	4	0	100%
29-32 weeks	28	2	2	24	24	3	21	25%
33-36 weeks	53	2	0	51	49	1	48	5.67%
≥37 weeks	57	0	0	57	45	0	45	0%
Total	150	10	4	136	122	8	114	14.66%

Table 9: Neonatal Complications

Neonatal Complications	Gestational Age in Weeks				Total
	≤28	28-32	33-36	≥37	
	NO.	NO.	NO.	NO.	
RDS	2	11	2	0	15
ICH	4	9	1	0	14
SGA	3	5	12	6	26
DIC	3	3	0	0	6
RF	4	2	0	0	8

DISCUSSION

Pregnancy induced hypertension is a pregnancy specific multisystem disorder affecting both the mother and the baby. In our study, the mean age of patients was 26 years with a range of 19-40 years, which correlates with the study of D.R. Hall ⁴, whose mean age was also 26 years. In the Present study, out of 150 cases, 116 patients (77.33%) were booked and 34 patients (22.67%) were unbooked. Studies done by Zenebe W *et al.* ⁵ showed comparable results while study done by Singh A *et al.* ⁶ showed 40% booked cases. Total 67 (44.66%) women experienced complications, eclampsia and abruption were highest accounting to 23 (15.33%) and 14 (9.33%) patients respectively. Other complications were episiotomy or post caesarean wound gap, PPH, HELLP, DIC, ARF, pulmonary oedema. Many patients had more than one complication. The maternal mortality rate in our study was 2%, while a study conducted by Manisha *et al.* ⁷ at New Delhi in 2012 reported maternal mortality of 1.8%, which was comparable with our study. In our study 1 patient with eclampsia expired due to subsequent DIC on postpartum day 2, 1 patient expired due to eclampsia with atonic PPH on postpartum day 3 and 1 patient expired due to HELLP syndrome on postpartum day 4. An analysis on the causes of death suggests three main factors acting in synchronization: poor antenatal care and nutrition, delayed hospitalization and lack of essential obstetric care and expertise at the peripheral centres. Complications because of Chronic Uteroplacental insufficiency put the babies of hypertensive mothers at higher risk of perinatal morbidity and mortality. The administration of antenatal steroids has shown significant reduction in neonatal respiratory distress syndrome. As gestational age at delivery increases, there is a decrease in neonatal complications.

CONCLUSION

Hypertensive disorders of pregnancy impact up to 10% of pregnancies, making it a significant cause of maternal and perinatal morbidity and mortality worldwide. The condition's clinical course is progressive, and the only way to stop the continuous deterioration is by delivery. Fetal and neonatal complications are common and can include prematurity, low birth weight, respiratory distress syndrome, and stillbirths. To ensure maternal and fetal health, blood pressure, proteinuria and other premonitory signs and symptoms must be regularly monitored. Serial ultrasound examinations, non-stress

tests, modified biophysical profiles and fetal Doppler studies should be conducted to detect fetal compromise as early as possible and determine the best fetomaternal outcome. In cases of severe, uncontrolled blood pressure with complications, termination should be done regardless of fetal maturity. Good neonatal intensive care unit facilities can improve fetal prognosis. Early registration and regular antenatal care visits are crucial for detecting hypertensive disorders of pregnancy as soon as possible, preventing severity and associated complications.

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