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Original Research

Assessment Of Maternal And Fetal Outcome In Hypertensive Disease Of Pregnancy patients

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ABSTRACT

Background: Hypertensive Disease of Pregnancy (HDP) disorders are a significant cause of adverse maternal and fetal outcomes, especially in developing areas of the world.

Aim: Objective of this study to evaluate the maternal and fetal outcomes of HDP patients in a tertiary care Indian hospital.

Materials &Methods: This cross sectional observational enrolled eighty pregnant women with HDPwas studied.The data regarding demographic variables, obstetric history, clinical details & examinations, investigations, fetal and maternal outcomes data recorded and documented.

Results: Overall incidences of LSCS were 31.3% among HDP women. The common maternal outcomes were Placental abruption (11.3%), postpartum hemorrhage (10%),Posterior reversible encephalopathy syndrome (8.7%), pulmonary oedema (7.5%), maternal mortality (3.7%), HELLP syndrome (2.5%), ARF (1.3%), DIC (1.3%) and ARDS (1.3%), whereas common fetal outcomes are preterm delivery (40%), LBW (38.7%), NICU admission (32.5%), neonatal sepsis (10%), meconium aspiration syndrome (7.5%), IUGR (7.5%), Transient tachypnoea of new-born(5%), still birth/IUFD (1.3%) and neonatal death were 6.3%.

Conclusions: Pregnancy-related hypertensive disorders are common and adversely impact maternal and fetal outcomes. Efforts should be made at both the community and hospital levels to increaseawareness regarding HDPand reduce its associated morbidityand mortality.

Keywords: Hypertensive Disease of Pregnancy (HDP),Low birth weight, maternal and foetal outcomes

INTRODUCTION

Hypertensive Disease of Pregnancy (HDP) is defined as systolic blood pressure (SBP) >140 mmHg and diastolic blood pressure (DBP) >90 mmHg after 20 weeks of gestation without proteinuria. It is classified as mild (SBP 140-149 and DBP 90-99 mmHg), moderate (SBP 150-159 and DBP 100-109 mmHg) and severe (SBP≥160 and DBP≥110 mmHg) [1].Organizations such as the American College of Obstetricians and Gynecologists (ACOG) and the United Nations Organization have classified pregnancy-related hypertensive disorders into four categories: chronic hypertension (HTN), HDP, preeclampsia/eclampsia, and superimposed preeclampsia/eclampsia [2].Globally, HDP is a significant public health threat both in developed and developing countries contributing to high perinatal deaths [3]. The maternal mortality ratio in India is 99/100 000 live births (90-108) in 2020 due to complications related with pregnancy and childbirth [4].Global literature has identified various risk factors for hypertensive disorders in pregnancy, such as obesity, family history of HTN, alcohol use, heart failure, stroke, smoking, and left ventricular hypertrophy [5].Hypertensive disorders can lead to

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complications in 10% of all pregnancies and can result in severe complications such as eclampsia, placental abruption, preterm delivery, pulmonary edema, thrombocytopenia, hemolytic anemia, stroke, recurrent seizure, renal damage, hepatic injury,the syndrome of hemolysis, elevated liver enzymes, low platelets,and HELLP syndrome, ultimately lead to neonatal and maternal mortality [6].HELLP syndrome is one of the common causes of maternal and fetal mortality among pregnant women with hypertension.Hypertensive disorders of pregnancy (HDP) predispose womento acute or chronic utero-placental insufficiency, resulting in ante or intra-partum asphyxia that may lead to fetal death, intrauterine growth retardation and/or preterm delivery [7].The complications can be prevented by more widespread use of prenatal care, education of primary medical care personal, prompt diagnosis of high risk patients and timely referral to tertiary medical centers and institutional management [8].With the help of efficient antenatal care and early treatment of HDP disorders has become almost a clinical rarity in developed countries. However, in developing country like India and in the rural population, it still continues to be a major obstetric problem.

Aims & Objectives: Present study evaluates the foetal and maternal outcome among HD Pwomen in third trimester of pregnancy

MATERIALS AND METHODS

This cross sectional observational hospital based study was carried out in the Department of obstetrics and Gynaecology, in an Indian Medical College. Antenatal women admitted in our hospital in third trimester of pregnancy with signs and symptoms of HDP.

Inclusion criteria

- Women diagnosed as HDP in third trimester of pregnancy
- Patient with BP more than 140/90 mmHg
- Patients who give consent for participation in the study

Exclusion criteria

- Women suffering from essential hypertension
- Patients with known case of epilepsy
- Patient in first and second trimester of pregnancy
- Patient who did not give consent

A total of 80 cases of HDP in third trimester of pregnancy were enrolled and analysed in this study

After taking informed written consent detail history of patient history,basic demographic variables, high risk factors, relevant investigation and treatment given was recorded in proforma.

Routine general physical examination was done, If blood pressure was >140/90, the subject was made to rest for 30 min and checked again to confirm the diagnosis of HDP. Systemic examination and routine obstetric examination were done thoroughly, followed up till delivery to evaluate fetal outcome and maternal outcome

Statistical Analysis: The statistical software SPSS was used for the analysis and Microsoft Excel has been used to generate graphs, tables, etc. Fisher exact test has been used to find the significance of study parameters on continuous scale between two groups. It was considered significant if $P< 0.05$.

RESULTS

A total of 80 patients of HD Pin third trimester of pregnancy were included and analysed in the study.

Most common age group was 21-25 years (48.7%) cases. More than half of the patients were from rural area and most of them belonged from lower-middle socio economic section. Proportion of primi was slightly higher (53.7%) and majority of the women (73.7%) were full term (>37 weeks of gestation) [table: 1]

Table 1: Distribution of socio-demographic variables among the study subject

Variables		Frequency	Percentage
Age Group (in years)	≤20	5	6.3%
	21-25	39	48.7%
	26-30	23	28.7%
	>30	13	16.3%
Locality	Rural	48	60%
	Urban	32	40%
Socioeconomic Status	Lower class	28	35%
	Middle class	37	46.3%
	Upper class	15	18.7%
Parity	Primigravida	43	53.7%
	Multigravida	37	46.3%
Gestational Age (in weeks)	<38	21	26.3%
	38-40	49	61.2%

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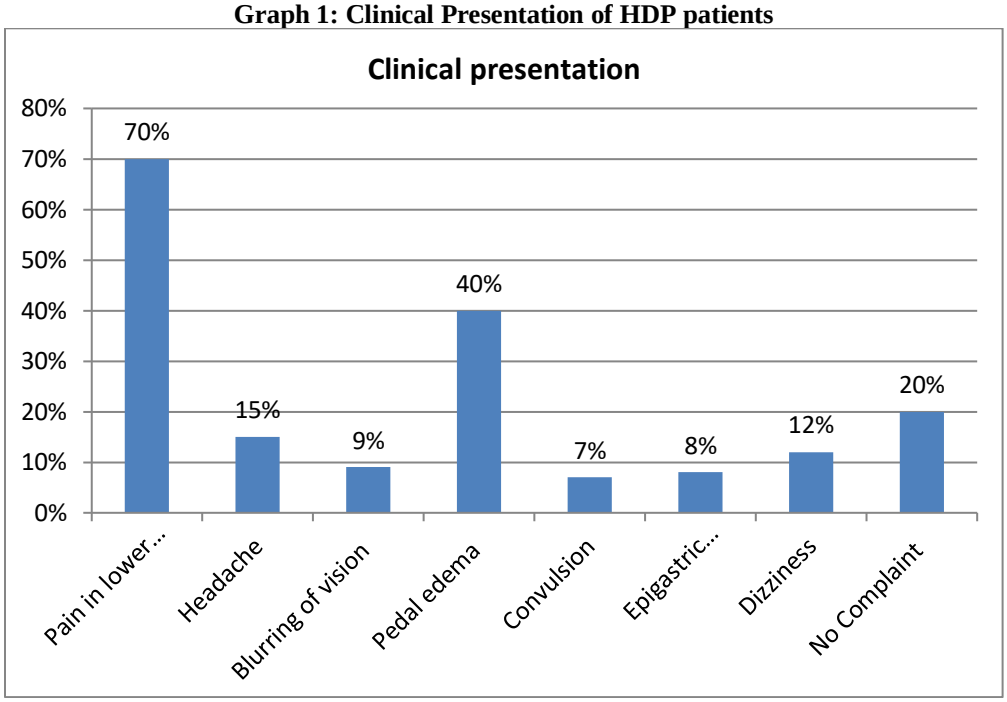
	>40	10	12.5%

Pattern of clinical representation among HDP patients were pain in lower abdomen (70%), pedal edema (40%), headache (15%), dizziness (12%), burning of vision (9%), epigastria discomfort (8%), convulsion (7%) and 20% had asymptomatic [graph:1]..

Graph 1: Clinical Presentation of HDP patients



Overall incidences of LSCS were31.3% and normal vaginal delivery was 68.7%. The common maternal outcomes were Placental abruption (11.3%), postpartum hemorrhage (10%),Posterior reversible encephalopathy syndrome (8.7%), pulmonary oedema (7.5%), maternalmortality (3.7%), HELLP syndrome (2.5%), ARF (1.3%), DIC (1.3%) and ARDS (1.3%) [Table: 2].

Table 2: Maternal outcomes among HDP cases

Outcomes		Frequency	Percentage
Mode of Delivery	LSCS	25	31.3 %
	Normal Vaginal Delivery	55	68.7 %
Postpartum hemorrhage		8	10%
Placental abruption		9	11.3%
HELLP syndrome		2	2.5%
Acute renal failure		1	1.3%
DIC		1	1.3%
ARDS		1	1.3%
Pulmonary edema		6	7.5%
Posterior reversible encephalopathy syndrome		7	8.7%
Maternal mortality		3	3.7%

Table 3 shows the fetal outcomes of HDP mothers. Preterm delivery were most common (40%) followed by LBW (38.7%), NICU admission (32.5%), neonatal sepsis (10%), meconium aspiration syndrome (7.5%), IUGR (7.5%), post term (6.3%) Transient tachypnoea of new-born(5%), still birth/IUFD (1.3%) and 6.3% neonatal death were reported

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Table 3: Fetal outcome in mothers with HDP

Outcome	Number	Percentage (%)
Preterm	36	40%
Post term	5	6.3%
Meconium aspiration syndrome	6	7.5%
Transient tachypnoea of new-born	4	5%
Neonatal sepsis	8	10%
LBW (<2.5 kg)	31	38.7%
IUGR	6	7.5%
NICU admission	26	32.5%
IUFD	1	1.3%
Still Birth	1	1.3%
Neonatal Death	5	6.3%

DISCUSSION

Advanced maternal age has been found to be an independent risk factor for HDP, while in this study most of the cases were in the age group 21–25, similar pattern reported in the Bhageerathy et al [9] and Agida ET, et al [10]. Probably reason for that because we are dealing with women from rural north India, where early marriage is more common.

In the present study, most of theHDP women from rural areas and also belonged to lower socio-economic status, accordance to Agrawal S, et al [11] andKahsay HB et al [12].Lower socioeconomic status and rural residences also associated with the low educational level found as risk factors for hypertensive disorders of pregnancy

Our study reports majority of those with HDP were primigravida and belonged to more than 37 weeks of gestational age, our finding were consistent with the Babore et al [13] andSengodan et al [14].It is established that pregnancies with hypertensive disorder might be an indication for iatrogenic delivery because of maternal and/or fetal indications.

The common clinical representation of HDP showed that mothers had pain in lower abdomen, pedal edema, headache and dizziness in the current study; our results were comparable with the Pandya K, et al[15].

In our study majority of the patients with HDP were delivered vaginally,in agreement with the Dev K et al [16] and Yadav V et al [17], but disagreement to our study Dyal M et al [18], 40% of the deliveries of HDP were conducted via caesarian section and 20% instrumental deliveries 40% delivered vaginally. The management principle is stabilization and delivery by the most expeditious route, which may involve cervical ripening (in patients with unfavorable cervix), induction of labor or caesarean section. The commonest indications for caesarean section were worsening maternal condition and fetal distress.

In present study there was significant difference noted in foetal and maternal outcome if admission/induction delivery interval was less than 12 hours, and when the interval was more than 12 hours, concordance with the Kelkar D et al [19].

Placental abruption and PPH were the most common maternal complications in pregnant women with HDP in the current study, our findings correlates with the Un Nisa, et al [20].

In our research placental abruptionfollowed by PPH, PRES, pulmonary oedema, and maternal deaths due to HELLP syndrome and due to ARF was the common maternal outcome in HDP cases, our results consistent with the Singhal et al [21].

In our study the birth weight of babies in the HDP women was significantly lower, accordance with theObi CN et al [22] and Rajanna SP,et al [23].The common cause of low birth weight is intra uterine growth restriction (IUGR) that may be precipitated by the HDP and iatrogenic prematurity.

Me conium Stained Liquor was significantly higher in HDP cases as compared to the normotensive women, our finding was comparable with Patel S, et al [24].

In the present study majority of the babies delivered by HDPpatients were pre-term, accordance with the Aabidha, et al [25], study showed most of them deliveries in HDP were preterm babies.

Overall common foetal outcome werepre-term babies, low birth weight, NICU admission, IUGR, meconium aspiration syndrome and foetal mortality in current study, similar outcomes were reported by many other studies likeAlam A, et al [26], Acharya et al.[27] andAkhila NR, et al [28].

It is very important for the clinicians to be aware of adverse maternal and neonatal outcomes in HDP as it is one of the most common complications in pregnancy; this study is done to create awareness so that maternal and neonatal mortality and morbidity can be avoided.

Preeclampsia and eclampsia are the major causes of high morbidity and mortality for both mother and baby, particularly in developing countries.

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CONCLUSION

HDP is a common complication in antenatal women and is a major cause of maternal and fetal morbidity and mortality. HDP causes foetal complication like preterm delivery, LBW, NICU admission, and IUGR babies, whereasmaternal complications like PPH, Placental abruption, pulmonary oedema and ARF.Hence educating the eligible women in the reproductive age group who would be at risk mothers for developing hypertensive disorders of pregnancy to attend frequent antenatal checkups, screening and early intervention would help in preventing feto-maternal deaths and morbidities due to HDP.

Conflicts of interest: none
Source of funding: none

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