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Original Research Article

Spectrum of presentation of pregnancy induced hypertension with maternal and perinatal outcomes at a tertiary care centre

Satarupa Paul[1]*, Hemlata Parashar[1], Ankita Upadhyay[1], Kriti Srivastava[2]

[1]Department of Obstetrics and Gynaecology, Chirayu Medical College and Hospital, Bhopal, Madhya Pradesh, India
[2]Department of Obstetrics and Gynaecology, Marvel Hospital, Bhopal, Madhya Pradesh, India

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***Correspondence:**
Dr. Satarupa Paul,
E-mail: sattupms12@gmail.com

ABSTRACT

Background: Hypertension poses a significant threat to a pregnant woman and many times leads to unfavourable perinatal outcomes with untoward complications. It can also lead to future cardiovascular risk for mothers. This retrospective study was undertaken to assess the different types of hypertensive disorders in pregnancy and the associated neonatal outcomes.
Methods: It was a retrospective study conducted for 3 years (January 2019-December 2021) in the department of Obstetrics and Gynaecology at Chirayu Medical College and hospital, Bhopal. A total of 149 women with hypertensive disorders of pregnancy were enrolled in this study as per inclusion-exclusion criteria. Study recorded the type of hypertensive disorder, clinical presentation, laboratory parameters, management with perinatal outcomes using preformed proforma. Data was entered and analyzed by MS excel sheet with the help of Epi Info (TM) 7.2.2.2.
Results: In this study, most patients were in the age group of 26-30 years (36.9%) and more patients were multiparous (55.7%). Edema was the predominant symptom (32.9%). Among the enrolled pregnancy induced hypertensive (PIH) patients, 9.3% developed complications with ante partum haemorrhage (APH) being the most common (4%). Severe hypertension seen in 26.8% patients. Also 28.2% patients received anticonvulsant while antihypertensives were given to 43% patients. The most common hypertensive disorder was gestational hypertension (55.7%) followed by preeclampsia (29.5%). Preterm delivery occurred in 39.6% patients while intra uterine growth restriction (IUGR) seen in 18.1% babies.
Conclusions: Hypertensive disorders in pregnancy lead to multiple adverse feto-maternal outcomes. In this study most mothers had gestational hypertension while prematurity and low birth weight were common foetal outcomes. Hence early recognition with suitable medical management and follow up of patients would lead to favourable outcomes in PIH.

Keywords: Ante partum haemorrhage, Eclampsia, Hypertension, Low birth weight, Prematurity

INTRODUCTION

Hypertension in pregnancy contributes to significant maternal and perinatal morbidity and is one of the leading causes of pregnancy complications in reproductive-aged women.[1] It has been estimated that preeclampsia complicates 2–8% of pregnancies globally.[2] Hypertensive disorders in pregnancy have been shown to be associated with adverse perinatal outcomes for both mother and baby. Chronic hypertension, superimposed preeclampsia and preeclampsia are all associated with increased risk for antepartum haemorrhage, postpartum haemorrhage, stillbirth, preterm birth, low birth weight, intrauterine growth restriction, neonatal intensive care unit (NICU) admission and caesarean delivery.[3,4] Presentation in hypertensive disorders is varied, ranging from a mild variation in blood pressure to a multiple organ failure. In India alone around 8.9 lakhs of perinatal deaths occur

every year of which hypertensive disorder contributes upto 7%.[5,6] Hypertension is classified as Chronic Hypertension, gestational hypertension, Preeclampsia/eclampsia and superimposed preeclampsia/eclampsia.[5,7]

Risk factors for hypertensive disorders have been identified as nulliparity, African-American women, obesity, multifetal gestation, extremes of age, metabolic syndrome hyperhomocysteinemia and with history of preeclampsia in previous pregnancy.[8]

METHODS

It was a retrospective study conducted in the department of Obstetrics and Gynaecology at Chirayu medical college and hospital, Bhopal. A total of 149 patients of pregnancy induced hypertension during the period of January 2019 to December 2021 were enrolled in this study with following inclusion and exclusion criteria.

Inclusion criteria

Women with Pregnancy induced hypertension and delivered at our institute. Women in immediate postpartum period delivered outside and admitted to our institute with pregnancy induced hypertension and its complications.

Exclusion criteria

Patients with pre-existing renal disease, any cardiac ailment. Patients on anticoagulant therapy.

All necessary information such as socio-demographic detail, clinical and obstetric history, clinical features, laboratory parameters, investigations and foetal outcome was noted in preformed Performa. Data was entered in MS excel and analysed by using Epi Info (TM) 7.2.2.2. Appropriate statistical test was applied.

In present study hypertension in pregnancy is defined as blood pressure ≥140/90 mm Hg.[9]

Table 1: Grades of BP.

Grade	Systolic BP (mmHg)	Diastolic BP (mmHg)
Mild	140-149	90-99
Moderate	150-159	100-109
Severe	≥160	≥110

Gestational hypertension (Bp > 140/90 mm of Hg after 20 weeks, proteinuria not identified) 2) pre-eclampsia (gestational hypertension with proteinuria- urinary excretion of 300mg protein in a 24 hour specimen/2+ urine dipstick and/or multisystem end organ dysfunction) and eclampsia (Eclampsia is defined as occurrence of new onset grand mal seizure in women with preeclampsia) 3) chronic/overt hypertension-hypertension diagnosed first time before 20 weeks of pregnancy 4) chronic hypertension with superimposed preeclampsia and eclampsia.

RESULTS

The most common age group of the expectant mothers was 26-30 years, with 55 women (36.9%), followed by 21-25 years, with 52 women (34.9%), after which in 31-35 years there were 26 women (17.4%) and 6 women (4%) were more than 36 years old. Also 7 women (4.7%) were less than 21 years. 83 women (55.7%) were multigravida and 66 women (44.3%) were primigravida. At the time of admission, 49 patients (32.9%) had edema, 22 patients (14.8%) had headache, blurring of vision was reported by 10 women (6.7%) and epigastric pain was stated by 7 women (4.7%) (Table 1).

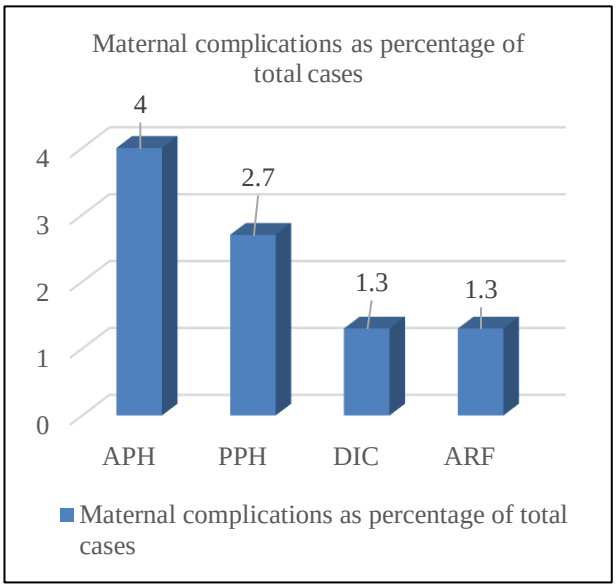

Figure 1: Different maternal complications as percentage of all cases.

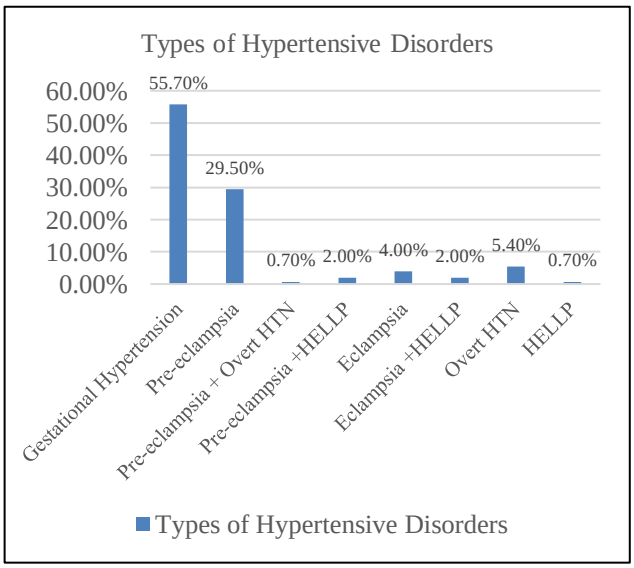

Figure 2: Different types of hypertensive diseases.

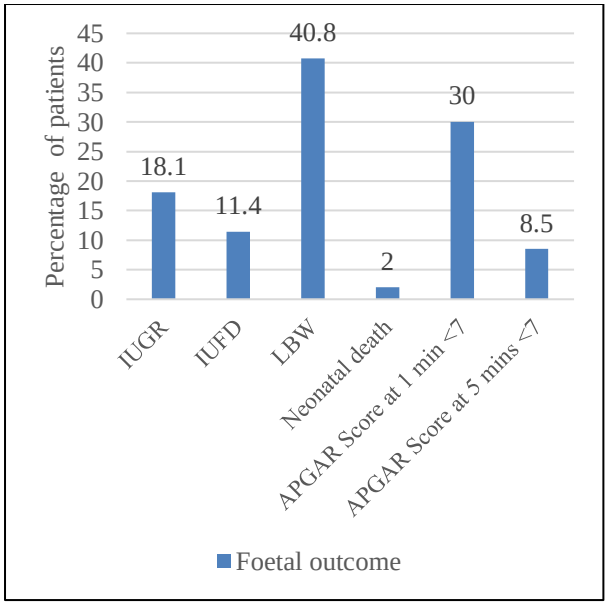

Figure 3: Foetal outcomes.

20 women (71.4%) also reported of having gestational hypertension in previous pregnancy. Also, it was seen that between 28 to 36 weeks of pregnancy, 50 patients (33.6%) were admitted. At more than 36 weeks, 97 (65.1%) and at less than 28 weeks of pregnancy 2 patients (1.3%) were admitted (Table 1). Also, blood pressure on admission was found to be normal in 32 (21.5%), mild hypertension in 51 (34.2%), moderate in 26 (17.4%) and severe in 40 (26.8%). In this study 42 patients (28.2%) were found to be anaemic (haemoglobin<10gm%). Urine dipstick showed≥2+in 54 patients (36.2%) (Table 2).

As about maternal outcome, out of the total 149 patients, 9.3% patients developed complications in which 6 patients (4%) had antepartum haemmorhage, 4 patients (2.7%) had postpartum haemmorrhage, 2 patients (1.3%) went into disseminated intravascular coagulation and 2 patients (1.3%) developed acute renal failure (Figure 1). Also 9 patients (6.8%) had to receive prolonged treatment at ICU.

It was also seen that in terms of the different hypertensive disorders in pregnancy, gestational hypertension was the highest, 83 patients (55.7%) followed by pre-eclampsia in 44 (29.5%), overt hypertension in 8 (5.4%) and eclampsia in 6 (4%). A combination of hypertensive diseases was also seen such that eclampsia+HELLP and pre-eclampsia+HELLP was seen in 3 patients (2%) each. Pre-eclampsia superimposed on overt hypertension seen in 1 patient (0.7%). Isolated HELLP seen in 1 patient (0.7%) (Figure 2).

As for the neonatal outcome, low birth weight (LBW) (2.5 kg) was seen in 62 neonates (40.8%), intrauterine growth restriction (IUGR) in 27 (18.1%), intrauterine foetal death (IUFD) in 17 (11.4%) and neonatal death occurred in 3 cases (2%) (Figure 3).

Table 1: Parity, gestational age and other parameter in obstetric history.

Parameters	Numbers	%
Age (in years)		
<21	7	4.7
21-25	52	34.9
26-30	55	36.9
31-35	26	17.4
>36	06	4.0
Parity		
Primigravida	66	44.3
Multigravida	83	55.7
Symptoms		
Edema	49	32.9
Headache	22	14.8
Blurring of vision	10	6.7
Epigastric pain	7	4.7
Mode of delivery		
Normal vaginal delivery	63	42.2
LSCS	86	57.7
Period of gestation		
<28	2	1.3
28-36	50	33.6
>36	97	65.1

Table 2: clinical and laboratory parameter of patients.

Parameter	Number	%
Antihypertensives	64	43
Anticonvulsant	42	28.2
Haemoglobin<10gm/dl	42	28.2
Dipstick>=2	54	36.2
BP on admission		
Mild hypertension	32	21.5
Moderate hypertension	26	17.4
Severe hypertension	40	26.8

Table 3: Mean +SD values of various clinical and laboratory parameter.

Parameters	Mean±SD	Range
Age (in years)	27.59±4.75	19-42
SBP (mmHg)	146.56±15.32	120-200
DBP (mmHg)	96.05±11.43	70-140
Period of gestation (weeks)	36.27±3.28	26-41
Haemoglobin (gm%)	10.36±1.40	6.4-14.0
Platelet count	199.23±71.46	30-432
WBC	8.78±3.38	3.4-29.6
INR	0.98±0.18	0.60-1.75
Conjugated bilirubin	0.38±0.74	0.02-8.16
Un-conjugated bilirubin	0.45±1.53	0.01-14.47
AST	37.08±62.85	5.6-518.0
ALT	30.50±30.41	5.4-229.0
Creatinine	0.56±0.22	0.27-1.59
Urea	23.90±10.20	8.3-73.0
APGAR at 1 minute	6.72±1.58	0-9
APGAR at 5 minutes	7.70±1.70	0-10
Birth weight (kg)	2.32±0.76	0.6-4.0

DISCUSSION

In this study the mean age of the patient was found to be 27.5 years which is comparable to a study where mean age is 27 years, conducted by Bromfield et al.[3] The age group of 21-30 years had 47% patients as per Patel et al, while in another study, most patients were in the age group of 26-30 years (40.9%) which is similar to our study.[4,5]

Also in our study, more patients were multipara (55.7%) as compared to primipara (44.3%). In the study conducted by Patel et al, multipara was 42.18% and primipara 57.81%.[4] Also in a study by Mallick et al, primipara with PIH were 58.5% which differs slightly from our study.[5] However a study by Pandya et al showed more patients being multipara (71.87%) which corroborated with this study.[10] In this study, gestational hypertension was found to be the most common disorder (55%) followed by pre-eclampsia (44%).

This is similar to the other studies, where one study reported gestational hypertension to be 60% 0f the cases followed by pre-eclampsia (12.8%), eclampsia (4.3%).[5] Pandya et al, also reported gestational hypertension to be highest (65.6%) followed by preeclampsia (28.12%) and eclampsia (6.25%).[10] Thapa et al, also reported gestational hypertension to be higher (78.1%), preeclampsia (13.2%) and eclampsia (8%) which is similar.[11]

In a study mentioned earlier, the risk of Caesarean section was found to be higher according to severity of hypertensive disorders.[3] In our study also rate of caesarean is higher (57.7%) versus vaginal delivery (42.2%). In another study, rate of caesarean delivery and vaginal delivery were 46.3% and 53.7%.[13] As about the maternal complications, HELLP was seen 0.7% of patients, antepartum haemorrhage (4%), postpartum haemorrhage (2.7%), DIC (1.3%) and acute renal failure (1.3%). In a study by Gandhi et al, APH (5.26%), post-partum haemorrhage (5.26%) and HELLP syndrome (5.26%) were the common complications One (1.05%) case had renal failure which is comparable to this study.[13] In another study, Placental abruption was noted in 1.74%. HELLP syndrome was noted in 4.54%.[14]

In our study, 39.6% of patients had preterm delivery while in a study by patel et al, 54.69% mother had preterm delivery, 53.12% of babies are Low birth weight, 7.81%

are IUGR, 1.56% were IUFD and 1.56% of neonatal death.[4] This is similar to results in our study (birth weight<2.5kg being 40.8%, IUGR 18.1%,IUFD in 11.4% and neonatal death being 2.0%). In yet another study preterm birth was 39.6%, low birth weight in 20.9%, IUGR in 13.4%, IUFD in 3.9% and neonatal death in 1.2%.[5] Another study reported IUGR to be 38.5%, IUFD in 6.25% cases, low birth weight in 38.4% and prematurity in 26.4%.[11] Yet another study stated low birth weight to be 67.3% that correlates with our study.[13] Chaithra et al also reported pretem labour in 26.7% cases, 14.68% being IUGR, low birth weight in 26.57% and IUFD in 4.8%.[14] Lastly Seyom et al found low birth weight in 24.8% and preterm labour being 28.1%.[15] hence prematurity and low birth weight were more commonly seen in PIH mothers.

CONCLUSION

Hypertensive disorders in pregnancy lead to multiple adverse feto-maternal outcomes. In this study most mothers had gestational hypertension while prematurity and low birth weight were common foetal outcomes. Hence early recognition with suitable medical management and follow up of patients would lead to favourable outcomes in PIH.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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