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Original Research Article

Maternal and perinatal outcome in hypertensive disorders of pregnancy in tertiary care rural hospital

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ABSTRACT

Aims and Objectives: To study the maternal and perinatal complications associated with Hypertensive disorders of Pregnancy(HDP).

Materials and Methods: This is a prospective observational study conducted in Department of Obstetrics and Gynecology from July 2020 to June 2021. All deliveries in the time period were analysed for HDP. The maternal and fetal outcomes were studied by following upto discharge. The maternal outcomes studied were of preterm delivery, cesarean section rate, Abruptio placenta, Post partum hemorrhage, HELLP syndrome, ICU admissions and maternal death. Perinatal complications studied were stillbirth, APGAR score, NICU admission and low birth weight. Data was tabulated in excel sheet and analysed.

Results: Out of 1086 deliveries in the time period, HDP was seen in 12.98%(141 cases). Maternal complications among HDP group like Antepartum hemorrhage was seen in 11.34%, PPH in 14.18%, Maternal ICU admissions, in 2.12%, Neurological complications in 1.41%,HELLP Syndrome in 0.71%, Maternal mortality in 0.71% in the study period. 9 cases of stillbirth and 132 cases of live birth were noted. Among the live birth, 50(37.87%) deliveries were preterm and 63(47.73%) babies required NICU admission in which 4 neonatal deaths were noted.

Discussion: Multiple organ system involvement in HDP gives rise to adverse maternal and perinatal outcome. Incidence of HDP was more in multigravida compared to Primigravida in this study. Eclampsia was more prevalent in <25 year age group and reduced with advancing age. Caesarean section rate and low birth weight and NICU admission more than general population.

Conclusion: HDP is an important cause of maternal and perinatal morbidity and mortality. Early detection by regular ANC visits and timely intervention can reduce complications.

1. Introduction

Hypertensive disorders are the most common medical disorders encountered during pregnancy occurring in approximately 7-10% of pregnancies in India.[1] They have a wide spectrum of presentation ranging from minimal elevation of blood pressure to severe hypertension with multiple organ dysfunction. They are associated with significant maternal and perinatal morbidity and mortality.

Hypertensive disorders during pregnancy are classified into 4 categories, as recommended by the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy: 1) chronic hypertension, 2) preeclampsia-eclampsia, 3) preeclampsia superimposed on chronic hypertension, and 4) gestational hypertension (transient hypertension of pregnancy or chronic hypertension identified in the latter half of pregnancy)[1] With efficient antenatal care and early treatment the serious form i.e. eclampsia has become almost a clinical rarity in developed countries. However, in

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developing country like ours and in the rural population, it still continues to be a major obstetric problem.M Eclampsia, disseminated intravascular coagulopathy, acute renal failure, HELLP syndrome, intra — cerebral haemorrhage, antepartum haemorrhage and even maternal death can occur. Long term complications like persistent hypertension and cardiovascular morbidity are known risks for the mothers.[2] Fetal complications like intra — uterine growth retardation, sudden intra — uterine fetal death, still births, preterm and low birth weight babies, increased need for NICU care, increased neonatal morbidity and mortality are prevalent.[3] Most deaths in HDP occur due to its complications and not due to hypertension per se. Thus, maternal mortality and these complications are preventable. We can prevent the maternal mortality by early detection and prompt management of these complications. Therefore, the present study was planned with an objective to study pattern of feto-maternal outcome and complications with a view to identify them at the earliest and ensure a healthy outcome to both mother and baby.

2. Materials and Methods

Prospective observational study conducted in Department of Obstetrics and Gynecology, MVJ Medical College and Research Hospital from July 2020 to June 2021. All women who presented with hypertensive disorders of pregnancy and delivered in the hospital and whose records were complete, were included in the study and divided into 5 groups namely, Gestational hypertension (GH), Mild pre-eclampsia (PE), Severe pre-eclampsia, Eclampsia and Chronic hypertension with superimposed pre-eclampsia (CHPE) based on their clinical presentation at admission. The maternal and fetal outcomes were studied by following upto discharge. Chronic hypertension was defined as hypertension diagnosed before pregnancy and / or diastolic pressure ≥90 mmHg and / or antihypertensive medications started each before the 20 weeks of gestation uncomplicated by de novo proteinuria; Gestational hypertension was defined as hypertension with systolic blood pressure ≥ 140 mmHg and/or diastolic pressure ≥ 90 mmHg for the first time after 20 weeks of gestation and/or in women hospitalized during pregnancy because of hypertension and/or if antihypertensive medications prescribed for the first time after 20 weeks of pregnancy without proteinuria; Preeclampsia: women different from gestational hypertension because of development of de novo proteinuria (≥0.3g/24h). Preeclampsia superimposed on chronic hypertension: the criterion for chronic hypertension is met along with the criteria for preeclampsia.[1]

The maternal outcomes studied were of preterm delivery, cesarean section rate, Abruptio placenta, Post partum hemorrhage, HELLP syndrome, ICU admissions and maternal death. Perinatal complications studied were stillbirth, APGAR score, NICU admission and low birth weight. Data was tabulated in excel sheet and analysed.

3. Results

Out of 1086 deliveries in the time period, 141 had HDP (12.98%). Of these, 64(45.39%) women had gestational hypertension, 50(35.46%) women had pre-eclampsia, and 25(17.73%) women presented with eclampsia.2 women presented with chronic hypertension and among them 1 developed superimposed pre eclampsia.HDP was seen more in 21-25 year age group with mean maternal age of 25+/-4.37 years. Incidence of eclampsia reduced with advancing Maternal age.

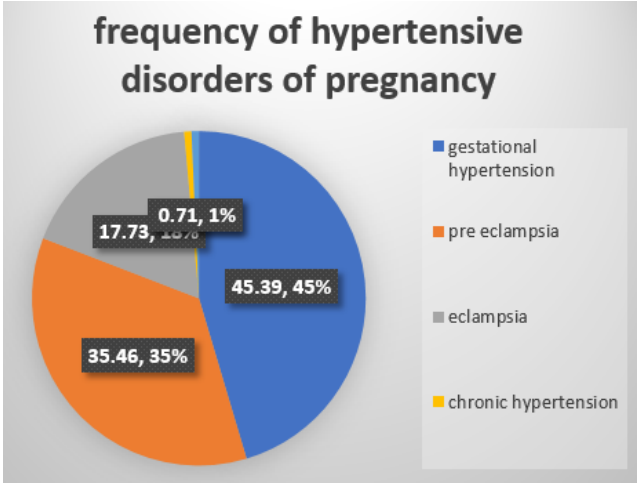

Fig. 1: Frequency of hypertensive disorders of pregnancy

More than half the cases were unbooked .Incidence of HDP was more in multigravida (56.74%) compared to Primigravida (43. 26%) in this study. Mean gestational age was 36.95+/-2.83 weeks of gestation. Prematurity was seen in 57(40.43%) babies. Most of the preterm deliveries were in the eclampsia group, followed by pre-eclampsia and gestational hypertension group. Most of the women in our study, who had gestational hypertension carried their pregnancy till term. Of the total deliveries in HDP group, 41 women had vaginal delivery and 100 women underwent caesarean section.Caesarean section Rate among HDP cases was 70.92% (100/141) which is more compared to general population rate of 49%(532/1086). The most common indication of caesarean delivery was severe hypertension with poor Bishop's score followed by fetal distress.

Maternal complications were analysed and 23 mothers out of 141 had some form of complication. This includes 2 cases of neurological complications,16 cases of Antepartum hemorrhage,14 cases of post partum hemorrhage, 1 case of HELLP syndrome,1 case of maternal mortality.[4] patients required ICU admission,2 due to neurological complications due to PRES syndrome and one for HELLP syndrome. 9 cases of stillbirth and 132 cases of live

Table 1: Distribution of hypertensive disorders of pregnancy according to age group

Age Group	Gestational Hypertension	Pre eclampsia	Eclampsia	Chronic hypertension	Preeclampsia superimposed on chronic Hypertension
</=20	11(17.18%)	4(8%)	7(28%)	0	0
21-25	34(53.12%)	14(28%)	10(40%)	0	0
26-30	12(18.75%)	25(50%)	5(20%)	0	0
31-35	6(9.38%)	7(14%)	2(8%)	0	0
>35	1(1.56%)	0	1(4%)	1(100%)	1(100%)
Total	64(100%)	50(100%)	25(100%)	1(100%)	1(100%)

Table 2: Maternal characteristics

Maternal characteristics	Number(%)(N=141)
Booking status	
Unbooked	79(56.02%)
Booked	62(43.97%)
Parity	
Primigravida	61(43.26%)
Multigravida	80(56.74%)
Gestational age	
<37 weeks	57(40.43%)
>37 weeks	84(59.57%)
Mode of Delivery	
Vaginal Delivery	41(29.08%)
Caesarean Delivery	100(70.92%)

Table 3: Maternal outcome in HDP (N=141)

Maternal outcome	Number (%) (N=141)
Normal	118(83.68%)
ICU admission	3(2.12%)
Maternal Mortality	1(0.71%)
HELLP	1(0.71%)
Antepartum Hemorrhage(abruptio placenta)	16(11.35%)
Neurological complications	2(1.41%)
Post partum Hemorrhage	14(9.93%)

Table 4: Perinatal outcome in HDP

Perinatal Outcome	Number(%) (N=141)
Normal	69(48.93%)
Stillbirth/Intrauterine Demise	9(6.38%)
NICU Admission	63(44.68%)
Ventilator	10(7.09%)
Neonatal Death	4(2.83%)
Low APGAR	46(32.62%)
Low birth weight	51(36.17%)

birth noted. Among 9 cases of stillbirth in present study, 7 were preterm and 6 cases were associated with abruptio placenta. Among 132 live births, 50 deliveries (37.87%) were preterm and 82 deliveries(62.12%) were term indicating the late onset of HDP in study population.63 neonates were admitted in NICU for low birth weight care(41),preterm(34), respiratory distress, sepsis, and 4 neonatal deaths reported. Poor neonatal outcome in terms of low APGAR, LBW, higher NICU admissions and need for ventilator for baby was much higher in women with eclampsia. Among live born babies,81(61.36%) had birth weight >2.5kg. Low birth weight (<2.5kg) in 32 neonates, very low birth weight(<1.5kg) in 17 neonates, extreme low birth weight(<1kg) in 2 neonates.

4. Discussion

Hypertensive disorders of pregnancy are considered to be a major worldwide health problem causing an increased risk of perinatal and maternal morbidity and mortality. Many theories regarding its etiology have been suggested including abnormal placentation, immunologic phenomenon, coagulation abnormalities, angiogenesis factors or endothelial damage.[5] In India the prevalence has been reported to be around 7-10%. In present study overall incidence of HDP was 12.98%. Global incidence of preeclampsia and eclampsia according to WHO multicountry survey is 2.73% and 0.28% respectively[6]

Antenatal care is one of the most important determinants of early detection. Regular ANC visits help to identify such cases at the earliest and enable prompt intervention, thus improving the pregnancy outcome. Bandar Abbas et al. in their study showed that women of PIH with IUGR babies had less than three antenatal visits during pregnancy. There was a significant negative correlation found between number of ANC visits and PIH severity indicating that patients with fewer ANC visits had more severe PIH.[7–13] Nulliparity is widely reported as risk factor for HDP[8–10]but in this study we found that multiparity was more associated compared to nulliparity though the results are not statistically significant. Eclampsia were common in 18-25 year age group and reduced with advancing maternal age.Incidence of pre eclampsia was more in advanced maternal age group. Similar findings were observed in WHO multi-country survey.[6] 84 term deliveries in study period indicate that late onset of disease is common in our study population. So frequent antenatal checkup after 36 weeks period of gestation helps to identify disease in milder form and reduces maternal and fetal complications to a great extent in this group of late onset disease.

Delivery is the ultimate cure for pre-eclampsia or eclampsia. The decision when to deliver is made when the benefits of delivery outweigh those associated with prolonging pregnancy. According to recommendations a plan for delivery should be considered in all women with severe disease and gestational age > 30 weeks. In women with favourable cervix and severe disease, a trial of vaginal delivery was given.[11] Incidence of caesarean section among HDP cases was 70.92% (100/141) which is more compared to general population rate of 49%(532/1086). Indications for caesarean were fetal distress, severe pre eclampsia/eclampsia with poor Bishop score and other obstetric indications. Similar findings of increased LSCS rate observed in other studies by VB Bangal et al. and Uddin AW et al.[12,13] In our hospital, overall LSCS rate is higher among general population and in HDP patients. This is because, this is a tertiary care centre to which complicated cases are referred from nearby rural areas and other small hospitals for neonatal and maternal ICU care.

Placental abruption was noted in 11.35% of the women in this study which was relatively similar to a study by Hall et al. which reported as high as 20%[14] and in contrast to study by Eshetu et al. in which it was reported to be 2%.[15] HELLP syndrome was noted in 0.71% which was much lesser than 12.4% of the cases noted by Eshetu et al.[15]

The fetal outcome was noted in the form of preterm deliveries, Apgar score, low birth weight, admission to neonatal intensive care unit and intrauterine fetal demise. Pre term deliveries was 40.43%, low birth weight in 36.17% and intrauterine fetal demise in 6.38%, NICU admission was 44.68% in present study.Prematurely in 23.65% and still birth rate of 10% was reported in similar study by Aabidha PM et al.[16] A significant positive correlation was seen between the NICU admissions and severity of the cases, i.e. severe cases had more chances of the baby getting admitted in NICU which has also been studied by Ray et al.[17]

5. Conclusion

HDP is a major contributor of maternal and perinatal morbidity and mortality. Early detection in a milder form of disease, prompt intervention of complications, judicious decision of timing of delivery can improve the outcome. Since late onset HDP is common in our study population, weekly antenatal check-up beyond 36 weeks can detect this early and delivering them will reduce the burden of perinatal and maternal morbidity.

6. Source of Funding

None.

7. Conflict of Interest

None.

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