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Maternal and Perinatal Outcome in Hypertensive Disorders Complicating Pregnancy ata Tertiary Care Centre

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Abstract: ***Background****Hypertensive disorders of pregnancy are one of the important causes for adverse maternal and fetal outcome. A proper understanding of this medical disorder in pregnancy is essential to reduce the complications associated with it.****Objective****To analyze the maternal and perinatal outcome in hypertensive disordercomplicating pregnancy.****Materials & Methods****:It is a prospective, observational study of 180 pregnant women with hypertensive disorders of pregnancy admitted to GVH from November 2016 to October 2017. Data was collected regarding antenatal care-booked and unbooked cases, age, parity, gestational age, mode of delivery and maternal complications.Perinatal outcome including birth weight, NICU admissions and perinatal deaths was recorded. Data was analysed and tabulated using SPSS version 24.****Results:****The total number of deliveries during this period was 7,422 and 180 women had hypertension complicating pregnancy giving an incidence of 2.4%.Normal vaginal delivery was seen in 90 cases (50%) and instrumental delivery in 18 cases (10%). The caesarian section rate was 40%. The number of cases with pulmonary edema was 2 (1.1%), HELLP was 5 cases (2.7%) and abruption was 6 cases (3.3%). DIC was seen in 2 cases (1.1%), renal failure in 1 case (0.5%) and PPH in 11 cases (6.1%) and in 1 case (0.5%) thromboembolism was seen. There were 2 maternal deaths, one with DIC and one with thromboembolism. The number of stillbirths was 20 (11.11%) and growth retardation was 27 cases (15%). The number of cases with birth weight less than 2.5 kg was 39 (21.66%). NICU admission was required for 42 babies (23.33%). Early neonatal deaths occurred in 4 cases (2.2%). The perinatal death rate was 13.3 %.****Conclusion:****Hypertension in pregnancy is associated with adverse maternal and perinatal outcome. Good antenatal care and early referral can reduce complications.*

Key words*: maternal mortality, pre-eclampsia, eclampsia, hypertension in pregnancy, perinatal mortality.*

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I. Introduction

Hypertension is one of the common medical complications of pregnancy & contributes significantly to maternal & perinatal morbidity. Hypertension is a sign of an underlying pathology, which may be pre-existing or appears for the first time during pregnancy. The identification of this clinical entity & effective management play a significant role in outcome of pregnancy both for the mother & the baby. Hypertensive disorders in pregnancy are classified as:

- Gestational Hypertension
- Pre-eclampsia & Eclampsia
- Pre-eclampsia Superimposed on chronic HTN
- Chronic hypertension

Hypertensive disorder of pregnancy complicates 5 to 8% of pregnancies and is a major cause of maternal and perinatal morbidity and mortality [1].Among the hypertensive disorders, the pre-eclampsia syndrome, either alone or superimposed on chronic hypertension, is the most dangerous. Eclampsia is the convulsive form of pre-eclampsia and affects 0.1% of all the pregnancies [2]. WHO estimates the incidence of preeclampsia to be seven times higher in developing countries (2.8% of live births) than in developed countries (0.4%)[3].

Approximately 70% of hypertensive disorders are due to gestational hypertension and pre eclampsiawhereas 30% are due to pre-existing or undiagnosed hypertension.Incidence ranges from 61% in primi and 39% multigravida.

Objective: To analyze the maternal and perinatal outcome in hypertensive disorder complicating pregnancy

II. Materials & Methods:

Study design: Prospective, observational study
Study population: Inpatients admitted to GVH from November2016 to October 2017

Sample size: 180

The total number of deliveries during this period was 7,422. The cases of hypertensive disorder complicating pregnancy (Gestational HTN, Pre-eclampsia&Eclampsia) admitted to GVH from November 2016 to October 2017were included in the study. There were no cases of chronic hypertension during this period.Both booked & referred cases of all patients who were diagnosed to have hypertensive complicating pregnancy were selected for this study.

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 without proteinuria; Preeclampsia was defined as women with gestational hypertension and development of de novo proteinuria (≥0.3g/24h). Eclampsia was defined as pre eclampsia with convulsions. A detailed history and complete physical examination was done. Investigations sent were- Hb%, PCV, blood group and Rh, VDRL, HIV, HBsAg, PIH profile: serum creatinine, blood urea, serum uric acid, liver function test, fundoscopy, NST, and ultrasound scan. Obstetric management was individualized and managed according to the protocols and guidelines.

Data was collected regarding antenatal care-booked and unbooked cases,age parity,gestational age;mode of delivery, maternal complications. Perinatal details like birth weights,NICU admissions and perinatal deaths was recorded. Data was analyzed and tabulated using SPSS version 24.

III. Results

Table 1: Antenatal Care

	Number of cases	Percentage(%)
Booked cases	90	50%
Unbooked cases	90	50%
Total	180	

The number of booked cases was 90 (50%) and the number of unbooked and referral cases was 90(50%). (Table1)

Table 2: Distribution of cases

Hypertensive disorder	Number of cases	Percentage (%)
Gestational Hypertension	120	66.66%
Pre eclampsia	50	27.77%
Eclampsia	10	5.55%
Total	180	

Of the 180 cases of hypertension in pregnancy, 120 cases (66.66%) were gestational hypertension, 50 cases (27.77%) were diagnosed as pre eclampsia and 10 cases (5.55%) as eclampsia. (Table 2)

Table 3: Age distribution of cases

Age in years	Number of cases	Percentage (%)
15-19 years	47	26.11%
20-24 years	71	39.44%
25-29 years	54	30%
30-34 years	8	4.44%
Total	180	

The number of cases in the age group 15-19 years was 47 (26.11%), in the age group 20-24 years was 71 (39.44%) showing that two third of cases were below 24 years. 54 cases (30%) were in the age group 25-29 years and 8 cases (4.44%) were between 30-34 years. Mean age was 22.63 years. (Table 3)

Table 4: Parity distribution of cases

Gravida	Number of cases	Percentage (%)
Primi	124	68.88%
Multi	56	31.11%
Total	180	

The number of primigravida was 124 (68.88%) and multi gravida was 56 (31.11%). (Table4)

Table 5: Gestational age

Gestational age in weeks	Number of cases	Percentage (%)
<37 weeks	52	28.9%
>37 weeks	128	71.11%
Total	180	

In the gestational age group <37 weeks, the number of cases was 52(28.9%).The maximum number of cases was in the gestational age >37 weeks, 128 cases (71.11%) (Table 5)

Table 6: Mode of delivery

Mode of delivery	Number of cases	Percentage (%)
Labor normal	90	50%
Instrumental delivery	18	10%
LSCS	72	40%
Total	180	

Normal vaginal delivery was seen in 90 cases (50%) and instrumental delivery in 18 cases (10%). The caesarian section rate was 40%. (Table 6)

Table 7: Maternal complications

Maternal complications	Number of cases	Percentage (%)
Pulmonary edema	2	1.1%
HELLP	5	2.7%
Abruption	6	3.3%
DIC	2	1.1%
Renal failure	1	0.5%
PPH	11	6.1%
Thromboembolism	1	0.5%
Maternal deaths	2	1.1%

The number of cases with pulmonary edema was 2 (1.1%), HELLP was 5 cases (2.7%) and Abruption was 6 cases (3.3%). DIC was seen in 2 cases (1.1%), renal failure in 1 case (0.5%) and PPH in 11 cases (6.1%) and in 1 case (0.5%) thromboembolism was seen. There were 2 maternal deaths, one with DIC and one with thromboembolism. (Table 7)

Table 8: Perinatal outcome

Perinatal outcome	Number of cases	Percentage (%)
Stillbirths	20	11.11%
IUGR	27	15%
LBW <2.5 Kg	39	21.66%
NICU admissions	42	23.33%
Early neonatal deaths	4	2.2%

The number of stillbirths was 20 (11.11%) and growth restriction was 27 cases (15%). The number of cases with birth weight less than 2.5 kg was 39 (21.66%). NICU admission was required for 42 babies (23.33%). Early neonatal deaths occurred in 4 cases (2.2%). The perinatal death rate was 13.3%.(Table 8)

IV. Discussion

The prevalence of hypertensive disorder of pregnancy is different according to the geographic regions of the world and ranges from 1.5% in Sweden to 7.5% in Brazil. In India the prevalence of Hypertensive Disorders of Pregnancy has been reported to be 6-8% [4]. The prevalence of hypertensive disorders of pregnancy in this study was 2.42%. The number of cases of hypertension in pregnancy was similar in the booked and unbooked category reflecting the fact that prevalence of the disease is not affected by antenatal care.However good antenatal care and early detection can prevent maternal and perinatal complications associated with hypertensive disorders of pregnancy.

Maximum number of cases was in the age group 20-24 years and mean age was 22.63 years in the present study.The extreme ages of reproductive years are well-known risk factors for hypertension during pregnancy with high incidence rates in teenagers. Many authors have identified young age as a risk factor for hypertension during pregnancy [5,6].The number of primigravida was 124 (68.88%) in the present study.Nulliparity is widely reported as a risk factor for hypertensive disorders in pregnancy [7,8 ,9]. In the gestational age group <37 weeks, the number of cases was 52 (29.9%) in the present study.Similarrates were found by Yadav S et al and Bangal VB et alwho found the preterm delivery rate to be 28.8% and37% in cases with hypertension respectively [10,11] .

Maternal complicatons in the present study were pulmonary edema (1.1%), HELLP (2.7%) and Abruption (3.3%), DIC (1.1%), renal failure (0.5%) and PPH (6.1%). Thromboembolism was seen in 0.5% cases. There were 2 maternal deaths, one with DIC and one with thromboembolism 1.1%.Sharma et al reported an incidence of 2.8% HELLP syndrome, 1.4% ARDS and 2.8% cases of ARF. In their study PPH was seen in

0.4% of cases and maternal mortality in 0.9% cases[12]. The fetal outcome was noted in the form of preterm deliveries, Apgar score, intrauterine growth restriction, low birth weight, the need for neonatal resuscitation, admission to neonatal intensive care unit and intrauterine fetal demise. Incidence of preterm delivery noted in 28.67%, intrauterine growth restriction found in 14.68% of births, low birth weight in 26.57% and intrauterine fetal demise in 2.09. A study by Yadav et al. reported preterm deliveries in 28.8% which was similar to our result but a higher IUFD of 4.8% 17. In this study, we noted 27.97% mothers had vaginal delivery, and higher percentage (71.32%) underwent cesarean section. Pregnancy was terminated by induction in 53.8% cases, 47.05% of whom had cesarean delivery. Elective cesarean delivery was performed in 18.53% cases.

Tavassoli et al[13] reported IUGR in 27.5% of the neonates in severe pre-eclampsiagroup whereas Yucesoy et al[14] reported IUGR in 29.4% and oligo-hydramnios in 7.5% cases [11,12].

In a study by Chaitra et al the incidence of preterm delivery wasnoted in 28.67%, intrauterine growth restriction in 14.68% of births, low birth weight in 26.57% and intrauterinefetal demise in 2.09 %[15]. A study by Yadav etal reported preterm deliveries in 28.8%.[16] The incidence of preterm deliveries was 28.9% in the present study. The reason for the high incidence of preterm is probably due to induction of labor for severe pre eclampsiaIn the present study, growth restriction was seen in 27 cases (15%). The number of cases with birth weight less than 2.5 kg was 39 (21.66%). NICU admission was required for 42 babies (23.33%).In the study by Vats K et al. the NICU admission rate was 11.2% and perinatal mortality was 10% [17].In the present study, early neonatal deaths occurred in 4 cases (2.2%) and the number of stillbirths was 20 (11.11%) . The perinatal death rate was 13.3%.

V. Conclusions:

Hypertension in pregnancy is associated with adverse maternal and perinatal outcome. Good antenatal care and early referral to tertiary care Centre can reduce complications. Availability of NICU care improves perinatal outcome and hence delivery in tertiary care Centre is preferred .

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