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Incidence Of Maternal Complications In Hypertensive Disorders Of Pregnancy In Patients Admitted In SMGS Hospital

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Abstract

Introduction

Hypertensive disorders of pregnancy complicate around 5 to 10 % of pregnancies and are known to increase the risk of maternal and perinatal morbidity and mortality. They are the leading cause of death during pregnancy and delivery globally accounting to around 40,000 women dying each year, so it is important to analyse the burden of complications that are associated with hypertensive disorders of pregnancy.

Objective

To study the incidence of maternal complications in hypertensive disorders of pregnancy in patients admitted in SMGS hospital GMC Jammu.

Materials And Methods

It is a prospective observational study of 250 pregnant women with hypertensive disorders of pregnancy admitted in the department of obstetrics and gynaecology of SMGS hospital GMC Jammu over a period of 1 year. The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA).

Results

Imminent eclampsia was highest (31;12.4%), HELLP syndrome (25;10%),preterm labour (22;8.8%),abruption (6;2.4%). Among postpartum complications, postpartum haemorrhage was higher (26;10.4%), acute renal failure (5;2.0%) , DIC (3;1.2%) and PRES. It was found in our study that they are also significantly associated with changes in fundus examination. The incidence of grade 2 and grade 3 changes were significantly higher in preeclampsia and eclampsia cases.

Conclusion

Hypertensive disorders of pregnancy are associated with more adverse maternal and perinatal outcome. Good maternal care and surveillance and screening can go a long way in early detection and treatment of HDP thus decreasing the maternal and foetal complications. Strengthening of emergency obstetric care services can be a boon in decreasing the maternal and foetal complications.

Keywords: Maternal mortality, preeclampsia, eclampsia, maternal complications

Introduction

Pregnancy is principally a phenomenon of maternal adaptation to the increasing demands of the growing fetus. However, in certain cases the physiological adaptations of normal pregnancy fail and it turns into a pathological condition. It occurs due to failure of any system of the body to adapt to normal changes that occur in pregnancy. One such example is hypertension in pregnancy. Hypertension in

pregnancy is defined as systolic blood pressure of 140mmHg or higher and /or diastolic blood pressure of 90mmHg or higher measured on two occasions 4 to 6 hours apart but within a maximum period of one week **(NHBPEP, 2000).** International society for the study of hypertension in pregnancy **(ISSHP**) adopted the clinical classification given by (**NHBPEP, 2000)** based on pathophysiology of disorder. According to it, hypertension in pregnancy is categorized into 4 well defined groups: Gestational hypertension, Pre-eclampsia, Chronic hypertension and Pre-eclampsia superimposed on chronic hypertension. The complications of hypertensive disorders in pregnancy are severe and life-threatening. The various complications associated are: 1, Eclampsia 2. HELLP syndrome (Haemolysis, elevated liver enzymes, and low platelet count); 3. Acute renal failure; 4. Abruptio placentae; 5. Pulmonary oedema; 6. Cerebellar haemorrhage; 7. Maternal death. So, the aim of this study is to observe the incidence of maternal complications in hypertensive disorders of pregnancy in patients admitted in SMGS hospital GMC Jammu.

Materials And Methods

Study design: Prospective, observational study.

Study sample: 250

Study duration: 1 year (1st November 2020-31st October 2021)

Sampling technique: Non-random sampling.

Source of data: This study was prospective observational study which was conducted on pregnant women who presented with hypertensive disorders and were admitted. There were no cases of chronic hypertension admitted during this study period. So, the women were divided into 3 main groups namely, Gestational Hypertension, preeclampsia and eclampsia based on the clinical presentation at admission and who fulfilled the eligibility criteria.

Results

Table 1: Showing parity of study patients

Gravida	Number	Percentage
Primigravida	129	51.6
Multigravida	121	48.4
Total	250	100

Majority of females were primigravida (129;51.6%) followed by multigravida (121;48.4%).

Table 2: Gestational age of study patients

Gestational age (Weeks)	Number	Percentage
< 37 Weeks	67	26.8
≥ 37 Weeks	183	73.2
Total	250	100
Mean±SD=37.7±2.61		

Maximum no. of patients were≥ 37 weeks (183;73.2%) followed by less than 37 weeks (67;26.8%)

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Table 3: Distribution according to type of hypertension		
Type of hypertension	**Number**	**Percentage**
Gestational hypertension	140	56.0
Preeclampsia	90	36.0
Antepartum eclampsia	20	8.0
Total	250	100

Most of the patients in this study had Gestational hypertension (140; 56.0%) followed by Preeclampsia (90; 36.0%) and only 20 (8.0%) patients had antepartum eclampsia.

Table 4: Distribution according to grades of retinopathy among study patients		
Grade	**Number**	**Percentage**
NAD	174	69.6
Grade 1	16	6.4
Grade 2	28	11.2
Grade 3	25	10.0
Grade 4	7	2.8
Total	250	100

Majority of patients ,174(69.6%) had no changes on fundoscopy, 16(6.4%) had grade 1 changes, 28(11.2%) had grade 2 changes, 25(10.0%) had grade 3 changes,7(2.8%) had grade 4 changes.

Table 5: Incidence of antepartum complications among study patients		
Antepartum complications	**Number**	**Percentage**
Imminent eclampsia	31	12.4
HELLP syndrome	25	10.0
Preterm labour	22	8.8
Abruptio placentae	6	2.4

Most common antepartum complications seen was Imminent Eclampsia. The incidence of imminent eclampsia seen was 31 (12.4%) patients, followed by HELLP syndrome in 25 (10.0%), followed by preterm labour in 22 (8.8%) patients. Abruptio placentae was seen in 6 (2.4%) patients.

Table 6: Incidence of antepartum complications as per type of hypertension			
Antepartum complications	**Gestational hypertension**	**Preeclampsia (N=90)**	**Antepartum eclampsia**

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	(N=140)				(N=20)	
	No.	**%age**	**No.**	**%age**	**No.**	**%age**
Imminent eclampsia	2	1.4	29	32.2	0	0
HELLP syndrome	2	1.4	21	23.3	2	10
Preterm labour	11	7.9	5	5.6	6	30
Abruptio placentae	0	0.0	6	6.7	0	0

Out of 140 patients of gestational hypertension, 2(1.4%) developed imminent eclampsia,2(1.4%) developed HELLP syndrome,11(7.9%) had preterm labor and no case of abruption was seen. Out of 90 patients of preeclampsia, 29(32.2%) had imminent eclampsia,21(23.3%) had HELLP syndrome, and 6(5.6%) patients had preterm labour pains and 6(6.7%) had abruption. Out of 20 patients of antepartum eclampsia, 2(10%) had HELLP syndrome, 6(30%) had preterm labour.

Table 7: Incidence of postpartum complications among study patients

Antepartum complications	**Number**	**Percentage**
PPH	26	10.4
Acute renal failure	5	2.0
DIC	3	1.2
PRES	3	1.2
Pulmonary edema	2	0.8
Haematoma	2	0.8
Eclampsia	2	0.8

Most common postpartum complication seen was PPH, with the incidence of 26 (10.4%) followed by acute renal failure in 5 (2.0%) patients. DIC was seen in 3(1.2%) patients, hematoma in 2 (0.8%), PRES in 3 (1.2%) and pulmonary edema in 2 (0.8%) patients and post-partum eclampsia in 2 (0.8%). Maternal mortality was noted in 3(1.2%) and the cause of maternal mortality was seen as pulmonary edema, DIC and PPH.

Table 8: Incidence of postpartum complications as per type of hypertension

Postpartum complications	**Gestational hypertension(N=140)**		**Preeclampsia (N=90)**		**Antepartum eclampsia (N=20)**	
	No.	**%age**	**No.**	**%age**	**No.**	**%age**
PPH	1	0.7	22	24.4	3	15

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Acute renal failure	0	0.0	2	2.2	3	15
DIC	1	0.7	2	2.2	0	0
PRES	0	0.0	0	0.0	3	15
Pulmonary edema	0	0.0	2	2.2	0	0
Haematoma	2	1.4	0	0.0	0	0
Eclampsia	0	0.0	2	2.2	0	0

Out of 140 patients of gestational hypertension,1(0.7%) had PPH, 1(0.7%) had DIC and 2(1.4%) patients had hematoma formation. Out of 90 patients of preeclampsia, 22(24.4%) had PPH, 2(2.2%) had acute renal failure, 2(2.2%) had DIC, 2(2.2%) had pulmonary edema and 2(2.2%) patients had eclampsia. Out of 20 patients of antepartum eclampsia, 3(15%) had PPH, 3(15%) had acute renal failure, 3(15%) had PRES.

Discussion:

This study was conducted in S.M.G.S. Hospital Jammu over a period of one year with the aim of studying the incidence of maternal complications in hypertensive disorders of pregnancy in patients admitted in SMGS hospital GMC Jammu. 250 pregnant females with hypertensive disorders of pregnancy admitted in labour room were selected for the study after fulfilling the inclusion criteria.

In our study, maximum females were primigravida (129; 51.6%) followed by multigravida (121; 48.4%) (Table no 1). Study conducted by **Rajamma CK et al., (2016)[1]** showed that, PIH was more common among primigravida and constituted 43.15 % of the total cases. In a study by **Bhattacharya S (2004)[2],** it was seen that 65.6% cases were primigravida. **Villar J et al., (2006)[3]** and **Duckitt K et al., (2005)[4]** also reported that primigravida was a risk factor for preeclampsia and eclampsia. In our study, Maximum number of patients were ≥ 37 Weeks gestational age (183; 73.2%) with mean ± SD = 37.58 ± 2.54 followed by less than 37 weeks (67;26.8%) (Table no 2).

In a study conducted by **Donimath KV et al., (2016)[5]** during November 2014 to June 2015 in Department of Obstetrics & Gynaecology, Karnataka Institute of Medical Sciences, Hubli, Karnataka, 57% belonged to 37-40 weeks period of gestation. In this study, majority of patients had Gestational hypertension with the incidence of (140; 56%) followed by Preeclampsia (90; 36%) and only 20 (8%) patients had antepartum eclampsia (Table 3). **Kolluru V et al., (2016)[6]** conducted a study and found that total hypertensive cases accounted for 234 of the total Deliveries; out of which gestational hypertension were 63 (27.3%) cases, preeclampsia 146 (61.6%) and eclampsia 25 (11.1%) cases which is not in accordance with our study. However, the disparity from the other studies of India can be explained because we have more number of booked cases in our study, which allowed early detection and adequate treatment in our tertiary care centre. The visual changes are present in 30% to 100% of patients with hypertensive disorders of pregnancy and the most common abnormality seen in the fundus is narrowing of retinal arterioles. **Richard RO (1994)[7].** Transient blindness has been reported in 1% to 3% of patients with eclampsia in **Dieckmann WJ (1952)[8]**, but with current methods of treatment the incidence is probably much lower.

In our study, 174(69.6%) had no changes on fundoscopy, 16(6.4%) had grade 1 changes, 28(11.2%) had grade 2 changes,25(10.0%) had grade 3 changes,7(2.8%) had grade 4 changes (Table 4). In our study, out of 140 patients with gestational hypertension, 130 (92.9%) patients had no changes on fundoscopic examination, and 10 (7.1%) patients had Grade 1 changes. Out of 90 patients with preeclampsia, 41 (45.6%) patients had no changes, 6 (6.7%) patients had Grade 1 changes, 21(23.3%%) patients had Grade 2 changes, 20(22.2%) patients had Grade 3 changes and 2 (2.2%) patients had Grade 4 changes. Out of 20 patients with eclampsia, 2 (10%)

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patients had no changes, 1 (5%) patient had Grade 1 changes, 7 (35%) patients had Grade 2 changes, 5 (25%) patients had Grade 3 changes and 5 (25%) patients had Grade 4 changes. The total number of patients with fundoscopic changes were 30.8% and grade 2 and grade 3 changes were seen more with preeclampsia and eclampsia patients. The p-value is 0.001. The result is statistically significant. (Table 14) which means that severity of retinopathy increases with the increase in severity of hypertension.

Our results are consistent with the studies conducted by **Bharathi RN et al., (2015) [9]** and **Reddy SC (1986)[10]** which concluded that degree of retinopathy was correlating with the severity of the disease and levels of hypertension. In this study, the most common antepartum complications seen was Imminent Eclampsia. In present study we observed that the incidence of antepartum maternal complications during pregnancy increased as the severity of hypertension increased. The complication rate was seen to be higher in the cases of severe preeclampsia and eclampsia(Table5).

In our study, the most common postpartum complication seen was PPH, with the incidence of 26 (10.4%) followed by acute renal failure in 5 (2.0%) patients. DIC was seen in 3(1.2%) patients, hematoma in 2 (0.8%), PRES in 3 (1.2%) and pulmonary edema in 2 (0.8%) patients and post-partum eclampsia in 2 (0.8%). Maternal mortality was noted in 3 (1.2%) and the cause of maternal mortality was pulmonary edema, DIC and PPH. (Table 7). Out of 140 patients of gestational hypertension, 1(0.7%) had PPH, 1(0.7%) had DIC and 2(1.4%) patients had hematoma formation. Out of 90 patients with preeclampsia, 22(24.4%) had PPH, 2(2.2%) had acute renal failure, 2(2.2%) had DIC, 2(2.2%) had pulmonary edema and 2(2.2%) patients had eclampsia. Out of 20 patients of antepartum eclampsia, 3(15%) had PPH, 3(15%) had acute renal failure, 3(15%) had PRES (Table 8). The incidence of postpartum complications also increased as the severity of hypertension increases.

Conclusion:

It has been observed from the present study that HDP are associated with more adverse maternal and perinatal outcomes. Good maternal care and surveillance and screening can go a long way in early detection and treatment of HDP thus decreasing the maternal and fetal complications. Strengthening of emergency obstetric care services can be a boon in decreasing the maternal and fetal complications.

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