A STUDY OF MATERNAL AND FETAL OUTCOME IN HYPERTENSIVE DISORDERS OF PREGNANCY.

Rekha Wadhwani¹, Deepti Gupta², Kiran Wadiwa³

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ABSTRACT: Hypertensive disorders of pregnancy are a major cause of maternal and fetal morbidity and mortality worldwide¹. They are present in 6-8% of young mothers and the prevalence increases with advancing age. The purpose of this study was to study all patients of with hypertensive disorder of pregnancy admitted in Sultania Lady Hospital, Gandhi Medical College, Bhopal which is a tertiary care centre, classify them and analyse the maternal and fetal outcomes associated. This was a prospective study carried out in Department of Obstetrics & Gynecology, Sultania Lady Hospital, Gandhi medical college Bhopal over a duration of 1 year. Total of 1633 patients were admitted with various hypertensive disorders of pregnancy. Hypertensive disorders are associated with many antepartum and intrapartum complications like placental insufficiency, abruption placentae hence the SB rate is so high. Besides the prematurity in these patients is mostly iatrogenic as delivery of baby and placenta is the only definitive treatment of preeclampsia/ eclampsia. Hypertensive disorders of pregnancy are a wide spectrum with multifactorial etiology and significant maternal and fetal morbidity and mortality. It is possible to reduce the severity of disease and its effect with good antenatal care, timely intervention and quick delivery.

INTRODUCTION: Hypertensive disorders of pregnancy are a major cause of maternal and fetal morbidity and mortality worldwide¹. They are present in 6-8% of young mothers and the prevalence increases with advancing age². Preeclampsia/ eclampsia is an unpredictable multiorgan disorder unique to human pregnancy whose exact etiology still remains unknown. It has been thought to be neurological, renal, hepatic, hypertensive and recently placental disorder. It is associated with high maternal and fetal morbidity and mortality which is declining with improvement in treatment facilities. There are many different treatment regimens for eclampsia, best and most widely used being Mag. sulf therapy. Magnesium sulphate therapy and prompt delivery in eclampsia has improved maternal and fetal outcome considerably. The outcome of any pregnancy depends on onset and severity of preeclampsia and quality of obstetric and medical management. The aim of this study was to evaluate the maternal and fetal outcome in patients with this enigmatic disorder.

AIMS AND OBJECTIVES: The purpose of this study was to study all patients of with hypertensive disorder of pregnancy admitted in Sultania Lady Hospital, Gandhi Medical College, Bhopal which is a tertiary care centre, classify them and analyze the maternal and fetal outcomes associated.

MATERIALS AND METHODS: This was a prospective study carried out in Department of Obstetrics & Gynecology, Sultania Lady Hospital, Gandhi medical college Bhopal over duration of 1 year. Total of 1633 patients were admitted with various hypertensive disorders of pregnancy. They were classified as follows:

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1. BP >140/90 mm Hg without proteinuria= gestational hypertension
2. BP > 140/90 mm Hg after 20 wks gestation with proteinuria > 300mg/24 hr or >1+ dipstick= preeclampsia
3. Preeclampsia complicated with convulsions= eclampsia
4. BP>140/90 mm hg before pregnancy or before 20 wks or persists beyond 6 wk postpartum= chronic hypertension

Maternal and fetal outcome was noted and analysed.

RESULTS: There were total 11162 obstetric admissions in the given 1 year duration of which 1633 had various hypertensive disorders i.e. about 14.6%. Maximum patients 67% were in age group 18-25 years which is also the period of maximum fertility in our country. A good 68% women were unbooked. 40.61% of the patients because the study hospital was a tertiary care centre which gets a lot of high risk referrals.

S. no.	Group	No. of cases	%
1.	Gestational Hypertension	866	53.03
2.	Preeclampsia	470	28.78
3.	Eclampsia	272	16.65
4.	Chronic Hypertension	25	1.5
		1633	100

Table 1: Showing distribution of cases according to type of hypertensive disorder

The incidence of preeclampsia and eclampsia is still very high in our centre because most women were referred unbooked patients who had no antenatal checkups and were admitted with severe hypertension.

S. no.	Maternal Outcome	No. of cases	%
1.	Vaginal delivery	1186	72.62
2.	LSCS	351	21.49
3.	Conservative management	63	3.87
4.	Maternal mortality	33	2.02
	Total	1163	100

Table 2: Showing mode of outcome of pregnancy

The incidence of caesarean delivery was just 21.49 % little more than recommended 15% which suggests that caesarean birth is not compulsory to improve maternal and fetal outcome in preeclampsia/ eclampsia. What is more important is timely intervention and expeditious delivery. In our study incidence of caesarean in eclampsia was only 0.85%. Fetal hypoxia and fetal distress were the most common indications for caesarean in these patients because PIH is associated with placental insufficiency and causes fetal hypoxia easily.

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S no	Type of disorder	No. of mortality	%
1.	Gestational Hypertension	01	3.3
2.	Preeclampsia	13	39.3
3.	Eclampsia	19	57.4
	Total	33	100

Table 3: Showing mortalities in different disorders

Eclampsia is extreme end of spectrum of hypertensive disorders and these women are usually admitted with one or more cerebrovascular, renal, neurological or haematological complications and hence have such high mortality. Amongst the various causes of mortality CVA was the most common 30.3% followed by pulmonary embolism in 21.2%, pulmonary edema 21.2%, postpartum collapse 9%, multiorgan failure in 6% and septicemia in 3%.

S. no.	Group of patients	No of patients in the group	No. of maternal deaths	%
1.	Patients with hypertensive disorders of pregnancy	1633	33	2%
2.	Patients without hypertensive complications	9529	30	0.3%

Table 4: Showing impact of hypertensive disorder on maternal mortality

Putting it in words having hypertensive disorder of pregnancy increases risk of maternal mortality by almost six folds. In our institution hypertensive disorders were the underlying cause in 53% of total 63 maternal deaths.

S no.	Period of Gestation	Alive and healthy	Perinatal Mortality	
			Still birth	Neonatal death
1.	Pre term	342	96	51
2.	Full term	1010	106	28
	Total	1352	202	79

Table 5: Showing perinatal outcome

Hypertensive disorders are associated with many antepartum and intrapartum complications like placental insufficiency, abruption placentae hence the SB rate is so high. Besides the prematurity in these patients is mostly iatrogenic as delivery of baby and placenta is the only definitive treatment of preeclampsia/ eclampsia.

DISCUSSION: Hypertensive disorder of pregnancy is a multifactorial disease that still evades us obstetricians and has emerged as leading cause of maternal morbidity and mortality. The hospital incidence of preeclampsia varies from 1 in 30 to 1 in 500. Pre-eclampsia affects approximately 6-8% of all pregnancies worldwide, ⁴ with onset of symptoms in the late second or third trimester, most commonly after the 32nd week. Kumar majhi⁵ reported an incidence of eclampsia 2.79% and vatten & Skjaerven in 2.6%.⁶our institute has reported similar incidence.

Pre-eclampsia is also more common in women who are primigravida or who have preexisting hypertension, diabetes, autoimmune diseases such as lupus, various inherited

thrombophilias such as Factor V Leiden, renal disease, women with a family history of pre-eclampsia, obese women, and women with a multiple gestation (twins or multiple birth). The single most significant risk for developing pre-eclampsia is having had pre-eclampsia in a previous pregnancy⁷.

The syndrome of hypertensive disorders is thought to be caused by a shallow superficial implantation of placenta which becomes hypoxic, causes immune reaction releasing inflammatory mediators which then act on the vascular endothelium throughout the body and cause various symptoms like headache, visual disturbances, convulsions, upper and right abdominal pain, epistaxis, vomiting, oliguria, hematuria, anuria etc.⁸

Etiopathology of PIH is very complex. Hypertensive disorders have been linked to the presence of the following: endothelial cell injury, immune rejection of the placenta, compromised placental perfusion, altered vascular reactivity, imbalance between prostacyclin and thromboxane, decreased glomerular filtration rate with retention of salt and water, decreased intravascular volume, increased central nervous system irritability, disseminated intravascular coagulation, uterine muscle stretch (ischemia), dietary factors, including vitamin deficiency, Hughes syndrome, genetic factor - There is an association between pre-eclampsia and certain variants of the genes coding for angiotensin-converting enzyme, CTLA-4, thrombin, factor V, lipase and plasminogen activator inhibitor-1. These genetic risk factors are generally shared with those of cardiovascular diseases in general, air pollution, obesity, Thyroid dysfunction.

Abnormal maternal immune system and insufficient gestational immune tolerance play an important role in development of preeclampsia. Women who develop preeclampsia show a shift towards Th1 response and production of IFN γ . Aberrant immune responses promoting pre-eclampsia may also be due to an altered fetal allo recognition or to inflammatory triggers.⁹

Pre-eclampsia can mimic and be confused with many other diseases, including chronic hypertension, chronic renal disease, primary seizure disorders, gallbladder and pancreatic disease, immune or thrombotic thrombocytopenic purpura, antiphospholipid syndrome and hemolytic-uremic syndrome. It must always be considered a possibility in any pregnant woman beyond 20 weeks of gestation. It is particularly difficult to diagnose when preexisting disease such as hypertension is present.¹⁰ Women with acute fatty liver of pregnancy may also present with elevated blood pressure and protein in the urine, but differs by the extent of liver damage.

Hypertensive disorders are associated with many maternal and fetal complications. Maternal complications include cerebral haemorrhage, stroke, visual disturbances and visual loss, epistaxis, liver damage, hematuria, anuria, oliguria, pulmonary edema, Abruption placentae, DIC and eclampsia. Eclampsia carries a maternal mortality of 1.8%¹¹ similar to that found in our study. Fetal complications include IUGR, LBW, Prematurity, IUFD and perinatal death.

Traditionally rapid weight gain, edema, proteinuria, roll over test were used for prediction of preeclampsia. BP measurement is the most useful clinical method for early detection of rise in BP. The American College of Obstetricians and Gynaecologists recommends blood pressure measurements at the initial visit, every 4 weeks until 28 weeks' gestation, every 2-3 weeks until 36 weeks' gestation, and weekly thereafter¹². Appearance of uterine diastolic notch in mid trimester is another predictor. For fetal well being NST and biophysical profile should be used. Other serum markers that are being studied include inhibin.

Management of hypertensive disorders has to be a multipronged approach. Investigations should be done to assess fetal well being (NST/BPP), severity of disease (CBP, LFT, RFT, Coagulation profile, URM etc). Antihypertensive treatment should be initiated using first line drugs like alpha methyl dopa and labetalol. However sudden or severe fall in BP should not be tried because it may cause a hypoxic fetus to become further hypoxic. And women with severe preeclampsia or eclampsia should be put on magnesium sulphate therapy.

Muller, lalita, fimfeild, siler and vtran, walker all stated that there is higher incidence of IUFD and preterm delivery in preeclampsia and eclampsia¹². Role of antenatal care is very important in hypertensive disorders. In our study 68% patients were unbooked. Sibai et al also found that 69.7% cases of eclampsia could have been prevented with adequate antenatal care¹³.

Delivery is the definitive treatment for preeclampsia eclampsia. However it per se is not an indication to perform caesarean section. In a study by Mudaliar and Menon, fetal mortality was very high in eclampsia ranging from 30-60%. The main reason is disease itself and iatrogenic prematurity. The main contributions to neonatal mortality are prematurity, fetal asphyxia and acidosis¹⁴.

CONCLUSION: Hypertensive disorders of pregnancy are a wide spectrum with multifactorial etiology and significant maternal and fetal morbidity and mortality. It is possible to reduce the severity of disease and its effect with good antenatal care, timely intervention and quick delivery.

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AUTHORS:

1. Rekha Wadhwani
2. Deepti Gupta
3. Kiran Wadiwa

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Obstetrics & Gynaecology, Sultania Zanana Hospital, Gandhi Medical College, Bhopal.
2. Assistant Professor, Department of Obstetrics & Gynaecology, Sultania Zanana Hospital, Gandhi Medical College, Bhopal.
3. Resident, Department of Obstetrics & Gynaecology, Sultania Zanana Hospital, Gandhi Medical College, Bhopal.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Rekha Wadhwani,
IV/6, ESI Hospital campus,
Sonagiri, C-Sector, Raisen Road,
BHEL, Bhopal, M.P. – 462021.
Email- drrekhaw@yahoo.co.in
deeptireja@gmail.com

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