

Study of Maternal and Perinatal outcome in patient with Hypertensive disorders (Gestational hypertension, Pre-eclampsia, Eclampsia)

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Abstract:

Introduction: Hypertension is one of the common medical complications of pregnancy and contributes significantly to maternal and perinatal morbidity and mortality. Preeclampsia is strongly associated with fetal growth restriction, spontaneous or iatrogenic pre-term delivery, low birth weight, respiratory distress syndrome and admission to neonatal intensive care unit.

Aims and Objectives: To study incidence of Hypertensive disorders of pregnancy in our tertiary health care centre and clinical profile maternal and perinatal outcome in patients with Hypertensive disorders of pregnancy.

Materials and Methodology: The prospective observational study was conducted in our hospital attending antenatal clinic in obstetrics and gynecology department and patients admitted to our department with hypertensive disorders of pregnancy during period of 1st January 2021 to 31st December 2022 after ethics approval.

Results: Incidence of HDP in our study was 11.9% with 55% of the patients belonging to age group 21-25 years. Majority of the patients (46.5%) presented at gestational age between 31-35 years. 54% of the patients were primipara. Most common maternal complication encountered in our study was Eclampsia and most common perinatal complication was Low Birth weight.

Conclusion: Planned delivery in best hospital environment under expert obstetrician's care and proper well equipped NICU set up can reduce maternal and perinatal mortality.

Keywords: Hypertensive disorders of pregnancy, Preeclampsia, Eclampsia

Abbreviations: HDP: Hypertensive disorders of Pregnancy, PPH: Post partum Haemorrhage, LSCS: Lower segment Caesarean section

Introduction

Hypertension is one of the common medical complications of pregnancy and contributes significantly to maternal and perinatal morbidity and mortality. Hypertensive disorder include preeclampsia, gestational hypertension and chronic hypertension and complicate upto 10% of pregnancy. The identification of this clinical entity and effective management plays a significant role in the outcome of pregnancy, both for the mother and the baby⁽¹⁾. According to WHO systemic review on maternal mortality worldwide, hypertensive disease remains a leading cause of maternal mortality. Hypertension forms the death triad Along with hemorrhage and infection that contributes to higher morbidity and mortality during pregnancy and childbirth⁽²⁾. Preeclampsia is strongly associated with fetal growth restriction, spontaneous or iatrogenic pre-term delivery, low birth weight, respiratory distress syndrome and admission to neonatal intensive care unit.

Aims and Objectives:

- To study incidence of hypertensive disorders of pregnancy in our tertiary care centre.
- To study clinical profile of subjects with hypertensive disorders of pregnancy.
- To study maternal and perinatal outcome in patients with hypertensive disorders of pregnancy.

Materials and Methodology:

The prospective observational study was conducted to our hospital attending antenatal clinic in obstetrics and gynecology department and patients admitted to our department with hypertensive disorders of pregnancy during period of 1st January 2021 to 31st december 2022 after ethics approval.

Inclusion Criteria-

- Patients coming with BP more than or equal to 140/90 mmHg after 20 weeks of gestation with or without proteinuria.
- Singleton pregnancies with cephalic presentation.
- Patient present with above criteria with convulsion and / or coma.

Exclusion Criteria-

- Pregnancies with malpresentations.
- Pregnancies with multifetal gestation.
- Patient present with chronic hypertension.
- Pregnancies with Molar pregnancies.
- Pregnancies associated with other medical disorders.

The patients were selected irrespective of parity, consanguinity and from all socio-economic classes. Their detailed history was taken, all investigations, USG Doppler and NST monitoring were done. Details regarding termination of pregnancy , intrapartum , postpartum complications were noted. Neonatal outcome was noted and follow up done. Maternal complications were noted and follow up done till 12 weeks postpartum. All the data were analyzed and statistical analysis was done.

Results:

In present study, out of 13551 deliveries in our study period, 1614 patients were having Hypertensive disorder of pregnancy, incidence of HDP was 11.91%.

The baseline data of the patients were noted. The results are summarized in Table No 1 below.

Table No 1: Baseline Details:

Distribution of patients according to Age		
Age in Years	NO. of Patients	Percentage
<20	16	8%
21-25	110	55%
26-30	55	27.5%
31-35	13	6.5%
>35	6	3%
Distribution of Patients according to Registration status		
Registration status	Number of patients	Percentage
Registered Cases	90	45%
Emergency Cases	110	55%
Distribution of Patients according to Address		
Address	Number of patients	Percentage
URBAN	152	76%
RURAL	48	24%
Distribution of Patients according to Address		
Parity	No of Patients	Percentage
Primi	108	54%
Second	36	18%
Multi	56	28%
Weeks of Gestation	No. of Patients	Percentage
21-24	15	7.5%
25-30	30	15%
31-35	93	46.5%
>35	62	31%

Patients was asked regarding history of Hypertensive disorders in previous pregnancy and evaluation of ultrasound Doppler was done as shown in Table No: 2 below

Table No 2: Previous History of Hypertensive disorders and Doppler Changes

Distribution of Subjects according to history of HDP		
Past H/O HDP	No. of Patients	Percentage
Present	26	13
Percentage	66	87%
Distribution of Subjects according to Doppler changes		
Doppler Changes	No. of Patients	Percentage
Normal Doppler	128	64%
Abnormal Doppler	72	36%

Abnormal Doppler in our study was considered when there were changes as increase resistance in uterine artery, increase resistance/absent end diastolic flow/reverse end diastolic flow in umbilical artery, middle cerebral artery abnormalities, ductus venosus changes observed. These might be due to abnormal placental perfusion (IUGR).

For management of hypertension, patients were divided as per need of monotherapy or combined therapy with antihypertensives depending on their control of BP. Also, patients requiring Magnesium sulphate for prevention of Eclampsia were noted in study proforma and mentioned in Table No 3 below;

Table No 3: Distribution According To Utilization Of Antihypertensive Drugs In Pregnancy

	No. of Patients	Percentage
Monotherapy	116	58%
Combination Therapy	84	42%
Anti-convulsant	No. of Patients	Percentage
MgSO ₄	31	15.5%

In monotherapy, preferred choice of drug was Labetalol, whereas preferred combination was tablet nifedipine with labetalol. Combination of drugs was given in those patients, who did not receive adequate response by monotherapy.

The subject were classified on the basis of mode of delivery and If Cesarean section was done indication for the Cesarean section was mentioned in study proforma and summarized in Table No: 4 below:

Table No 4: Mode of Delivery of patients and Indications of Cesarean section.

Distribution of patients according to Mode of Delivery		
Mode of Delivery	No. of Patients	Percentage
Vaginal	96	48%
LSCS	104	52%
Indications of Cesarean section		
INDICATION OF LSCS	No. of Patients (n:104)	Percentage
Previous uterine scar (previous 1 LSCS ,previous 2 LSCS, Myomectomy scar)	48	46.1%
Eclampsia or severe preeclapsia	23	22.1%
Cephalo-pelvic disproportion	11	10.57%
Meconium stained liquor	12	11.5%
Failure of induction	10	9.6%

Maternal complications observed were noted in Table No 5 below:

Table No 5: Maternal Complication

MATERNAL COMPLICATIONS	NO. OF PATIENTS	Percentage
Eclampsia	23	11.5%
Abruptio Placenta	10	5%
PPH	3	1.5%
HELLP Syndrome	3	1.5%
Acute Renal Failure	2	1%
Pulmonary Edema	4	2%
Disseminated Intravascular Coagulation	8	4%

Perinatal outcome and morbidities observed in the neonates were noted in summarized in Table No 6 below:

Table no 6: Perinatal Outcome

Distribution of subjects according to Perinatal Morbidities		
Morbidities	No. of Patients	Percentage N=100
Birth asphyxia	15	26.8%
Hypoxic ishaemic Encephalopathy	5	8.9%
Respiratory Distress syndrome	11	19.6%
Intraventricular haemorrhage	6	10.7%
Neonatal Hyperbilirubinemia	10	17.9%
Septicemia	9	16%
Distribution of subjects according to Perinatal Outcome		
Perinatal Outcome	No of Patients	Percentage
Low Birth Weight	117	58.5%
Still Birth	1	0.5%
Early Neonatal Death	10	5%
Intra-uterine death	12	6%

Discussion:

In our study, out of 13551 deliveries during the study period, 1614 patients were having Hypertensive disorder of pregnancy, so incidence of HDP was 11.9% as compared to 10% and 12.8% in a study conducted by Judy et al⁽³⁾ and Gandhi Mr et al⁽⁴⁾ respectively. HDP was more common(55%) in 21-25 years age group, because most common age of marriage and for child bearing is mostly in this age group. Second most common age group being 26-30 year, which is 27.5% observed in our study. Similar observations were seen in study conducted by Dr Dongabati et al⁽⁵⁾. In our study, 55% were emergency patients, coming for the 1st time for antenatal check-up or visiting other centers but referred for severe pre-eclampsia or eclampsia indicating the need for strengthening referral services. In present study, 76% patients were from Urban and 24% were from rural population, which might be due to location of our hospital or due to more awareness, more antenatal visits than rural population. In our study, maximum patients (46.5%) were diagnosed to have HDP between 31-35 weeks of gestation as compared to 42.3% observed in study conducted by Manjusha et al⁽⁶⁾. In our study, maximum patients were primi patients, that is 54%, when compared to other studies Gandhi MR et al⁽⁴⁾ suggesting more incidence in primi patients which is 43.15% could be due to time exposure to chorionic villi.

In our study, 42% of subjects required combination therapy, when compared with other study done by Manjusha Sajith⁽⁶⁾ in 2014, almost opposite results were found. In that study combination therapy was preferred and different combinations of anti-hypertensive drugs were used but most widely used combination was tablet nifedipine with tablet alpha methyl dopa. In present study, 23 patients were having Eclampsia and presented with generalized tonic clonic convulsions. They were given full dose magnesium sulphate. Another 8 patients of severe pre-eclampsia were also given anticonvulsant to prevent eclampsia. During magnesium sulphate therapy, there were no signs of Toxicity in any patient. Out of 31 patients 23 patients were given therapeutic dose of MgSo₄ and 8 patients were given prophylactic dose of MgSo₄.

In present study, 48% patients were delivered by normal vaginal delivery and 52% were delivered by LSCS. As compared to other study done by Kaur A et al⁽⁷⁾ in 2015, 59% were delivered by vaginal delivery and 41% were delivered by LSCS.

When maternal complications were studied and noted in detail, Eclampsia was the most common maternal complications encountered followed by Abruptio. However, PPH and abruptio were common complications encountered in study conducted by Pairu et al⁽⁸⁾ and Nandkali et al⁽⁹⁾ respectively.

In this study period, total 41 patients were expired out of which 19 patients were expired due to HDP complications. Among them only 5 patients were registered and taking antihypertensive treatment and others were newly diagnosed patients not having routine antenatal check-ups at any center.

In present study 28% babies were admitted to NICU with different morbidities. Among these morbidities, major morbidities affecting fetal outcome were birth asphyxia and RDS. Also, perinatal mortality observed was 11.5% Majority of the(58.5%) newborns were having low birth weight, which included both premature and IUGR babies were observed in our study due to changes in fetoplacental circulation due to hypertensive disorders of pregnancy.

Conclusion:

Hypertensive disorder of pregnancy is a disorder of complex origin. Exact pathophysiology is unknown. It is not a totally preventable disease but its incidence can be decreased by proper antenatal care. Early diagnosis, proper management and selective termination will improve maternal and perinatal outcome. Planned delivery in best hospital environment under expert obstetrician's care and proper well equipped NICU set up can reduce maternal and perinatal mortality.

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