

Effect of hypertensive disorder of pregnancy on maternal and fetal outcome

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Abstract

Introduction: The hypertensive disorder affects 7-15% of all gestation and represents the most common medical complication of pregnancy.¹ Hemorrhage, infection, and hypertension form the deadly triad of morbidity and mortality during pregnancy and childbirth. The objective of this study is to study the demographic, social, clinical and pathological variables associated with patients with hypertensive disorders of pregnancy and its associated fetal outcomes.

Material and method: This is a retrospective study conducted in the department of obstetrics and gynecology at District Hospital, Shivpuri, M.P. from 15th January to 15th July 2021. 108 patients were enrolled in the study.

Results: The most common age group was 20-30 years 77.77%. Maximum patients were educated till primary school 39.81% followed by illiteracy 32.40%. Maximum patients had BMI in the range of 26-30, 52.77%

Maximum patients were found to be primipara 63.88%. Maximum patients belong to a preterm gestational age of 32-37 weeks 63.88%. The most common presenting complaints most found to be headache 46.29% and edema 20.37%. Maximum patients had emergency LSCS 51.85%. The most common complication was eclampsia 18.51%, followed by abruptio 16.66%. PPH was found in 7.40% of patients. We had maximum patients outcomes as preterm births 32.40%. 11.11% of patients had IUD, 5.55% patients had a stillbirth and 8.33% patients had neonatal death after neonatal admissions.

Conclusion: Hypertensive disorder of pregnancy mostly affects younger age group and low socioeconomic and uneducated population. It can be controlled by early detection of cases, proper antenatal care, and early use of antihypertensive drugs to overcome adverse maternal and fetal outcomes.

Keywords: Hypertensive disorder of pregnancy, Abruptio, Pre-eclampsia, eclampsia.

Introduction

The hypertensive disorder affects 7-15% of all gestation and represents the most common medical complication of pregnancy.¹ According to World Health Organization's (WHO) systematic review, hypertension disorder is the leading cause of direct maternal mortality. Hemorrhage, infection, and hypertension form the deadly triad of morbidity and mortality during pregnancy and childbirth.² An estimated 76,000 maternal and 500,000 fetal/newborn deaths occur each year with more than 10 million pregnancy complications.³

Hypertensive disorders during pregnancy can be included into four well-defined groups according to ACOG⁴:

- Gestational hypertension
 - Pre-eclampsia, eclampsia
 - Chronic hypertension
 - Preeclampsia superimposed on chronic hypertension.
1. Gestational hypertension: diagnosed when systolic blood pressure > 140 mmHg or diastolic blood pressure > 90 mmHg measured on two occasions four to six hours apart after 20 weeks of pregnancy in absence of proteinuria or systemic signs and symptoms.
 2. Pre-eclampsia: systolic blood pressure >140 mmHg or diastolic blood pressure > 90 mmHg with proteinuria with or without systemic signs and symptoms/eclampsia (pre-eclampsia with convulsion).
 3. Chronic hypertension: systolic blood pressure > 140 mmHg or diastolic blood pressure > 90 mmHg present pre-pregnancy or < 20 weeks of gestational age.
 4. Pre-eclampsia superimposed on Chronic hypertension: increased blood pressure and new-onset proteinuria or

other end-organ dysfunction in addition to pre-existing hypertension.

Pregnancy complicated with hypertensive disorders has a risk of landing into HELLP syndrome, abruption placenta, pulmonary edema, PPH, acute renal failure, etc. Hypertensive disorder contributes significantly to preterm birth weight, IUGR, low birth, perinatal death.

HELLP syndrome is characterized by hemolysis (abnormal peripheral blood smear, bilirubin ≥ 1.2 mg/dL), thrombocytopenia ($< 100,000/\text{mm}^3$) and elevated liver enzymes (AST > 70 U/L, LDH > 600 U/L).

The exact cause of hypertensive disorder is still not known. The objective of this study is to study the demographic, social, clinical and pathological variables associated with patients with hypertensive disorders of pregnancy and its associated fetal outcomes.

Material and Method

This is a retrospective study conducted in the department of obstetrics and gynaecology at District Hospital, Shivpuri, M.P. from 15th January to 15th July 2021. 108 patients were enrolled in the study.

Inclusion criteria

All women admitted to the maternity ward with the diagnosis of hypertensive disorder of pregnancy were included in the study. Patients were followed till the termination of pregnancy. Their maternal complications and fetal outcome were followed from the record.

Exclusion criteria

All the women with hypertensive disorder less than 28 weeks of pregnancy were excluded from the study. And patients with a history of other associated medical disorders like anemia, thyroid and diabetes were excluded from the study.

Results

Table 1: Distribution according to demographic variables.

Characteristics	Number	Percentage
Age (year)		
<20	9	8.33
20-30	84	77.77
30-40	13	12.03
>40	2	1.85
Total	108	100
Education		
Illiterate	35	32.40
Primary	43	39.81
HSC	20	18.51
Graduate and Post Graduate	10	9.25
Total	108	100
Occupation		
Housewife	76	70.37
Employed	26	24.07
Student	6	5.55
Total	108	100
BMI		
<18	5	4.62
18-25	35	32.40
26-30	57	52.77
31-35	11	10.18
>35	5	4.62
Total	108	100

In our study the most common age group was 20-30 years 77.77%. Maximum patients were educated till primary school 39.81% followed by illiteracy 32.40%. Our maximum patients were housewives 70.37%. In our study maximum patients had BMI in the range of 26-30, 52.77% followed by BMI of 18-25, 32.40%.

Table 2 : Distribution according to parity.

Parity	Number	Percentage
Primi	69	63.88
Multi	39	36.11
Total	108	100

In our study maximum patients were found to be primipara 63.88%.

Table 3: Distribution according to gestational age.

Gestational age in weeks	Number	Percentage
<28	2	1.85
28-32	25	23.14
33-37	69	63.88
38-41	10	9.25
>40	2	1.85
Total	108	100

In our study maximum patients belong to preterm gestational age of 32-37 weeks 63.88%.

Table 4: Distribution according to complaints

Presenting complaints	Number	Percentage
Headache	50	46.29
Nausea and vomiting	13	12.03
Epigastric and chest pain	10	9.25
Blurring and diminished vision	10	9.25
Edema	22	20.37
No complaints	3	2.77
Total	108	100

In our study the most common presenting complaints most found to be headache 46.29% and Edema 20.37%

Table 5: Distribution according to the mode of delivery

Mode of delivery	Number	Percentage
Vaginal delivery	27	25
Emergency LSCS	56	51.85
Elective LSCS	22	20.37

VBAC	3	2.77
Total	108	100

In our study maximum patients had emergency LSCS 51.85%, vaginal delivery was possible in 25% and elective LSCS was done in 20.37%.

Table 6 : Distribution according to maternal complication.

Maternal complication	Number	Percentage
Convulsion	20	18.51
Abruptio	18	16.66
PPH	8	7.40
Pulmonary edema	3	2.77
DIC	3	2.77
HELLP	2	1.85

In our study most common complication was eclampsia 18.51%, followed by abruptio 16.66%. PPH was found in 7.40% of patients.

Table 7 : Distribution according to the neonatal outcome.

Neonatal outcome	Number	Percentage
Preterm	35	32.40
IUGR	23	21.29
Low birth weight	14	12.96

In our study we had maximum patients outcomes as preterm births 32.40%. IUGR was found in 21.29% and low birth weight babies were 12.96%.

Table 8 : Distribution according to Perinatal mortality.

Perinatal mortality	Number	Percentage
IUD	12	11.11
Stillbirth	6	5.55
Neonatal death	9	8.33

In our study 11.11% of patients had IUD, 5.55% patients had a stillbirth and 8.33% patients had neonatal death after neonatal admissions.

Discussion

In our study most common age group was 20-30 years 77.77%. Similar results were found in the study done by

Khosarvi et. al⁵. which is 55.6% in the age group of 21-30 years. In another study done by Mathapati SS et. al⁶, maximum patients were in the age group of 20-30 years 83.7%.

In our study the maximum number of patients were educated till primary school 39.81% followed by illiteracy 32.40%. This shows that the maximum number of patients in our study were not so well educated. Our maximum patients were housewife 70.37%. Similar results were found in a study done by Mathapati SS et. al⁶ (56.9% were educated up to high school) and Youssef AA et. al.

In our study maximum patients had BMI in the range of 26-30, 52.77% followed by BMI of 18-25, 32.40%.

In our study maximum patients were found to be primipara 63.88%. The findings were similar to the study done by Shaikh et. al⁷. Another study done by SR Singhal et. al⁸, showed 73% of patients were primigravida. Ketz et. al⁹. reported that 70% of their patients were primigravida.

In our study maximum patients belong to preterm gestational age of 32-37 weeks 63.88%. The finding was similar to the study done by Shaikh et. al⁷ and Khosarvi et. al⁵. In our study the most common presenting complaints most found to be headache 46.29% and Edema 20.37%. In a study done by SR Singhal et. al⁸, 44% of patients presented with headache as the main complaint which is quite similar to our study.

In our study maximum patients had emergency LSCS 51.85%, vaginal delivery was possible in 25% and elective LSCS was done in 20.37%. There was an increased incidence of operative delivery 71.5% in hypertensive patients in our study. Similar results were shown by a study done by Shaikh et. al⁷. It showed that the rate of cesarean section was 73% and vaginal delivery was 26.7%. While a study done by Gandhi MR et. al¹⁰ showed

the rate of cesarean section as 46.3% and vaginal delivery as 53.4%. In this way, some studies had a higher vaginal delivery rate as compared to our study.

In our study most common complication was eclampsia 18.51%, followed by Abruptio 16.66%. PPH was found in 7.40% of patients. Gandhi MR et. al. reported eclampsia as the most common complication effective 11.6% of patients followed by HELLP Syndrome 5.6% abruptio placentae and PPH was respectively 5.6% each in their study.

In our study we had maximum patients outcomes as preterm births 32.40%. IUGR was found in 21.29% and low birth weight babies were 12.96%. In our study 11.11% of patients had IUD, 5.55% patients had a stillbirth and 8.33% patients had neonatal death after neonatal admissions. In a study done by Mathapati SS et. al⁶, the NICU admission was seen in 29.2% and 9% as IUD. In a study done by Patel R et. al¹¹, 18.75% had NICU admission with 1.5% IUD and 1.5% neonatal deaths.

Conclusion

Hypertensive disorder of pregnancy is a major health problem affecting a major portion of pregnant females contributing to maternal morbidity and mortality and perinatal morbidity and mortality. It mostly affects the younger age group and low socioeconomic and uneducated population. It can be controlled by early detection of cases, proper antenatal care and early use of antihypertensive drugs to overcome adverse maternal and fetal outcomes. Hence, there is a need for vigilance for high-risk cases and follow-up for maternal and fetal monitoring so that there could be a decline in both complications.

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