

Prevalence of Hypertensive Disorder of Pregnancy in North India

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Abstract

Aims and Objective: Hypertensive disorders of pregnancy (HDP) are among the commonest medical disorders during pregnancy constituting one of the greatest causes of maternal and perinatal morbidity and mortality worldwide. This study aimed to analyze the prevalence of hypertensive disorder of pregnancy in North India

Material and Method: The study group consisted of a total of 150 pregnant women attending Maharaja Agrasen hospital OPD/IPD during their second trimester (14-20 weeks) of pregnancy from Dec 2016 to Nov 2017.

Results: Out of 146 cases studied, 129 cases remained normotensive and 17 cases developed HDP. Out of 17 cases, 8 cases had mild HDPs and 9 cases had severe HDPs. The prevalence of HDP was 11.7% in present study.

Conclusion: The study concluded that the incidence of hypertensive disorders in pregnancy was higher than worldwide average and hence early diagnosis and intervention through regular antenatal checkup is pivotal to prevent hypertensive disorders of pregnancy and its complications.

Key words: HDP, Hypertension, Pregnancy, North India

Introduction

Hypertensive disorders of pregnancy (HDP) are among the commonest medical disorders during pregnancy constituting one of the greatest causes of maternal and perinatal morbidity and mortality worldwide.¹⁻⁴ HDP complicate up to 5-10% of all pregnancies.⁵ It accounts for 10-15% of maternal deaths specially in the developing world.⁶ The spectrum of disease ranges from mildly elevated blood pressures with minimal clinical significance to severe hypertension and multi-organ dysfunction. Besides perinatal death, HDP lead to preterm delivery, fetal intrauterine growth restriction, low birth weight. HDP can also trigger severe

forms of maternal complications, such as cardiovascular and cerebrovascular diseases, liver and kidney failure, placental abruption, disseminated intravascular coagulation (DIC) and HELLP syndrome.

Hypertension in pregnancy is defined as a systolic BP of 140 mmHg and higher, and a diastolic BP of 90 mmHg and higher. Severe pregnancy hypertension is defined as SBP \geq 160 mmHg or a DBP \geq 110 mmHg. The systolic value was reduced from 170 mmHg by most international societies after recognition that a SBP \geq 160 mmHg is associated with an increased risk of stroke in pregnancy.

Hypertensive disorders during pregnancy are classified into four categories, as recommended by the National High Blood Pressure Education Program (2000) Working Group on High Blood Pressure in Pregnancy⁷:

- Gestational hypertension (transient hypertension of pregnancy)
- [Preeclampsia-eclampsia](#)

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- Preeclampsia superimposed on chronic hypertension
- Chronic hypertension

Aims & Objective: To find the prevalence of Hypertensive disorder of pregnancy in North India.

Material and Method

Study site: Maharaja Agrasen Hospital, Punjabi Bagh, New Delhi.

Study population : Woman with singleton pregnancy visiting Obs & Gynae OPD/IPD of Maharaja Agrasen hospital, Punjabi Bagh during their second trimester (14-20 weeks) of pregnancy

Study Design : Prospective observational study

Sample size: 150

Inclusion Criteria

- ▶ 1.All pregnant women in their second trimester (14 - 20 weeks) above 18 years and below 40 years of age with informed consent.
- ▶ 2. Pregnancy confirmed by ultrasonography
- ▶ 3. Singleton pregnancy
- ▶ 4. Previously normo tensive and non proteinuric

Exclusion Criteria

The established **exclusion criteria** are as follows:

- ▶ Age less than 18 and more than 40 years
- ▶ Multiple pregnancy
- ▶ Chronic Hypertension
- ▶ Gestational trophoblastic diseases in present or previous pregnancy

- ▶ Down syndrome/any congenital anomalies
- ▶ Pregnancy associated with Germ cell tumors
- ▶ Diabetes mellitus

Methodology

- A total of 150 pregnant women attending Maharaja Agrasen hospital OPD/IPD during their second trimester (14-20 weeks) of pregnancy were enrolled in the study.

Diagnostic criteria for **Gestational Hypertension** was new onset of hypertension (≥ 140 mmHg systolic and/or ≥ 90 mmHg diastolic) after 20 weeks gestation without Proteinuria and signs of end organ dysfunction.

Diagnostic criteria for **Pre-eclampsia (revised ISSHP, 2014)** was Hypertension after 20 weeks gestation and the coexistence of one or more of the following new-onset conditions:

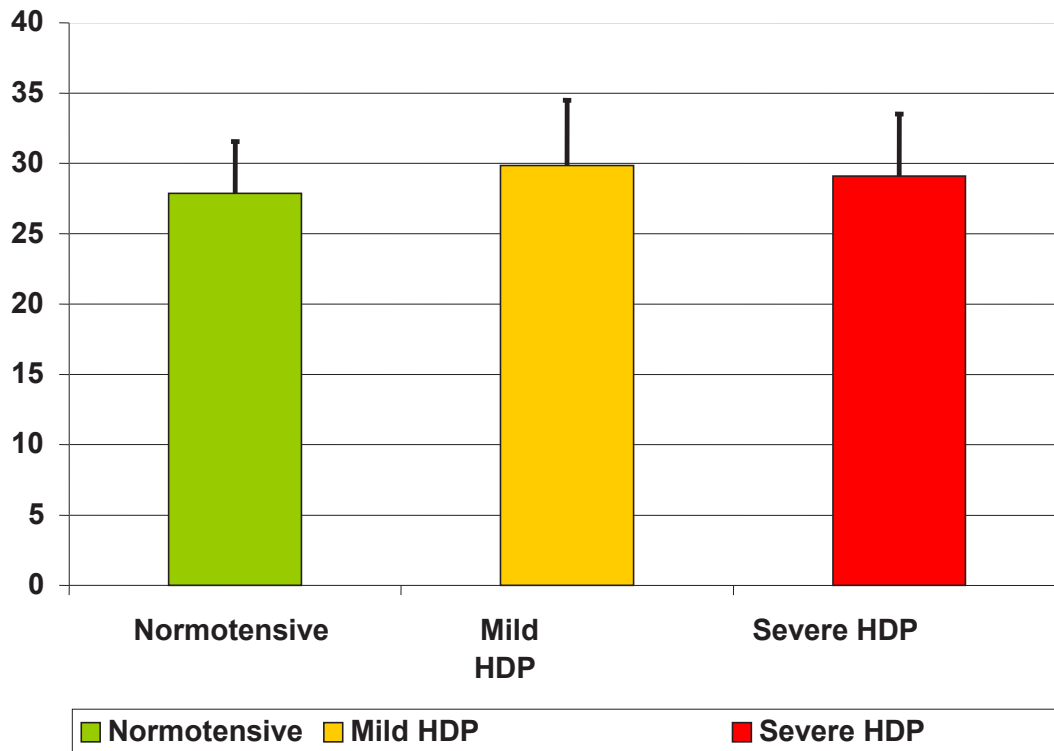
1. Proteinuria (spot urine protein/creatinine >30 mg/mmol [0.3 g/mg] or >300 mg/day or at least 1 g/L [$2+$] on dipstick testing).
2. Other maternal organ dysfunction: renal insufficiency (creatinine >90 $\mu\text{mol/L}$; 1.02 mg/dL), liver involvement (elevated transaminases – at least twice upper limit of normal \pm right upper quadrant or epigastric abdominal pain), neurological complications (eclampsia, altered mental status, blindness, stroke, or more commonly hyperreflexia when accompanied by clonus, severe headaches when accompanied by hyperreflexia, persistent visual scotomata), haematological complications (thrombocytopenia, DIC, haemolysis).
3. Uteroplacental dysfunction (foetal growth restriction)

Diagnostic criteria for **Eclampsia** was Pre-eclampsia associated with convulsion.

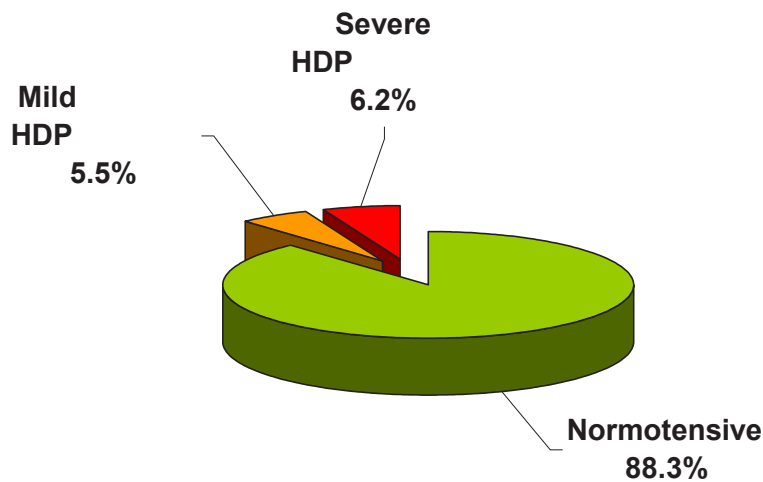
Observation & Results

Table 1: Mean Age of the three groups (Normotensive, Mild HDP and Severe HDP)

GROUPS	MEAN +/- SD	RANGE	MEDIAN	P VALUE
NORMOTENSIVE (B)	27.86+/-3.71	19-37	28	0.10
MILD HDP(A1)	29.87+/-4.63	21-38	30	
SEVERE HDP (A2)	29.11+/-4.40	24-39	29	



The mean age of normotensive group was 27.86 \pm 3.71, whereas in Mild HDP and Severe HDP group was 29.87 \pm 4.63 and 29.11 \pm 4.40. There was statistically no significant difference between age of three groups.



Corrected Chi-square (χ^2) test ($\chi^2=13.28$; $p=0.10$ NS-Not Significant) showed that there was no significant association between age and cases of the three groups ($p=0.10$). Thus the cases of the three groups were more or less equally distributed over age.

One ANOVA showed that there was no significant difference between the mean age of the cases of the three groups ($F_{2,143}=2.11;p=0.12$). Thus the cases of the two groups were age matched.

Table-2: Prevalence of HDP

Group	Number	%
Normotensive	129	88.4%
Mild HDP	8	5.5%
Severe HDP	9	6.2%
Total	146	100.0%

Out of the 146 cases under study 129(88.4%) cases were normotensive, 8(5.5%) were Mild HDP and rest 9(6.2%) were severe HDP. In overall 17(11.7%) were HDP. Thus the prevalence of HDP was 11.7%.

Discussion

Hypertensive disorders of pregnancy (HDP) is a major challenge in overcoming pregnancy complications that are responsible for poor maternal and prenatal outcome in developed as well as underdeveloped countries of the world. These disorders comprise of chronic hypertension, gestational hypertension, preeclampsia and eclampsia.

The spectrum of HDP ranges from mildly elevated blood pressures with minimal clinical significance to severe hypertension and multi-organ dysfunction.

In my study, 150 cases were initially enrolled. However, only 146 cases (97.3%) could be evaluated for the final results. The 4 cases were lost to follow up.

These cases were divided into two groups:

- **Group A** - who developed HDP.
- **Group B** - who remained normotensive

Group A was divided further into two group i.e. Group A1 and Group A2 based on features of severity. Cases in Group A1 were mild hypertensive and A2 were severe hypertensive.

The mean age of the cases for my study was 27.86 (Group B normotensive) 29.87 (Group A1, mild hypertensive) and 29.11 (Group A2, severe hypertensive).

There was no statistically significant correlation found between the age and the occurrence of HDP which was in concordant with the results of study conducted by Vishal Sharma et al (2016)⁷, who observed that there was no statistically significant difference between age of subjects and HDP. 76.34 % of the patients in my study were between 21 and 30 years of age thus rendering a very young population morbid and at risk of mortality.

The prevalence of HDPs observed in my study is 11.7 % . Incidence of hypertensive disorders in India is found to be 10.08 % as observed through the data collected by the National Eclampsia Registry (NER) (11,266 out of 1,11,725 deliveries) over the 3 consecutive years^{8,9} . The prevalence matches out with NER data considering the fact that my study place is tertiary care centre where high risk patients having more visits.

In a study conducted by Vidyabati R K et al (2010)¹⁰ prevalence rate of HDPs was 17.68%. In the study by Charu sharma et al (2017)¹¹, the incidence of HDP came out to be 6.92%. The prevalence of hypertension during pregnancy was found to be 6.9% in the study conducted by Bharti Mehta et al(2015)¹². Hypertensive disorders of pregnancy were reported to be 15.5, 5.38, and 8.96%, respectively, in other various hospital-based studies in India.^{13,14,15}

Summary & Conclusion

In my study, 150 cases were initially enrolled. However, only 146 cases (97.3%) could be evaluated for the final results. The 4 cases were lost to follow up . Out of 146 cases studied , 129 cases remained normotensive and 17 cases developed HDP. Out of 17 cases ,8 cases had mild HDPs and 9 cases had severe HDPs. The prevalence of HDP was 11.7% in my study.

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Acknowledgement: Author would like to thank Dr Angela Sehra, Senior consultant & Dr Seema Bhardwaj, Consultant Maharaja Agrasen Hospital, Punjabi Bagh, New Delhi

Ethical Clearance- Taken

Source of Funding- Self

Conflict of Interest - Nil

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