Prevalence of Hypertensive Disorder of Pregnancy in North India

Seema Kumari
Asstt Professor (Physiology) P.M.C.H. Patna

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 the present study.

Conclusion: The study concluded that the incidence of hypertensive disorders in pregnancy was higher than the 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. 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 Pregnancy:

- Gestational hypertension (transient hypertension of pregnancy)
- Preeclampsia-eclampsia

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. 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 Pregnancy:

- Gestational hypertension (transient hypertension of pregnancy)
- Preeclampsia-eclampsia
- 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

**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 umol/L; 1.02 mg/dL), liver involvement (elevated transaminases – at least twice upper limit of normal ± 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 +/- 3.71, whereas in Mild HDP and Severe HDP group was 29.87 +/- 4.63 and 29.11 +/- 4.40. There was statistically no significant difference between age of three groups.

Corrected Chi-square \( \chi^2 \) 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. 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.

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 years8,9 . 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.

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 ).

**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

References

1. Alessia Mammaro, Sabina Carrara. Hypertensive Disorders in Pregnancy Journal of Prenatal Medicine 2009; 3 (1): 1-5

2. Bombrys AE, Barton JR, Habli M et al. Expectant management of severe preeclampsia at 27(0/7) to 33(6/7) weeks’ gestation: maternal and perinatal outcomes according to gestational age by weeks at onset of expectant management. Am J Perinatol 2009;26:441-46.

3. Berg CJ, Chang J, Callaghan WM. Pregnancy-related mortality in the United States 1991-1997. Obstet Gynaecol. 2003;101(2):289-96.

4. Berg CJ, Harper MA, Arkinson SM. Preventability of pregnancy related deaths. Obstet Gynaecol. 2005;106(6):1228-34.

5. Hypertensive disorders , Williams obstetrics ,24 edition , page 728-779

6. Vigil-De Gracia P, Montufar-Rueda C, Ruiz J. Expectant management of severe preeclampsia and preeclampsia superimposed on chronic hypertension between 24 and 34 weeks gestation. Eur J Obstet Gynecol Reprod Biol 2003;107(1): 24-7.

7. Vishal Sharma, Preeti Sharma, Nighat Firdous BETA HCG in Mid Trimester as a Predictor of Pregnancy Induced Hypertension International Journal of Science and Research (IJSR) Volume 5 Issue 9, September 2016.

8. http://www.ner-fogsi.in/

9. Gupte Sanjay, Wagh Girija. Preeclampsia–Eclampsia ; The Journal of Obstetrics and Gynecology of India (January–February 2014) 64(1):4–13

10. Vidyabati RK, Davina H, Singh NK, et al. Serum βhCG levels and lipid profile in early second trimester as predictors of pregnancy induced hypertension. J Obstet Gynecol India. 2010;60(1):44–50. doi: 10.1007/s13224-010-0008-1.

11. Charu Sharma, Smriti Gupta, Mamta Tyagi ; Maternal & Perinatal outcome in Hypertensive Disorders of Pregnancy in a Tertiary Care Hospital in Northern India; OGIJ 06 00229 Volume 6 issue 6 2017

12. Mehta B, Kumar V, Chawla S, Sachdeva S, Mahopatra D. Hypertension in pregnancy: A community-based study. Indian J Community Med [serial online] 2015

13. Mohan BS. Pregnancy induced hypertension and prior trophoblastic exposure. J Obstet Gynecol Ind 2004;54:568-70.

14. Prakash J, Pandey LK, Singh AK, Kar B. Hypertension in pregnancy: Hospital based study. J Assoc Physicians India 2006;54:273-8.

15. Bangal VB, Giri PA, Mahajan AS. Maternal and foetal outcome in pregnancy induced hypertension: A study from rural tertiary care teaching hospital in India. Int J Biomed Res 2011;2:595-9.