Original Article

Presentation of Predisposing Factors of Pregnancy Induced Hypertension at Isra University Hospital, Hyderabad

Naheed Parveen, Gulfareen Haider, Imran Ali Shaikh, Ikram din Ujjan

ABSTRACT

OBJECTIVE: To determine the predisposing factors of pregnancy induced hypertension in women of our community.

METHODS: An observational study was conducted at Gynecology & Obstetrics Department of Isra University Hyderabad from July 2007 to June 2008. Women with pregnancy induced hypertension were recruited in this study by convenient sampling from antenatal outpatient department, admitted patient in the ward and prelabour room. A prestructured proforma was filled in which their age, BMI, parity, gestational age and gestational age when PIH (pregnancy induced hypertension) was diagnosed, regarding diabetes, multiple gestation, cardiac and liver disease, history of PIH in previous pregnancies and positive family history of PIH were recorded.

RESULTS: One hundred pregnant women were included in the study. We found 59% of women in age group of 30-40 years, 52% were overweight, 50% were multiparous and 15% were of grand-multiparous, 43% of women had history of PIH in previous pregnancies, 9% had positive family history and 12% were with diabetes. Twin pregnancy was seen in 3%, cardiac disease in 2%, renal disease in 1%, and hepatic disease in 1%.

CONCLUSION: The observations of present study indicate that women between 30-years and 40-years of age, overweight (BMI >25-kg/m^2), multipara, diabetic and who had history of PIH in previous pregnancies are at higher risk of developing pregnancy induced hypertension.

KEY WORDS: Pregnancy induced hypertension, Clinical Factors, diabetes, obesity, multiparity.

INTRODUCTION

Pregnancy induced hypertension (PIH) is defined as hypertension and/or proteinurea developing during pregnancy, labour or the puerperium in previously normotensive non-proteinuric women.[1] It occurs approximately one in five women after 20 weeks of gestation, in other words it complicates 5-10 percent of all pregnancies.[1,2] The incidence varies with respect to age and parity. PIH (pregnancy induced hypertension) develops around 16- 24% in 1st pregnancy and 12-15% in subsequent pregnancies.[3]

Blood pressure recordings empirically matter in diagnosis when diastolic blood pressure is ≥110-mmHg on any one occasion or diastolic BP ≥90-mmHg on 2 or more consecutive measurements at least four hours apart at rest after 20 weeks of gestation qualify for definition.[1,3]

Clinical observations indicate that extreme maternal age (under 20 or over 40 years), nulliparity, overweight, history of PIH in previous pregnancies and multiple pregnancy – all increase the risk of PIH.[4,5] This condition could also be the manifestation of pre-existing diseases (renal disease, diabetes mellitus, cardiac disease, unrecognized chronic hypertension), or may present with positive family history of PIH (in mothers and in sisters) which shows genetic susceptibility.[5,6]

The exact etiology of PIH is still unknown but several factors are thought to be responsible, like the insufficient supply of oxygen and blood to the fetus due to decreased placental circulation.[6]

PIH results in variety of maternal and fetal complications and remains leading cause of maternal, perinatal morbidity and mortality. According to WHO one woman dies every 7 minutes from the complications of hypertensive disorders of pregnancy.[2,5] Its fetal consequences are intrauterine growth restriction, premature delivery, fetal distress and death.[5] One cohort study reported higher neonatal and infant mortality in preterm babies of PIH women as compared to preterm babies of normotensive women.[6] In mothers it may develop seizures, stroke, hepatic and renal failure.[7,8]

In view of serious consequences of this condition, we conducted this study to observe common associated clinical factors of PIH in our community women so that early detection and treatment can be given to at risk women.

MATERIAL AND METHODS

This observational study was designed to determine predisposing factors of pregnancy induced hypertension in our community women presented at Gynecology and Obstetrics Department, Isra University Hyderabad from July 2007 to June 2008. Women with

pregnancy induced hypertension were recruited in this study by convenient sampling from antenatal out patient department, admitted patient in the ward and prelabour room. Prestructured proformas were filled in which their age, BMI, parity, gestational age, and gestational age when hypertension was diagnosed first time, regarding weight, diabetes, multiple gestation, cardiac and liver disease, history of PIH in previous pregnancies and positive family history (in mothers and in sisters) were recorded. Before commencing to the study, an informed consent was taken from all the patients.

All the normotensive pregnant women and patient with renal, cardiac and chronic liver diseases with pre-existing hypertension were excluded; whereas women with above problems, but previously normotensive and developed hypertension during pregnancy, were included into the study and data were analysed through SPSS version 14.

Frequencies with proportions were calculated for qualitative variables, whereas means along with standard deviations were also calculated for quantitative variables.

RESULTS

A total of 100 women with PIH were sampled. The mean ±SD age calculated was 28.99±5.77 years. The age range was from 18 years to 40 years. Out of 100 patients 59% of PIH women were in between 30-years and 40-years of age. The number of pregnancies was recorded up to 10. Mean±SD parity was 3.18±2.35, 50% of PIH women were multiparous, 35% were primiparous and remaining 15% were grand multiparous. In our study population 52% women were found to be overweight (BMI>25-kg/m^2), 43% reported history of PIH and 9% reported about family history of PIH **(Table I)**.

TABLE I:
PREDISPOSING OF PIH (n=100)

Variable	Percentage
BMI (kg/m^2)	
< 18.50	09
18.50 to 25.50	39
> 25.50	52
Diabetes	12
Twin Pregnancy	03
Cardiac disease	02
Renal disease	01
Liver disease	01
History of PIH	43
Family history of PIH	09

DISCUSSION

In this study, the factors which we found associated with pregnancy induced hypertension were age, multi parity, increased BMI, positive history of PIH in previous pregnancies and diabetes.

Nulliparity and younger age are the strong risk factors of PIH reported in the previous literature[4,9,10]. In contrast we found greater number (59%) of PIH in between 30- 40 years of age group, and 50% in multiparous women. Supporting our results, one Italian study analyzed the association of age, parity and BMI with PIH.[10] They compared the risk in different age groups and reported that, Odds Ratio (OR) estimates were 3.5 (95% CI=1.6-7.1) in 26-30 years and 4.2 (95% CI= 1.9-8.8) in those age >30 years. In regard with BMI our study shown that 52% of PIH women had increased BMI i.e. >25. In above mentioned study increased risk of PIH was also observed in groups with BMI >25–30 and >30.[10]

Ahmet Ursavas carried out study in which certain other risk factors were evaluated along with obesity and they reported obesity as an independent risk factor for PIH and preeclampsia.[11] We observed that 12% women with PIH were diabetic. Similarly a study of Sweden reported that women with type 1 diabetes mellitus and obesity with body mass index >29 had significantly increased risk of developing gestational hypertension.[2] In study of USA, they found gestational diabetes to be strongly associated with pregnancy induced hypertension.[12] Van Haroon evaluated gestational diabetes and obesity as risk factors for developing PIH but they did not found significant results in their study. [13]

Other factors observed in present study were, 43% of women had history of PIH in previous pregnancies and 9% had positive family history of PIH in mothers and in sisters.

CONCLUSION

The observations of present study indicates that women between 30 and 40 years of age, overweight (BMI >25), multiparity, diabetes and history of PIH in previous pregnancies are at higher risk of developing pregnancy induced hypertension in our setup. Therefore we suggest that community awareness programs should be designed to educate women regarding the serious consequences of PIH so that early detection and treatment can be given to at risk women.

REFERENCES

1. Edmonds DK, editor. Dewhurst's Text book of Obstetrics & Gynaecology. 7th edition. UK: Blackwell publishing; 2007.
2. Bryson CL, Loannou GN, Rulyak SJ, Critchlow C.

Association between gestational diabetes and pregnancy induced hypertension. Am J Epidemiol 2003;158:1148-53.
3. Tasleem H, Tasleem S, Adil MM, Siddique M, Waheed K. Co-relation of pregnancy induced hypertension with placental abruption and effect of anti hypertensive therapy. Rawal Med J 2005;30 (2):59-61.
4. Parazzini F, Bortolus R, Chatenoud L, Ricci SF, Morozio L, Benedetto C. Risk factors of pregnancy induced hypertension in women at risk for condition. JSTOR: Epidemiology1996;7:306-8.
5. Hopkinson A. Pregnancy induced hypertension: identifying the risks to protect your baby. June 23, 2008. Available from: www.healthcentral.com .
6. Marcoux S, Berube S, Brisson C, Mondor M. Job strain and pregnancy induced hypertension. JSTOR: Epidemiology. 1999;10(4):376-82.
7. Dadelszen PV, Magee L, editors. Current opinion in Obstetrics and Gynecology. 20th ed. Canada: Lippincott Williams & Wilkins; 2008.
8. Chen G, Wen SW, Smith G, Yang Q, Walker M. Pregnancy induced hypertension is associated with lower infant mortality in preterm singletons. BJOG 2006;113:544-51.
9. Amir A, Mohd Y, Islam HM. Clinico-epidemiological study of factors associated with pregnancy induced hypertension. Ind J Comm Med 1998;23:25-9.
10. Irwin DE, Savitz DA, Andre KA St, Picciotto IH. Study of occupational risk factors for pregnancy induced hypertension among active duty enlisted navy personnel. Am J Industrial Med 2007;25:349–59.
11. Ursavas A, Karadag M, Nalc N, Ercan I, Gozu RO. Self-Reported snoring, maternal obesity and neck circumference as risk factor for pregnancy induced hypertension and preeclampsia. Int J Thoracic Med 2008;76:33-9.
12. Ros HS, Cnattingius S, Lipworth L. Comparison of Risk Factors for preeclampsia and Gestational hypertension in a population-based cohort study. Am J Epidemiol 1998;147:1062-70.
13. Jessika VH, Gus D, Bill J. Gestational diabetes versus obesity as risk factor for pregnancy induced hypertensive disorders and fetal macrosomia. Aust NZ J Obstet Gynaecol. 2002;42:29-34.

AUTHOR AFFILIATION:

Dr. Naheed Parveen *(Corresponding Author)*
Assistant Professor
Department of Obstetrics & Gynaecolgoy
Isra University Hyderabad, Sindh-Pakistan.
Email: prvn_shk@hotmail.com

Dr. Gulfareen Haider
Assistant Professor
Department of Obstetrics & Gynaecolgoy
Isra University Hyderabad, Sindh-Pakistan.

Dr. Imran Ali Shaikh
Assistant Professor, Department of Medicine
Liaquat University of Medical & Health Sciences, (LUMHS), Jamshoro, Sindh-Pakistan.

Dr. Ikram din Ujjan
Assistant Professor, Department of Pathology
LUMHS, Jamshoro, Sindh-Pakistan.