

Incidence of Pregnancy Induced Hypertensive Women and its Associated Factors

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ABSTRACT

Background: Pregnancy induced hypertension is a fetal disease resulting into morbidity and mortality of female as well as its neonate.

Objective: To find the incidence of pregnancy induced hypertension in Pakistani women.

Study Design: Cross sectional study

Place and Duration of the Study: Department of Obstetrics & Gynaecology, Sandeman Provincial Hospital, Quetta from 1st March 2019 to 31st March 2021.

Methodology: Seven hundred and twenty eight females were identified with pregnancy induced hypertension from all the pregnant women attending the outdoor were enrolled. Each female was checked for their protein urea as well as systolic and diastolic blood pressure according to standard operating protocol. Socio-demographic, clinical and family history were documented.

Results: Among all pregnant women, 150 were identified as pregnancy induced hypertensive with a 20.6% incidence of pregnancy induced hypertension. The mean value systolic blood pressure value was 144.3±5.2 and of diastolic as 83.1±5.2 in pregnancy induced hypertension women.

Conclusion: Family history, obesity and renal diseases are the main factors associated with pregnancy induced hypertension with an incidence of 20.6% among pregnant women.

Keywords: Pregnancy induced hypertension, Body mass index, Pregnant women, Hypertension

INTRODUCTION

Hypertension is a major health-burden leading to cardiovascular, renal and neurological diseases. The incidence of mortality in hypertensive females is six times higher than normotensive females.¹ A national health survey conducted two decades before has given an estimate of 23% hypertensive urban female and 18% hypertensive rural females in Pakistan.² The total prevalence of females having hypertension was estimated as 14.5%.³

Pregnancy induced hypertension (PIH) is generated post week 20, of gestation. It develops as a result of hemodynamic alterations occurring in pregnancy. The PIH incidence has been quoted as 9 percent in previous global research.⁴ However, it is assumed that within recent years this incidence would have escalated to astonishing levels.⁵ Pregnant women within their 4th decade of age has been reported to have higher incidence of PIH with a relative risk of 1.53.⁵ The mechanism involved in formulation of PIH includes earlier changes left ventricle diastolic-filling or/and insulin resistance development in pregnant females.⁶⁻⁸

The factors responsible for PIH development include weight gain, diabetes, mental stress, or genetic-predisposition. Women living in South East Asia have a different lifestyle pattern than western world with earlier marriages, combined family systems, mental house hold/family stress, lack of physical brisk activity and weight gain specifically with presentation of central-obesity.⁹⁻¹¹ These factors increase their risk of developing cardiovascular issues which leads to morbidities and mortality in them.¹²

The present study was designed to assess the recent incidence of PIH in Pakistan females. This evaluation is direly required for proper and timely management of this issue and provision of reduction of PIH by minimizing the related factors which enhances it production.

MATERIALS AND METHODS

It was a cross sectional study and conducted at Department of Obstetrics & Gynaecology, Sandeman Provincial Hospital Quetta from 1st March 2019 to 31st March 2021. A clinical approval as well as consent from each participant was gathered prior initializing of the research. A quantitative data collection protocol was adapted in this study. All pregnant women who attended the Gynae & Obs

OPD/clinic were considered as study population. However, those females who were already known cases of hypertension, thyroidal/hormonal disorders and renal diseases were excluded. There were 728 pregnant women enrolled in this study with 150 identified for having PIH. High value of blood pressure was taken as $\geq 140/90$ mmHg systolic vs diastolic blood pressure post 28 weeks of gestation which was twice measured 6 hourly apart. The diagnosis of PIH was made by labor ward physician. PIH included not only gestational-hypertension but also pre-eclampsia as well as eclampsia. Socio-demographic information in addition to history of physical/mental stress, family members, prima/multi gravidae, BMI was recorded. Blood pressure was monitored daily and nightly while making the pregnant women sits in upright/supine-position and measuring blood pressure by sphygmomanometer. Protein urea was also analyzed. The data was entered and analyzed through SPSS-24. Multiple regression and Odds Ratio with 95% confidence interval were used for analyses of dependent and independent variables. All these analyses were made possible by using SPSS version 24.0 tool with a p value 0.05 of significance.

RESULTS

The incidence of PIH was 20.6%. Mean age of enrolled PIH women was 25.2±4.2 years with 37.3% women within age group of 20-24 years. An insignificantly varied number of PIH females were also seen within the age group of 25-29 years having 20.6%. The study enrolled PIH females; similar number residing in rural and urban areas with insignificant variance in their frequency. Majority of the PIH women were primary qualified (36%). Most of these women were housewife but yet the number of employed women was also not significantly less. About, 55.6% of PIH females have three to four family members in their house hold (Table 1).

The mean value systolic blood pressure value was 144.3±5.2 and of diastolic as 83.1±5.2 in PIH women. The systolic blood pressure seemed to be much higher in PIH women than normotensive women (Fig. 1).

Multigravida was mainly observed in PIH women. Some of the cases had a family history of chronic hyper tension and PIH with a frequency of 16 and 4 cases respectively. There were 12 PIH women having renal disease while diabetes and asthma were presented in 3 and 1 case respectively (Fig. 2).

A multi variant logistic regression showed that factors like PIH family history, history of renal infections, asthma as well as

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gestational age has significant relation with PIH formation in women (Table 3).

74% of PIH women were having 37 to 42 weeks of gestation age. Obesity was also seen as a major health factor in PIH women with 52% of these women suffering from obesity (Table 4).

Table 1: Distribution of sociodemographic variable in PIH women (n=150)

Variable	No.	%
Age		
<20	20	13.3
20–24	56	37.3
25–29	47	31.3
30–34	16	10.6
≥35	11	7.3
Area of residence		
Rural	78	52.0
Urban	72	48.0
Educational status		
Illiterate	37	24.6
Primary	54	36
Secondary school	28	18.6
Degree and above	31	20.6
Occupational status		
Housewife	99	66.0
Employed	69	54.0
Family size		
1–2	30	20.0
3–4	82	55.6
≥5	3	24.3

Table 3: Multi variable logistic regression analysis of PIH women

Variable	COR (95% CI)	AOR (95% CI)
Family size		
1–2	1.00	1.00
3–4	1.81	1.43
≥5	0.71	0.6
Gestational age		
<37	1.00	1.00
≥37	0.12	0.096
Gravida		
Primigravida	1.52	1.17
Multigravida	1.00	1.00
Kidney diseases (Yes)	3.04	3.33
Asthma (Yes)	11.9	38.1

Table 4: Pregnancy status, parity and gestational age of PIH women (n=150)

Variable	No.	%
Pregnancy status		
Wanted	147	98.0
Unwanted	3	2.0
Parity		
0	47	31.3
1–4	94	62.6
≥5	9	6.0
Body mass index		
<24.9	31	20.6
25-29.9	41	27.3
>30	78	52.0
Gestational age		
<37	38	25.3
37–42	111	74.0
>42	1	0.6

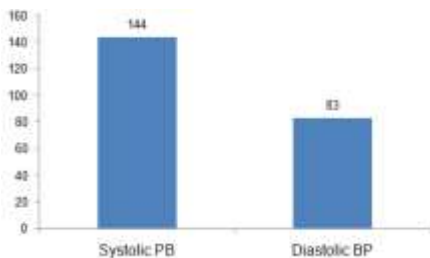


Fig. 1: Mean value of systolic and diastolic BP in PIH women

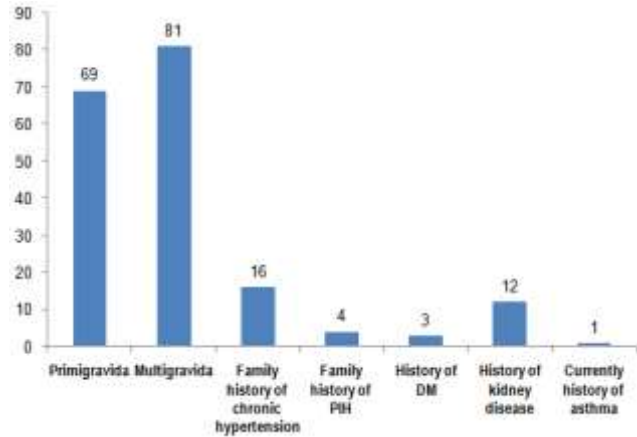


Fig. 2: Factors influencing PIH in women

DISCUSSION

Hypertension is classified as a multi-factorial disease resulting in various secondary complications of heart, kidney and brain. Pregnancy induced hypertension has been identified as a type of hypertension which can initiate independent of old age.¹³

Research has elaborated that overweight women are at higher risk of developing PIH than those women with normal weight. Obesity can cause insulin resistance as well by releasing free radicals which can-not let the insulin receptors work properly. The PIH women with a BMI value above 30 are more prone for hypertension with many having a chance of persistent hypertension. A study related to this context have described that women with PIH have 3.7 time greater risk of developing persistent hypertension in their life.¹⁴

In consideration of various attributing factors for development of PIH the renal diseases have been extensively been reported to be a major factor in addition to history of PIH and diabetes. A study reported a chance of five-fold higher of developing PIH in women with kidney infections. Family history of hypertension is also reported as a major risk factor for PIH.¹⁵⁻¹⁷

The incidence of hypertension has been reported as 20.6% in current study which is way too high than the reported PIH prevalence from African, Indian and Iranian studies (7.8%, 7.8% and 9.8% respectively). Previous studies from Pakistan have reported the incidence of PIH as 18-23.0%.²⁻³ The justification for higher incidence in Pakistan could be lack of anti-natal care, central obesity, higher fecundity rate, lack of family planning and greater number of pregnancies due to early marriages.¹⁸⁻²¹

CONCLUSION

Pregnancy induced hypertension is seen in 20.6% pregnant women with family history, obesity and renal diseases as main associated factors.

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