Original Article

Hypertensive Disorders of Pregnancy

Prevalence of Risk Factors of Hypertensive Disorders of Pregnancy in a Tertiary Care Hospital of Rawalpindi

Aisha Aslam[1], Syed Saif Ur Rehman[3], Jahanzeb Maqsood[2], Adnan Ghafoor[4], Samina[5] and M. Faisal Bacha[2]

ABSTRACT

Objective: To determine the prevalence of risk factors for hypertensive disorders of pregnancy in a tertiary care hospital of Rawalpindi.

Study Design: Observational cross section study

Place and Duration of Study: This study was conducted at the department of Gynecology and Obstetrics at Fauji Foundation hospital. Total duration of the study was one year starting from January, 2022 to December, 2022.

Materials and Methods: After approval of the ethical committee and informed consent, 140 patients with hypertensive disorders of pregnancy (HDP) presenting to the Gynaecology department of tertiary care hospital were included in our study. 280 females with normal pregnancies were also enrolled in the study and were labeled as control. Demographic and medical records of the groups were entered in specially designed proforma. Paired sample T-test was employed to determine the correlation and P- value of Significance between the two groups.

Results: Total of 1800 deliveries were done in one year in our tertiary care hospital. Out of these, 140(7.7%) were diagnosed as cases of HDP. The prevalence of HDP was found to be 7.7%. Out of 140, sixty-nine %) were less than 25 years of age, 25%) were between 25 to 35 years of age, and 46%) were more than 35 years of age in contrast to 176%), 44%) and 60%) of control group respectively. 45(32.1%) patients were having BMI of less than 17, 16(11.4%)%) were having BMI of17-25 and 79(56.5%) were having BMI of more than 25. 43(32.1%) were Nulliparous,55 (39.2%) were multi para,42 (30.1%) were grandmultipara as compared to 106(37.8%),104 (37.1%), and 70 (25.1%) of control group respectively. 61(43.5%)females attended antenatal care and 79(56.5%)were unbooked as compared to 162(57.5%) and 118(42.5%)of the control group. 63(45%)of the patients presented before 37 weeks,47(33.5%) in 37 to 40 weeks and 30(22%) after 40 weeks of gestation as compared to 119(42.5%),141(50.3%) and 20(7.2%)of the control group. 49(35%)females were suffering from chronic hypertension as compared to 20(7.1%) of the control group. 81(57.8%) were found to have a family history of hypertension and eclampsia in contrast to 20(7.1%) in the control group. 39 were having diabetes in contrast to seven in the control group. 18(12.8%)were diagnosed cases of Connective tissue disorder in contrast to only 4(1.5%) in the control group.

Conclusion: Frequency of Hypertensive disorder of pregnancy is high in our population. Antenatal care, comorbidity of hypertension, diabetes mellitus and connective tissue disorder, and family history of hypertension increase the prevalence of Hypertensive disorder of Pregnancy.

Key Words: Connective tissue disorder, diabetes Mellitus, Hypertensive disorder of Pregnancy, Prevalence, Risk factors

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INTRODUCTION

[1.] Department of Gynaecology / Medicine[2], Akhtar Saeed Medical College, Rawalpindi.
[3.] Department of Medicine, Al- Nafees Medical College Hospital, Islamabad.
[4.] Department of Medicine / Gynaecology[5], Foundation Medical College, Rawalpindi.

Correspondence: Dr. Syed Saif Ur Rehman, Associate Professor of Medicine, Al- Nafees Medical College Hospital, Islamabad.
Contact No: 0300-5345671
Email: siafgillani786@gmail.com

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Hypertensive disorder of pregnancy is the most common medical problem encountered by gynecologist during their practices and also the leading cause of maternal and perinatal morbidity and mortality all over the world[1].Hypertensive disorder of pregnancy includes chronic hypertension, gestational hypertension, pre-eclampsia and eclampsia[1, 2]. The prevalence varies from region to region and is dependent on ethnicity, geographical location, climate, genetic predisposition, and health infrastructure, 0.5 to 2.3 percent in Africa, 2.6 to 4 % in Europe, 0.2 to 6.7 percent in Asia, can reach up to 2 to 9 % in North America and Oceania reflecting implications of above mentioned factors[3, 4].

Exact pathophysiology is still not fully elucidated but placental calculation dysfunction is the hallmark of pathology. Thrombosis and inflammatory vasculopathy leads to endothelial damage secondary to altered

immune response of mother to fetal tissues resulting in array of manifestations in organs of mother as well as fetus. Capillary leakage as a result of endothelial damage lead to weight gain, edema of legs and more severely can lead to pulmonary edema. Reduced placental circulation can result in oligohydramnios and fetal growth restriction in addition to non-assuring fetal heart rate[5, 6]. However, high blood pressure in pre-eclampsia is believed to be secondary to vasospasm in response to epinephrine and angiotensin, labile in nature in contrast to hypo-responsiveness in normal maternal circulation. Moreover outcomes of pregnancy are directly related to history of chronic hypertension in mother and occurrence of eclampsia, otherwise gestational hypertension has a more favorable prognosis[6, 7].

Keeping in mind the magnitude of complications related to Hypertensive disorders of pregnancy, identification and enhanced surveillance during pregnancy of affected mothers is very critical. The aim of our study was to identify the prevalence of these factors in our population so high risk groups can be identified earlier on so that preventive measures and necessary management can be planned to avoid unwanted complications.

MATERIALS AND METHODS

This descriptive cross sectional study was conducted in the department of Gynaecology and Obstetrics in Fauji Foundation hospital of Rawalpindi from 1st January 2022 to 30th December 2022. Approval from the hospital ethical committee was taken. After informed consent, 140 patients who presented with hypertensive disorders of pregnancy (HDP) were included in the study. On the assumption of the ratio of 1:2(case to control)power 80%, alpha value 95% and odds ratio 2 by considering the other studies relevant to hypertension, 280 patients with normal pregnancy were also included in the study and labeled as control. Demographic and medical record of the groups was entered in specially designed proforma. Paired sample T-test was employed to determine correlation and P-value of Significance.

RESULTS

Total 1800 deliveries were done in one year in our tertiary Care hospital. Out of these, 140(7.7%) were diagnosed as cases of HDP. Prevalence of HDP were found to be 7.7%. Out of 140, sixty nine %) were less than 25 years of age, 25%) between 25 to 35 years of age and 46%) were more than 35 years of age in contrast to 176%), 44%) and 60%) of control group respectively. 45(32.1%) patients were having BMI of less than 17, 16(11.4%)%) were having BMI of17-25 and 79(56.5%) were having BMI of more than 25. 43(32.1%) were Nulliparous,55 (39.2%) were multi para,42 (30.1%) were grandmultipara as compared to 106(37.8%),104 (37.1%) and 70 (25.1%) of control group respectively. 61(43.5%)females attended antenatal care and 79(56.5%)were unbooked as compared to 162(57.5%) and 118(42.5%)of the control group. 63(45%)of the patients presented before 37 weeks,47(33.5%) in 37 to 40 weeks and 30(22%) after 40 weeks of gestation as compared to 119(42.5%),141(50.3%) and 20(7.2%)of the control group. 49(35%)females were suffering from chronic hypertension as compared to 20(7.1%) of the control group. 81(57.8%) were found to have a family history of hypertension and eclampsia in contrast to 20(7.1%) of control group. 39 were having diabetes in contrast to seven in the control group. 18(12.8%)were diagnosed cases of Connective tissue disorder in contrast to only 4(1.5%) in the control group as shown in Table no.1.

Table No.1: Prevalence of risk factors suffering from hypertensive disorders of pregnancy in tertiary care hospital (n=280)

Variables	Study group	Control group	P-value
Maternal Age			
17-25 years	69(49.2%)	76(62.8%)	0.2
25-35 years	25(17.85)	44 (15.7%)	
More than 35 years	46(32%0	60(21.5%)	
Body Mass Index			
Less than 17	45(32.1%)	60(21.4%)	0.6
17-25	16(11.4&)	130 (40.4%)	
More than 25	79(56.5%)	90(32.8%)	
Parity			
Nulliparous	43(30.7%)	106(37.8%)	0.6
Multipara	55(39.2%)	104(37.1%)	
Grandmultipara	42(30.1%)	70(25.1%)	
Antenatal Care			
Yes	61(43.5%)	61 (43.5%)	.000
no	79(56.5%)	79 (56.5%)	

Gestational Age Less than 37 weeks 37-40 weeks More than 40 weeks	 63(45%) 17(33.5%) 30(22%)	 119 (42.5%) 141 (50.3%) 20(7.2%)	 .000
Chronic Hypertension Yes no	 49(35%) 91(65%)	 20(7.1%) 260(92.9%)	 .000
Family History of HDP/Eclampsia	81(57.8.8%) 59(42.2%)	26(9.2%) 254(90.8)	.000
Diabetes Mellitus	39(27.8%) 81(72.8%)	7(2.5%) 273(97.5%)	.000
Family History of Connective Tissue Disorder	18(12.8%) 122(87.2%)	4(1.5%) 276(98.5%)	.000

DISCUSSION

A current study was conducted to determine the prevalence of risk factors in the population presenting with hypertensive disorders of pregnancy in the patient presenting to the tertiary care hospital in Rawalpindi. Prevalence of HDP was found to be 7.9% in the current study which is a bit higher than found in previous studies [8] because the study department is a tertiary care center and has to entertain patients presenting to the hospital being referred from different nearby small centers as well as an un-booked patient presenting for the first time in an emergency.

Our study in the context of demographic profile did not reveal any significant correlation between maternal age at younger and late middle ages as compared to previous studies reported in the literature. The same is found true in contrast to BMI, parity, and gestational weeks with HDP. Earlier studies showed an association of HDP with extremes of age, obesity, and null parity but results are conflicting and reflect implications of genetic predisposition, ethnicity, and geographical factors in the causation of HDP in pregnant females[9]. Lack of antenatal care and poor socioeconomic status is a common risk factor reported in numerous studies and our study results are also consistent with them[10]. Results also reiterated the common notion that good antenatal care translates into better and more favorable outcomes of pregnancy. Comorbidity of Hypertension, Diabetes Mellitus, Connective tissue disorders, and history of HDP increases the prevalence of HDP in females in our study group and this was found to be statistically significant with a P value of .000 as compared to the control group. The same trend was found in multiple other studies reported earlier in the literature[11,12,13].

CONCLUSION

The frequency of Hypertensive Disorders of Pregnancy is high in our population. Antenatal care, comorbidity of hypertension, diabetes mellitus, connective tissue disorder, and family history of hypertension increase the prevalence of Hypertensive disorder of Pregnancy.

Author's Contribution:

Concept & Design of Study:	Aisha Aslam
Drafting:	Adnan Ghafoor, Samina
Data Analysis:	Syed Saif Ur Rehman
Revisiting Critically:	Jahanzeb Maqsood, M. Faisal Bacha
Final Approval of version:	Syed Saif Ur Rehman

Conflict of Interest: The study has no conflict of interest to declare by any author.

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