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A Clinical Study on Evaluation of Risk Factors for Pregnancy Induced Hypertension

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ABSTRACT
Pregnancy induced hypertension is a major cause of health problems and death among pregnant women thus the aim of this study was to evaluate pregnancy caused hypertension and its related factors among women. Data was gathered via in-person interviews. Blood pressure was monitored in all pregnant women using a mercury sphygmomanometer while they were sat in both the erect and supine positions. For referred women, blood pressure and protein urea levels at the time of diagnosis were recorded from the referral form. The age group under 20 years had 66 patients the age group between 20 and 25 years had 76 patients and the age group between 25 and 30 years had 30 patients. Seventy two individuals were unmarried, while 100 individuals were in a marital union. Thirty eight individuals had completed primary school, 56 individuals had completed secondary education and 78 individuals had completed higher education. The discrepancy was notable ($p<0.05$). Using both history evaluation and physical results can be a helpful method to identify those who are at a higher risk of developing hypertension diseases. Risk factors, pregnancy, hypertension.

INTRODUCTION

Pregnancy induced hypertension (PIH) is high blood pressure that develops after 20 weeks of pregnancy in women who had normal blood pressure before. Gestational hypertension, pre-eclampsia and eclampsia are the main categories of pregnancy-induced hypertension[1]. Preeclampsia is a major reason for the death and illness of mothers and newborns, especially in less developed nations. The condition is typically identified during the later stages of pregnancy through the observation of elevated blood pressure accompanied with the presence of protein in the urine and/or swelling[2]. To prevent any disease, it is important to have knowledge about how common it is what causes it and how it develops. Medications should be evaluated when pregnancy is initially detected. We cannot definitively advise to quit, start or continue antihypertensive medications.

There is conflicting evidence on whether these steps improve result. Methyldopa is well researched among all antihypertensive drugs and is typically the initial preference during pregnancy due to its minimal impact on blood flow to the uterus and placenta. Occasionally a different option may need to be considered due to increased liver enzymes or reports of a headache[3]. Labetalol a medication that combines an alpha blocker and a beta-blocker is now being considered as the primary option instead of methyldopa as more knowledge about its use during pregnancy is gained. It is generally well accepted and has a more convenient (twice-a-day) dose schedule than methyldopa. Calcium channel blockers, specifically nifedipine are being utilised more often, likely because clinicians have grown acquainted with their usage to prevent premature labour. The safety and effectiveness of these seem to be uncertain due to little evidence[4]. According to the Indian Demographic Health survey (EDHS) 2016 the maternal mortality ratio is 412 deaths per 100,000 live births.

Pregnancy induced hypertension plays a significant part in these maternal deaths. A review research conducted on the reasons for maternal death in India showed that the percentage of maternal deaths in India caused by hypertensive diseases between 1980 and 2012 had increased from 4-29%[5]. The Federal Ministry of Health has implemented various strategies to decrease maternal and newborn illness and death by enhancing access to and reinforcing facility-based maternal and newborn services. However, there has been an upward trend in maternal illness and death caused by pregnancy-induced hypertension[6].

Although pregnancy induced hypertension is a major cause of health problems and death among pregnant women, there is limited knowledge regarding the present extent of PIH and the factors associated with it among women receiving delivery services in India, particularly in the study areas. Thus the aim of this study was to evaluate pregnancy caused hypertension and its related factors among women.

MATERIALS AND METHODS

The study included 172 pregnant women who came to the department. All women who were registered were given verbal information and their written agreement was sought. A comprehensive medical assessment was conducted. Data was gathered via in-person interviews. Blood pressure was recorded in pregnant women using a mercury sphygmomanometer while they were sat in both the erect and supine positions. For referred women, blood pressure and protein urea levels at the time of diagnosis were obtained from the referral form. The results collected were analysed statistically. A p-value below 0.05 was regarded to be significant.

RESULTS

Table 1 indicates that the age group under 20 years had 66 patients the age group between 20 and 25 years had 76 patients and the age group between 25 and 30 years had 30 patients. 72 individuals were unmarried, while 100 individuals were in a marital union. Thirty eight individuals had primary education, 56 individuals had secondary education and 78 individuals had higher education. The difference was notable ($p<0.05$). Table 2 indicates that the most prevalent kind was pre-eclampsia in 45 instances, followed by gestational in 47 cases, eclampsia in 31 cases and chronic hypertension in 49 cases. The difference was not significant ($p>0.05$). Table 3 indicates that the prevalent risk factors were a family history of PIH in 90 patients a family history of DM in 60 patients and parity 0 in 57 patients, 1-4 in 49 patients and >4 in 66 patients.

DISCUSSIONS

Hypertension is responsible for around 15% of maternal deaths in the United States, making it the second most common cause of maternal mortality[7]. Severe high blood pressure raises the mother's chances of experiencing heart failure, heart attack, kidney failure and stroke. Moreover the developing baby is more susceptible to potential issues such as inadequate oxygen supply through the placenta, limited growth, premature delivery, separation of the placenta, foetal demise and death shortly after birth. Hypertensive disorders are the most often occurring medical problems during pregnancy, with a reported occurrence rate of 5-10%[8]. Worldwide, preeclampsia is a major cause of death and illness for mothers and newborns, especially in less developed nations. The condition is typically identified during the later stages of pregnancy through the observation of elevated

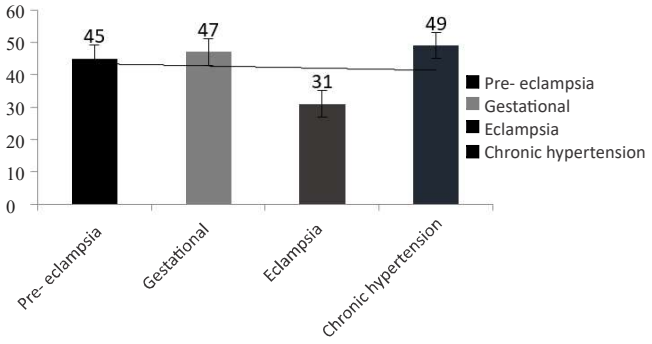

Fig. 1: Complications

Table 1: Socio-demographic characteristics

Variables	Number	p-value
Age group (Years)		
≤20	66	0.05
20-25	76	
25-30	30	
Marital status		
Single	72	0.03
Married	100	
Education		
Primary	38	0.14
Secondary	56	
Higher	78	

Table 2: Distribution of cases

Type	Number	p-value
Pre- eclampsia	45	0.12
Gestational	47	
Eclampsia	31	
Chronic hypertension	49	

Table 3: Assessment of risk factors

Risk factors	Variables	Number	p-value
Family history PIH	Yes	90	0.16
	No	82	
Family history DM	Yes	60	0.02
	No	102	
Parity	0	57	0.14
	1-4	49	
	>4	66	

blood pressure accompanied by protein in the urine and/or swelling. To prevent any disease, it is important to be informed of how common it is, what causes it and how it develops. The World Health Organisation approximates that at least one woman passes away every seven min due to consequences of pregnancy-induced hypertensive problems. Pregnancy complicated with high blood pressure condition is associated with a higher risk of negative outcomes for the foetus, newborn and mother[9]. A study was done to evaluate cases of pregnancy induced hypertension (PIH).

In the current study the age group under 20 years included 60 patients the age group between 20 and 25 years had 70 patients and the age group between 25 and 30 years had 22 patients. Sixty two individuals were unmarried, while 90 individuals were in a marital relationship. Thirty-two individuals had primary education, 50 individuals had secondary education and 70 individuals had further education. Singh and colleagues[10] discovered that among 815 pregnant women, 82 (10%) had hypertension. Thirty seven patients had pre-eclampsia, 19 had gestational hypertension, 16 had eclampsia and 10 had chronic hypertension. The discrepancy was notable ($p<0.05$). Typical symptoms were facial and limb edoema (35 cases) headaches (32 cases) seizures (15 cases) dizziness (10 cases) vomiting (12 cases) and difficulty breathing (5 cases). The discrepancy was substantial ($p<0.05$).

The antenatal care trial study undertaken by the World Health Organisation in several countries in South America and Asia revealed that the occurrence of PE was 2.2% and gestational hypertension was 7.0% among pregnant women, including those with pre-existing health issues[11]. The current investigation showed that the occurrence rates of PE and GH were 2.6% and 5.8%, respectively. This could be because women with chronic illnesses, who were considered to be at a higher risk for hypertensive disorders, were not included in our study cohort. In nulliparous women the occurrence of PE was 4.1%, which was comparable to the occurrence of 5.3% in a prospective observational analysis of solely nulliparous women without any long-term issues[12]. Among the women who have given birth multiple times, Baschat *et al*.[13] displayed a prevalence of pulmonary embolism (PE) of 3.1%. The increased occurrence could also be accounted for by the varying research participants, who may include women with issues.

We assessed the effectiveness of maternal history and blood pressure at the time of booking as basic indicators for predicting hypertensive illness during pregnancy. The separate risk factors identified in our analysis were comparable to those documented in prior investigations. Duckitt and Harrington evaluated the factors that increase the risk of PE during prenatal booking[14]. In a comprehensive review. They found that several characteristics were associated with an increased risk of PE. These factors included a previous history of PE (risk ratio (RR) 7.19) not having given birth previously (RR 2.91) having a family history of PE (RR 2.90) having a higher BMI before pregnancy (RR 2.47) being older (RR 1.96) and having an increased diastolic blood pressure of 80 mm Hg or higher at the first prenatal appointment (RR 1.38). The occurrence of high blood pressure issues in a prior pregnancy was the most notable factor as demonstrated in our study as well. However the calculated adjusted odds ratio (aOR) of the previous pulmonary embolism (PE) in the population consisted of women who had not given birth before. It is clear that only women who have

given birth multiple times have a history of hypertensive problems during pregnancy, thus evaluating only these individuals would be sufficient. Thus, we assessed the prognostic significance of a prior occurrence of hypertensive diseases in a group limited to women who have given birth multiple times. In the meanwhile, women who have not given birth may have unknown risk factors, such as chronic diseases, that might lead to negative results during pregnancy if they do not receive medical evaluation. Moreover, women who have not given birth have been considered to be possibly at a higher risk due to immunological variables, such as their initial exposure to paternal antigens. Thus, it may be suitable to individually assess the likelihood of hypertensive diseases in women who have not given birth and those who have given birth multiple times. In our research, we examined the factors related to disorders in women who have given birth multiple times. We found that previous hypertensive disorders, blood pressure in the first appointment and maternal age were connected with these disorders. However, we did not collect data on the women's BMI before pregnancy. In women who had not given birth before, factors such as BMI before pregnancy, blood preisure during the first visit, IVF treatment, age of the mother and family history of hypertension were found to be independent risk factors. The study we conducted showed the variation in risk variables between women who have never given birth and women who have given birth multiple times. This study offers more precise information to effectively handle healthy pregnancies with only one foetus. Regarding predictive value the risk indicators we have demonstrated generally have high specificity and negative predictive value as well as low sensitivity and positive predictive value. This suggests that they may be useful in identifying people with a lower risk of hypertensive diseases. The results were comparable to the predictive values of the algorithm that included maternal features, serum marker and uterine artery Doppler in the earlier study by North *et al*.[15].

CONCLUSION

we separately showed thematernal risk factors of hypertensive disorders before the early stage of the second trimester of pregnancy in nulliparous and multiparous women. The combination of background assessment and physical findings might be useful as a simple way to identify the population with a high risk of hypertensive disorders. Authors found that common risk factors for PIH was family history of PIH, family history of DM and parity >4.

REFERENCES

1. Higgins, J.R., 2002. The relation between maternal work, ambulatory blood pressure, and pregnancy hypertension. J. Epidemiol. Community. Health., 56: 389-393.
2. Oyibo, S.O., E.B. Jude, I. Tarawneh, H.C. Nguyen, L.B. Harkless and A.J.M. Boulton, 2001. A comparison of two diabetic foot ulcer classification systems. Diabetes Care, 24: 84-88.
3. Villar, J., H. Abdel-Aleem, M. Merialdi, M. Mathai and M.M. Ali et al., 2006. World health organization randomized trial of calcium supplementation among low calcium intake pregnant women. Am. J. Obstet. Gynecol., 194: 639-649.
4. Middendorp, D. and A. Asbroek, 2013. Rural and urban differences in blood pressure and pregnancy-induced hypertension among pregnant women in Ghana. Globalizatio. Health., Vol. 9. 10.4314/ejhs.v25i2.2
5. FDR., 2015. Federal Democratic Republic of India Ministry of Health, author., https://extranet.who.int/mindbank/item/4871
6. Lehrer, S., J. Stone, R. Lapinski, C.J. Lockwood, B.S. Schachter, R. Berkowitz and G.S. Berkowitz, 1993. Association between pregnancy-induced hypertension and asthma during pregnancy. Am. J. Obstet. Gynecol., 168: 1463-1466.
7. Tessema, G.A., A. Tekeste and T.A. Ayele, 2015. Preeclampsia and associated factors among pregnant women attending antenatal care in dessie referral hospital, northeast Ethiopia: A hospital-based study. BMC Pregnancy Childbirth, Vol. 15. 10.1186/s12884-015-0502-7
8. Martel, M.J., É. Rey, M.F. Beauchesne, S. Perreault, G. Lefebvre, A. Forget and L. Blais, 2005. Use of inhaled corticosteroids during pregnancy and risk of pregnancy induced hypertension: Nested case-control study. BMJ, Vol. 330. 10.1136/bmj.38313.624352.8f
9. Armstrong, D.G. and B.A. Lipsky, 2004. Diabetic foot infections: Stepwise medical and surgical management. Int. Wound J., 1: 123-132.
10. Villar, J., G. Carroli, D. Wojdyla, E. Abalos and D. Giordano et al., 2006. Preeclampsia, gestational hypertension and intrauterine growth restriction, related or independent conditions? Am. J. Obstet. Gynecol., 194: 921-931.
11. Sibai, B.M., T. Gordon, E. Thom, S.N. Caritis, M. Klebanoff, D. McNellis and R.H. Paul, 1995. Risk factors for preeclampsia in healthy nulliparous women: A prospective multicenter study. Am. J. Obstet. Gynecol., 172: 642-648.
12. Baschat, A.A., 2015. First-trimester screening for pre-eclampsia: Moving from personalized risk prediction to prevention. Ultrasound Obstet. Gynecol., 45: 119-129.

13. Duckitt, K. and D. Harrington, 2005. Risk factors for pre-eclampsia at antenatal booking: Systematic review of controlled studies. BMJ, Vol. 330. 10.1136/bmj.38380.674340.e0
14. North, R.A., L.M.E. McCowan, G.A. Dekker, L. Poston and E.H.Y. Chan et al., 2011. Clinical risk prediction for pre-eclampsia in nulliparous women: Development of model in international prospective cohort. BMJ, 342: