e-ISSN: 0975-1556, p-ISSN:2820-2643

Available online on www.ijpcr.com

International Journal of Pharmaceutical and Clinical Research 2024; 16(1); 90-94

Original Research Article

Prevalence of Pregnancy Induced Hypertension and Its Awareness among Pregnant Women in Referral Hospital in North India

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Received: 25-10-2023 / Revised: 23-11-2023 / Accepted: 26-12-2023

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Conflict of interest: Nil

Abstract:

Introduction: Pregnancy-induced hypertension (PIH) is defined as new hypertension that appears at 20 weeks or more gestational age with or without proteinuria. Its prevalence varies from place to place. Complications related to PIH are the result of inadequate knowledge and lack of preventive practice. We aimed to study the prevalence of PIH and its awareness among female patients reporting to a referral hospital.

Methods: Study was conducted on1000 consecutive pregnant patients in the age-group 20-35 years coming to ANC clinic in their first trimester. Women having systolic BP > 140 mmHg or diastolic BP > 90 mmHg in the first as well as second reading were included. Questionnaire about signs and symptoms of PIH was prepared and used for assessment. Statistical analysis was done using chi square test for categorial variables and independent t-test for continuous variable. P-value< 0.05 was considered significant.

Results: Of total 971 patients who were followed-up till delivery, 14.11% developed PIH. It was more common among primigravida (17.76%), and was statistically significant. Awareness of symptoms was very poor with only 37.8% of the patients aware of any of the symptoms. Health care professionals and media plays most important role in creating awareness.

Conclusion: PIH is affecting significant number of pregnant females, and is a matter of concern. Primigravida were least aware of the symptoms, despite the fact that they are more susceptible. Our study highlights the importance of strengthening knowledge among individuals by help of health care professional, media and community level prevention strategies.

Keywords: Prevalence, Gestational Hypertension, Pre-Eclampsia, Awareness, Pregnancy Induced Hypertension.

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Introduction

Hypertension is the most common medical disorder occurring during pregnancy, complicating 5% to 20% of all pregnancies [1,2]. Its prevalence is increasing and presently it is the leading cause of maternal mortality [3]. Different factors associated with increased risk of maternal hypertension are increasing maternal age, pre-pregnancy obesity, excess weight gain during pregnancy, and gestational diabetes [4].

Pregnancy-induced hypertension (PIH) is defined as new hypertension that appears at 20 weeks or more gestational age with or without proteinuria [5,6]. American College of Obstetricians and Gynaecologists (ACOG) defines hypertension in pregnant women as clinic maternal systolic blood pressure greater than or equal to 140 mm Hg and/or diastolic blood pressure greater than or equal to 90 mm Hg on 2 or more occasions at least 4 hours apart. They further categorized severe-range hypertension as sustained systolic blood pressure greater than or equal to 160 mm Hg and/or diastolic blood pressure greater than or equal to 110 mm Hg. However, in this setting repeat measurement should be performed within 15 minutes to avoid any delay in treatment [7,8]. The incidence of PIH varies place to place, even within states and among different countries. In India it contributes nearly 7-10% of all antenatal admissions and about 14% of maternal deaths [9]. Globally, PIH is a significant public health threat both in developed and developing countries contributing to high maternal and perinatal morbidity and mortality [10].

Recent evidence suggests that the presence of complications related to hypertension disorder of pregnancy are the results of inadequate knowledge; negative attitude towards hypertension in

pregnancy and lack of preventive practices [11,12]. Poor awareness among pregnant women is one of the most important factors for delay in seeking care, early diagnosis and management. In addition, studies have shown that women with a good awareness of symptoms of PIH are more likely to report at early stage and seek health care [12-14]. In this study, we aimed to study the prevalence of PIH and its awareness among female patients reporting to a referral hospital.

Materials and Methods

The study was conducted in a referral hospital in Northern India. After getting ethical approval, 1000 consecutive pregnant patients in the age-group 20-35 years coming to ANC clinic in their first trimester of pregnancy were included in the study. The study was done in accordance to the declaration of Helsinki. Written informed consent were taken before recruiting the patients. Patients with chronic hypertension/ hypertension diagnosed before 20 weeks of gestation were excluded from the study. Women having a systolic BP > 140 mmHg or diastolic BP > 90 mmHg in the first reading as well as in the second reading were included in hypertension group.

A structured questionnaire containing information about signs and symptoms of PIH was prepared and used for assessment. The questionnaire was prepared after reviewing different literature, initially in the English language and then translated to hindi (local language) by language expert and converted back again to English for proper documentation [12,15,16]. Critically ill women who could not respond to the interview were excluded from the questionnaire at that particular visit and were subsequently interviewed. The signs and symptoms of PIH identified by pregnant women is shown in Figure 1. Statistical analysis was done using chi square test for categorial variables and independent t-test for continuous variable. Analysis of variance among groups was done using ANOVA test. P-value < 0.05 was considered statistically significant.

Results

Overall,1000 patients were eligible for inclusion. Of these 22 patients were lost to follow-up. 6 patients had twin pregnancy and 1 patient developed hydatiform mole which were excluded from the study. 971 patients were followed-up till delivery/termination of pregnancy. Mean age of patient was 27.54± 4.34 years.

Out of 971 patients, 456 were primigravida, 319 were Gravida 2, 144 were Gravida 3 and 52 were Gravida 4 or more. Of total included patients, 137 patients (14.11%) developed pregnancy induced hypertension of which 85 (8.75%) developed mild pre-eclampsia, 9 patients (0.97%) developed, severe pre-eclampsia and 1 patient (0.09%) landed into eclampsia. PIH (including pre-eclampsia and eclampsia) was more common among primigravida (17.76%), and was statistically significant, (p-value <0.001) as shown in table 1.

Table 1: Showing prevalence of pregnancy induced hypertension among pregnant patients

	Overall (n=971)	Primigravida (n=456)	Gravida 2(n=319)	Gravida 3(n=144)	Gravida4/more (n=52)	p-value
PIH (including pre-eclampsia and ec-lampsia)	137 (14.11%)	81 (17.76%)	39 (12.22%)	14 (9.72%)	3 (5.77%)	<0.001
Mild-Mod preeclampsia	85 (8.75%)	56 (12.28%)	22 (6.89%)	6 (4.16%)	1 (1.92%)	<0.001
Severe preeclampsia	9 (0.97%)	6 (1.31%)	2 (0.63%)	1 (0.69%)	0	<0.001
Eclampsia	1 (0.09%)	1 (0.2%)	0	0	0	

Awareness of symptoms of PIH was very poor among patients. Only 367 patients (37.8%) were aware of any of the symptoms of hypertension. Most common symptom was headache, which was identified by 326 patients (33.57%). Among primigravida, only 88 (19.29%) out of 456 patients were aware of this symptom, whereas among gravida 4 or more, 46 (88.46%) out of 52 patients were aware (p-value <0.001). Identifying 3 or more of the symptoms was considered as having good knowledge, which was only among 120 patients(12.36%), of which 9 patients (1.97%) were primigravida and 21 patients (40.38%)were gravida 4 or more. (Table 2, Figure 1)

Table 2: Showing signs and symptoms of pregnancy induced hypertension identified by pregnant patients

	Overall (n=971 pts)	Primigravida (n=456)	Gravida 2 (n=319)	Gravida 3 (n=144)	Gravida 4/more (n=52)
Headache	326 (33.57%)	88 (19.29%)	98 (30.72%0	94 (65.27%)	46 (88.46%)
Nausea and vomiting	170 (17.50%)	40 (8.77%)	61 (19.12%)	39 (27.08%)	30 (57.69%)
Epigastric pain	125 (12.87%)	05 (1.09%)	50 (15.67%)	46 (31.94%)	24 (46.15%)
Visual disturbance	103 (10.61%)	04 (0.87%)	44 (13.79%)	34 (23.61%)	21 (40.38%)

Swelling of feet/hand/body	158 (16.27%)	11 (2.41%)	66 (20.69%)	50 (34.72%)	31 (59.61%)
Convulsion	74 (7.62%)	10 (2.19%)	17 (5.32%)	29 (20.14%)	18 (34.6%)
Loss of Consciousness	32 (3.29%)	02 (0.43%)	10 (3.13%)	10 (6.94%)	10 (19.23%)
Any one of the above symptoms	367 (37.80%)	99 (21.71)	112 (35.11%)	108 (75%)	48 (92.30%)
3 or more of above symptoms	120 (12.36%)	9 (1.97%)	46 (14.42%)	44 (30.55%)	21 (40.38%)

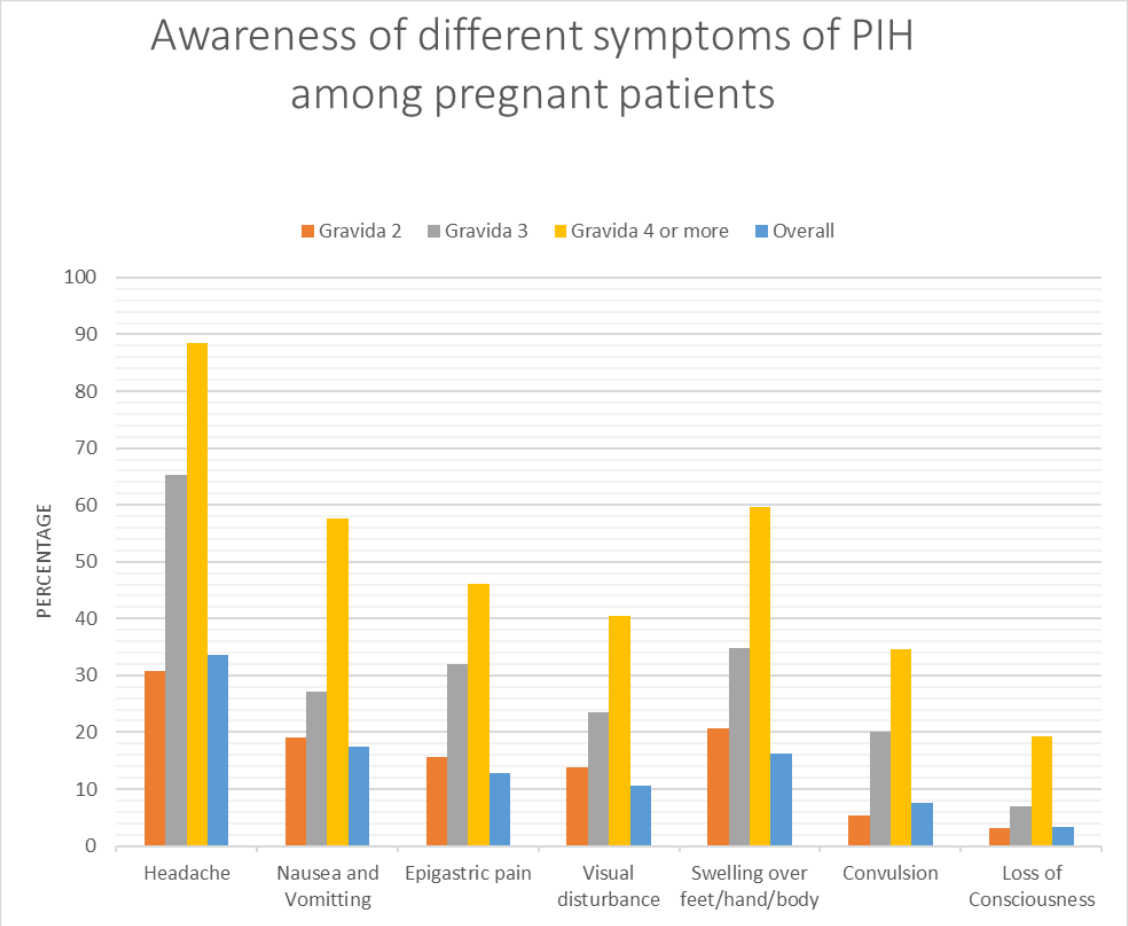

Figure 1: Showing graphical representation of signs and symptoms of pregnancy induced hypertension identified by pregnant patients (in percentage)

Discussion

Hypertensive disorders of pregnancy is basically categorized into chronic hypertension, gestational hypertension or pregnancy induced hypertension, pre-eclampsia/eclampsia and chronic hypertension with superimposed pre-eclampsia/ eclampsia [18]. Purpose of this study was to estimate the prevalence of PIH including pre-eclampsia and eclampsia in a referral hospital in North India.

Our study showed prevalence of PIH including pre-eclampsia and eclampsia to be 14.11%. However, study by Magee La et al [17], Olié V et al [18] and Garovic VD et al [19] showed incidence of hypertensive disorders of pregnancy to be approximately 10%, 7.4% and 7.3% respectively. Study was Magee La et al showed different prevalence rate of hypertensive disorders of pregnancy in different countries [17]. According to their study, prevalence was 14.0% in India, 11.6% in Pakistan, and 16.8% in Mozambique. However, our study had included only gestational hypertension including pre-eclampsia and eclampsia, despite prevalence was 14.11%. The difference in prevalence rate among different countries may be attributed to different awareness rate and educational status in different parts of country where study was conducted. The prevalence of pre-eclampsia (mild, moderate and severe) in our study was 9.68% which was more than the published rate of 2-4% in more developed countries [20]. In present study, we found that PIH was significantly more common in primigravida (17.76%). The prevalence decreased in subsequent pregnancies and least in pregnancies with gravida 4 or more (5.77%). This was similar to the study by Grum T et al which showed that primigravida women were 2.68 times more likely to develop PIH

than multigravida [21]. Similarly, study by Babore GO et al shows that women with gravida 3 or more were 68% less likely to develop PIH than multigravida [22]. The different etiologies include abnormal trophoblast invasion of uterine blood vessels, immunological intolerance between feto-placental and maternal tissues, and mal-adaptation to cardiovascular changes. However, the most common and widely accepted mechanism attributed to is immunological intolerance [21,23,24]. Owing to much more prevalence during first trimester, some authors have even considered pre-eclampsia as a disease of first pregnancy [21,24].

We also assessed the level of awareness regarding PIH and associated factors among pregnant women attending antenatal clinic. In our study, 389(40.06%) patients have heard about pregnancy induced hypertension and only 367(37.80%) patients knew any of the symptoms of PIH. This is much less than study by Berhe et al, where 58% of patients have heard of PIH. However, study by Satpathy G et al has shown only 18% of patients having heard of PIH [25]. The awareness was much more in patients with higher gestation compared to primigravida, and was statistically significant (p-value<0.001). The major source of awareness about PIH in gravida 2 and higher was health care facilities including doctors, nurses and para-medical staff. However, among primigravida, major source of knowledge was social media including television. This was similar to the findings by Berhe et al in which 44.3% people had knowledge about PIH from health care professionals [12]. However, study by Chitra K shows that 50% of patients get information from television [26]. Headache was the most common symptom identified by 326 patients (33.57%) followed by nausea and vomiting identified by 170 patients (17.50%). However symptoms of eclampsia was least identifiable with 74 patients (7.62%) aware of convulsions and only 32 patients (3.29%) aware of loss of consciousness. Hypertensive disorders of pregnancy are also associated with long term cardiovascular disease, even later in the life apart from antenatal complications [27]. This emphasises the need of more awareness through health care professional as well as media.

The strength of the study is its large population size. However, there were certain limitations also. This was a hospital based study and so the result may be biased to that of true community. An outreach approach should be carried out. Secondly, we did not followed-up the patient's post-delivery and hence long term outcome and prognosis could not be determined.

Conclusion

Pregnancy induced hypertension is affecting significant number of pregnant females, thereby complicating pregnancy and affecting maternal and fetal outcome. It is a matter of concern that the primigravida were least aware of the symptoms, despite the fact that they are more susceptible to PIH. Our study highlights the importance of strengthening knowledge among individuals by help of health care professional; through media and community level prevention strategies Importance on pre-conception screening should also be emphasized. This will improve both maternal and fetal outcome leading to better development of community.

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