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Original Research Article

Study of socio-demographic factors in cases of pregnancy induced hypertension and its associated risk factors in a tertiary care hospital

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ABSTRACT

Background: The aim of the study was to study the socio-demographic factors in cases of pregnancy induced hypertension and its associated risk factors in a tertiary care hospital.
Methods: The present retrospective study was conducted in the obstetrics and gynecology department of Shrimati Heera Kunwar Baa Memorial Hospital, Jhalawar, Rajasthan from December 2018 to November 2019. A total of 80 cases of pregnant women with PIH were studied. The socio-demographic data like age, parity, gestational age of presentation, mode of delivery, maternal and perinatal complications were noted from the hospital records and studied.
Results: The incidence of PIH was found to be 8.16% in pregnant women attending the SHKBM Hospital. Majority of the study subjects were rural dweller (70%). A higher incidence of PIH was found among illiterate women (51.25%). 53.75% cases were in the age group of 25-30 years and 25% were in the age group of 19-24 years. In the present study, incidence of PIH was found to be highest among primigravidas (67.50%) as compared to multigravidas (32.5%). Most cases were delivered by caesarean section (73.75%) and 26.25% were delivered vaginally. Out of 80 cases, 16.25% of cases were complicated by eclampsia, Severe PIH in 12.5%, abruptio placentae in 2.5% and HELLP Syndrome in 1.25% cases.
Conclusions: PIH is a very common complication encountered in pregnancy associated with adverse maternal and fetal outcome. The risk is higher among young primigravidas and in rural population. Better health care facilities and awareness among the pregnant women will help in reducing the incidence of PIH and its associated complications.

Keywords: Eclampsia, Gestational age, Pregnancy induced hypertension, Primigravida

INTRODUCTION

Pregnancy induced hypertension is a common complication we encounter in pregnancy. It is associated with adverse fetal, neonatal and maternal outcome.[1] It consists of a group of disorders that develops due to gravid state after 20 weeks of pregnancy. It consists of gestational hypertension with blood pressure > 140/90 mmHg without proteinuria, preeclampsia which is gestational hypertension with proteinuria and eclampsia which is preeclampsia with convulsions. The features of hypertension usually resolve to normal within 6-12 weeks of delivery.[2,3] Pregnancy induced hypertension is the most frequent cause of hypertension during pregnancy, constituting of about 70%.[4]

The incidence of pre-eclampsia in nulliparous population ranges from 3 to 10 per cent worldwide.[5] Incidence of eclampsia in the developed countries is about 1 in 2000 deliveries as compared to developing countries where it varies from 1 in 100 to 1 in 1700.[6-9] The national incidence of PIH is 15.2% in India, while it is four times higher in primipara women than in multipara.[10,11] 13% of the maternal deaths are in the women with pregnancy induced hypertension and eclampsia, the most terrible form that accounts for major cause of death.[12] The high

incidence observed has pointed towards poverty, lack of education and unawareness regarding health care in this part of the world.

Till now, despite the number of studies on hypertensive disorders of pregnancy, the aetiology remains unclear. The speculated aetiologies that play important role in development of PIH include abnormal placentation, vasculopathy, inflammatory changes, genetic, nutritional and immunologic factors.[13]

PIH is more commonly seen in women with younger age, elderly pregnant women, primiparous, obese women, women with multiple pregnancies and molar pregnancy. History of PIH in previous pregnancy is an important risk factor for developing PIH in subsequent pregnancy. Family history of PIH is also a risk factor for development of PIH.[14]

A prompt and early diagnosis is essential as pregnancies associated with hypertensive disorders are often associated with adverse maternal and fetal complications. The risks associated are IUGR, preterm birth, antepartum and postpartum haemorrhage, perinatal death and maternal death.[14]

The present work was conducted to study the socio-demographic profile and to find out the risk factors among antenatal mothers with pregnancy induced hypertension.

METHODS

This study is to be carried out as retrospective observational study. The study is to be carried out in Department of obstetrics and gynecology, SHKBM hospital, Jhalawar, Rajasthan, India

Inclusion criteria

- All pregnant women with PIH admitted in obstetrics ward with gestational age greater than 28 weeks.

Exclusion criteria

- Pregnant patients developing PIH before 28 Weeks, with history of chronic hypertension, renal diseases, coronary heart disease, diabetes mellitus
- Pregnant women with smoking and alcohol habits
- Patients with incomplete data.

Patient data relevant to the study will be obtained from following sources

- Case sheet
- Antenatal visit record.

PIH was defined as blood pressure > 140/90 mmHg with or without proteinuria and/or edema after 20 weeks of gestation.

The medical records had details regarding patients demographic data, age, diagnosis, gestational age, parity, diagnosis, obstetric history, mode of delivery and maternal and fetal outcome.

Primigravida was defined as first pregnancy. The subsequent pregnancy was called multigravida. Gestational age was calculated from LMP.

Statistical analysis

The data was analyzed using Graph Pad Prism statistical software version 5.0.

RESULTS

During the one-year study, 1020 pregnant women attended the obstetrics and gynaecology department, out of which 80 pregnant women were diagnosed with hypertension. The incidence of PIH was found to be 8.16%.

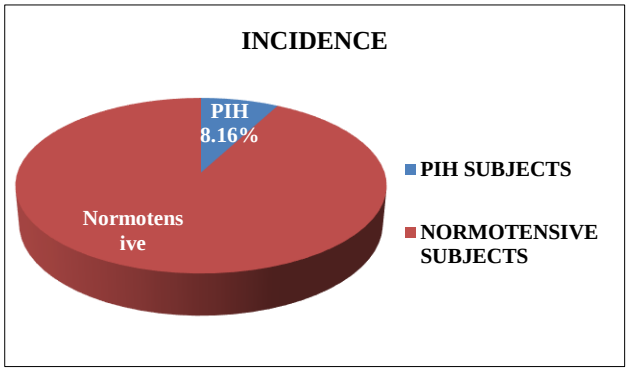

Figure 1: Incidence of PIH.

Table 1: Socio-demographic profile of patients with PIH.

Variables	Parameters	No. of cases	Percentage
Dweller	Rural	56	70%
	Urban	24	30%
Religion	Hindu	66	82.5%
	Muslim	13	16.25%
	Sikh	01	1.25%
	Christian	-	-
Educational status	Illiterate	41	51.25%
	Up to 8th standard	17	21.25%
	9th-10th	09	11.25%
	11th-12th	07	8.75%
	Graduation	05	6.25%
	Post-graduation	01	1.25%
Monthly income (INR/month)	< 5000	55	68.75%
	> 5000	25	31.25%

Majority of the study subjects were rural dweller. Out of 80 study subjects 56 were from rural area (70%) and 24 from urban area (30%). Overall Hindu constituted the major chunk of the study subjects (82.5%) and Muslim ranked the second (16.25%). Study observed the higher incidence of PIH among illiterate women (51.25%) and there was a decreasing trend of incidence among the women with higher education level. A higher incidence of PIH was also noted among the women of low-income group.

Table 2: Gestational age at which the cases were admitted (n = 80).

Gestational age	No. of cases	Percentage
Preterm	26	32.5%
Term	48	60%
Post-term	6	7.5%

Table 3: Incidence of PIH according to age (n = 80).

Age distribution	No. of cases	Percentage
19-24	20	25%
25-30	43	53.75%
31-35	15	18.75%
36-40	02	2.5%

Out of 80 cases of PIH studied in this study, the gestational age at the time of admission varied. 60% cases admitted to labour room were at term, 32.5% cases admitted were preterm and 7.5% cases were post-dated.

Table 4: Distribution according to parity (n = 80).

Parity	No. of cases	Percentage
Primigravida	54	67.5%
Multigravida	26	32.5%

Table 5: Mode of delivery (n = 80).

Distribution according to gestational age	No. of cases	Caesarean section	Percentage	Vaginal delivery	Percentage
Preterm	26	16	61.53%	10	38.46%
Term	48	39	81.25%	09	18.75%
Postdated	06	04	66.6%	02	33.33%
Total	**80**	**59**	**73.75%**	**21**	**26.25%**

The distribution of PIH patients in respect to age group shows 53.75% were in the age group of 25-30 years and 25% were in age group of 19-24 years. 18.75% cases were in the age group of 31-35 years and least were in the age group of 36-40 with only 2.5%.

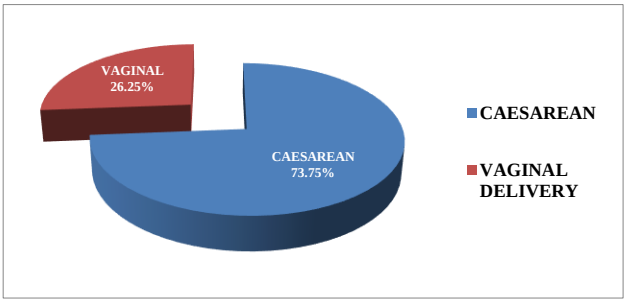

Figure 2: Mode of delivery.

In the present study, the incidence of pregnancy induced hypertension was found to be highest among primigravida. Out of the 80 cases studied, 54 were primigravida (67.5%) and 26 were multigravida (32.5%).

The mode of delivery of 80 cases were studied. Out of 80 cases, 59 cases delivered by caesarean section (73.75%) and 21 cases delivered by vaginal delivery (26.25%). The caesarean rate is 81.25% among the term patients and 66.6% among the post-dated ones and 61.53% among preterm cases. Vaginal delivery rate was found to be 38.46% among preterm, 18.75% among term and 33.33% among post-dated.

Table 6: Complications.

Symptoms	No. of cases	Percentage
Eclampsia	13	16.25%
Severe PIH	10	12.5%
Abruptio placentae	2	2.5%
HELLP syndrome	1	1.25%
Blindness	0	0%

The complications were studied in form of cases developing eclampsia, abruptio placentae, HELLP Syndrome, severe PIH and blindness. Out of 80 cases 13 cases (16.25%). were admitted with eclampsia.[10] cases were with severe PIH (12.5%). Abruptio placentae was seen in 2 cases (2.5%). One case (1.25%) was admitted with HELLP syndrome. Blindness was not seen in any case.

DISCUSSION

The incidence of PIH in this study was 8.16%. The incidence of PIH ranges from in different countries as

1.5% in Sweden as compared to 7.5% in Brazil.[15] This difference in incidence can be due to racial factors, age, parity or can be attributed to socioeconomic status. A study done by American Society of Nephrology states that women in rural areas have increased incidence of PIH.[16] In a study done by Sachdeva et al, the incidence was found to be higher in rural setup.[17] Factors like poverty, illiteracy, poor availability of health care facilities and lack of awareness among the general population attributes to high incidence among rural population.

In this study, majority of PIH cases were in age group of 25-30 years (53.75%.). In a study by Saxena S et al, a majority of cases were in age group of 21-25 years age group.[18] In another study by Parmar MR et al, also majority of cases were in age group of 21- 25 years.[19] Therefore it can be concluded from these studies that young maternal age is a significant risk factor for developing of PIH. In this country, where girls are married earlier especially in rural populations, therefore the incidence is higher in young age group.

In this study, majority of cases admitted with PIH were primigravida (67.5%). In a retrospective study conducted in southeast Nigeria by Umegbolu EI et al, the incidence of PIH was higher among nulliparous women (7.7%) as compared to (5.5%) in multiparous women.[20] In a study by Saxena S et al, also the majority of cases were primigravida (57%).[17] Sibai and Cunningham in their world-wide study has also found the incidence of PIH to be higher in nulliparous population.[5] This study findings correlates with study by Irinyenikan et al, where most of the cases of PIH belonged to primigravida and also study by Sandhya et al, which stated in their study 60% cases were primigravida.[21,22]

Majority of cases in this study were delivered by caesarean section (73.75%). In the study by Parmar MR et al, LSCS incidence was found to be 17%.[17] Sivakumar S et al, has also found a higher incidence of LSCS.[22]

In the present study, majority of delivered cases were term (60%) and (32.5%) had preterm delivery which was quite opposite of study by Parmar MR et al, where only 42% were term and 57% were preterm.[19] Majority of preterm were delivered by caesarean section (61.53%).[19]

Eclampsia was the most common complication noted in the present study followed by Abruptio placentae and HELLP syndrome which was quite similar to study by Parmar et al, where also eclampsia was the commonest complication. Similar finding was also seen in a study by Bansal et al.[18,23]

CONCLUSION

In the present study, pregnancy induced hypertension was more prevalent in the young age group and the majority of patients were primi and had educational status less than graduation. Younger age and less education can be attributed to the age itself or due to inadequate antenatal care and lack of awareness regarding antenatal care due to less education of the patient. Assessment of risk factors would identify women in early pregnancy who are at high risk of preeclampsia. Proper antenatal monitoring and time to time hospital visit can help to prevent adverse outcomes of pregnancy induced hypertension. Healthcare professionals can assess each pregnant woman's risk of pre-eclampsia at her booking visit and should plan antenatal care as per patient requirement.

Although being a hospital based study, the results may not be applicable to population at large and it needs further study taking larger population to establish the statistical parameters.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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