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A retrospective study of socio-demographic factors in pregnancy induced hypertension in a tertiary care hospital in eastern India

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Abstract
Background: The aim of the study was to study the sociodemographic factors in cases of pregnancy induced hypertension and its associated risk factors in a tertiary care hospital.
Method: The present retrospective study was conducted in the Obstetrics and Gynaecology department of IMS & SUM Hospital, Bhubaneswar, Odisha from June 2017 to May 2018. A total of 120 cases of pregnant women with PIH were studied. The sociodemographic 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 7.2% in pregnant women attending the IMS& SUM Hospital.52% cases were in the age group of 25-30 years and 27% were in the age group of 19-24 years. In the present study, incidence of PIH was found to be highest among primigravidas (65%) as copmpared to multigravidas (35%).Most cases were delivered by caesarean section (71%) and 29% were delivered vaginally. Out of 120 cases, 10 % of cases were complicated by eclampsia, Severe PIH in 6%, Abruptio placentae in 1.6% and HELLP Syndrome in 0.8% cases.
Conclusion: PIH is a very common complication encountered in pregnancy associated with adverse maternal and fetal outcome. The risk ia 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: Pregnancy induced hypertension, primigravida, multigravida, maternal complication

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 after 20 weeks of gestation. It consists of gestational hypertension with blood pressure> 140/90 mm of Hg without proteinuria, preeclampsia which is gestational hypertension with proteinuria and eclampsia which is preeclampsia with convulsions. The features of hypertension usually resolves 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 preeclampsia globally ranges from 2-10% [5]. Who estimates that it is 7 times higher in developing countries than developed countries? [6,7,8]. The incidence of PIH in India is 5-15% [9].The incidence is four times higher in primiparous women as compared to multiparous women [10].
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 [11].
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 an risk factor for development of PIH [12].
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 [12].

The present study was conducted to study the socio demographic factors affecting PIH and also the risk factors associated with development of PIH in pregnant women.

Materials and Methods

A retrospective study was conducted over a period of one year in inpatients of Obstetrics and Gynaecology Department of IMS & Sum Hospital, Bhubaneswar. 120 cases of pregnant women with PIH were studied from medical records from June 2017 to May 2018. PIH was defined as blood pressure > 140/90 mm of Hg with or without proteinuria and /or edema after 20 weeks og 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. The medical records had details of fetal weight, one minute and five minute APGAR score and NICU admissions.

Primigravida was defined as first pregnancy. The subsequent pregnancy was called multigravida. Gestational age was calculated from LMP. Newborn classification was done according to WHO. Newborns with birthweight < 2.5 kg were classified as LBW. The maternal and fetal outcome were studied. The demographic parameters and the risk factors were also studied. The adverse fetal and maternal outcome were studied.

Inclusion criteria

All pregnant women presenting with PIH above 28 weeks of gestation.

Exclusion criteria

Pregnant patients developing PIH before 28 Weeks, with history of chronic hypertension, renal diseases, coronary heart disease, diabetes mellitus.

Results

During the one year study, 1660 pregnant women attended the Obstetrics & Gynaecology Dept, out of which 120 pregnant women were diagnosed with hypertension. The incidence of PIH was found to be 7.2%.

Table 1: Gestational age at which the cases were admitted. n=120

Gestational age	No of Cases	Percentage
preterm	44	36.6%
term	64	53.3%
postterm	12	10

Out of 120 cases of PIH studied in this study, the gestational age at the time of admission varied. 53% cases admitted to labour room were at term, 37% cases admitted were preterm and 10% cases were postdated.

Table 2: Incidence among rural population. n=120

Dweller	No of Cases	Percentage
rural	77	64
urban	43	36

In the present study, 64% cases were from rural areas and 36% cases were urban dwellers.

Table 3: Incidence of PIH according to age. (n=120)

Age distribution	No of cases	percentage
19-24 years	33	27.5
25-30 years	63	52.5
31-35years	21	17.5
36-40years	3	2.5

The distribution of PIH patients in respect to age group shows 52.5%were in the age group of 25-30 yrs and 27.5% were in age group of 19-24 yrs.17.5% cases were in the age group of 31-35 yrs and least were in the age group of 36-40 with only 2.5%.

Table 4: Distribution according to parity. (n=120)

Parity	No of cases	percentage
primigravida	78	65
multigravida	42	35

In the present study, the incidence of pregnancy induced hypertension was found to be highest among primigravida. Out of the 120 cases studied, 78 were primigravida (65%) and 42 were multigravida (35%).

Table 5: Mode of delivery. (n==120)

Distribution according to GA	No of cases	Caesarean section	percentage	Vaginal delivery	percentage
Preterm	44	26	59.09	18	40.9
Term	64	50	78.13	14	21.8
Postdated	12	9	75	3	25
total	120	85	70.83	35	29.17

The mode of delivery of 120 cases were studied. out of 120 cases, 85 cases delivered by caesarean section (70.8%) and 35 cases delivered by vaginal delivery (29.2%). The caesarean rate is 78.13% among the term patients and 75% among the postdated ones and 59.09% among preterm cases. Vaginal delivery rate was found to be 40 % among preterm, 21% among term and 25% among postdated.

Table 6: The complications were studied in form of cases developing eclampsia, abruptio placentae, HELLP Syndrome, severe PIH and blindness. Out of 120 cases 12 cases (10%). were admitted with eclampsia.7 cases were with severe PIH (5.8%). Abruptio placentae was seen in 2 cases (1.6%). One case (0.83%) was admitted with HELLP syndrome. Blindness was seen in one case (0.83%).

Symptoms	No of cases	percentage
Eclampsia	12	10
Severe PIH	7	5.8
Abruptio placentae	2	1.6
HELLP syndrome	1	0.83
Blindness	1	0.83

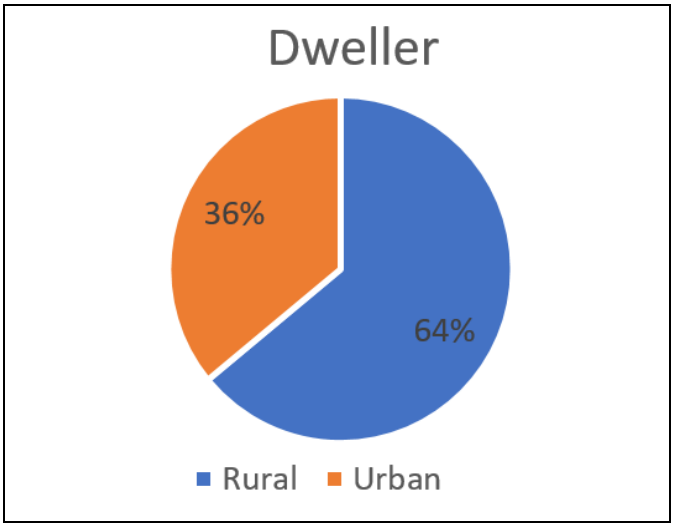

Fig 1: Incidence among rural population, n=120

From Figure 1, we see that, most cases of PIH belonged to rural areas (64%) while only (36%) belonged to urban areas.

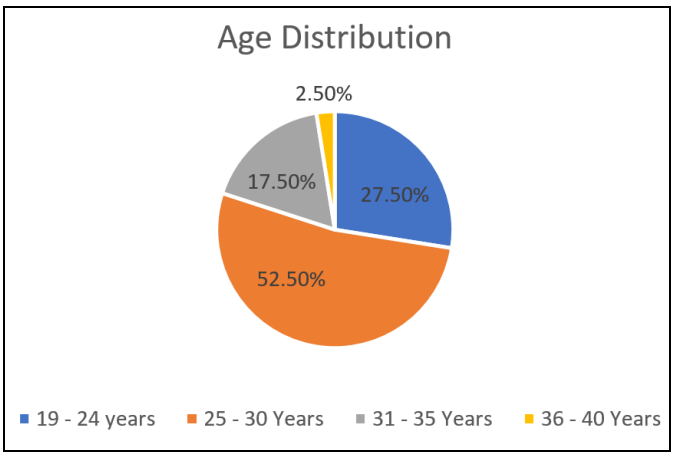

Fig 2: Incidence of PIH according to age. (n=120)

As shown in Figure 2, most cases of PIH were in the age group of 25-30 years (52%) while (27%) cases were in age group of 19-24 years.

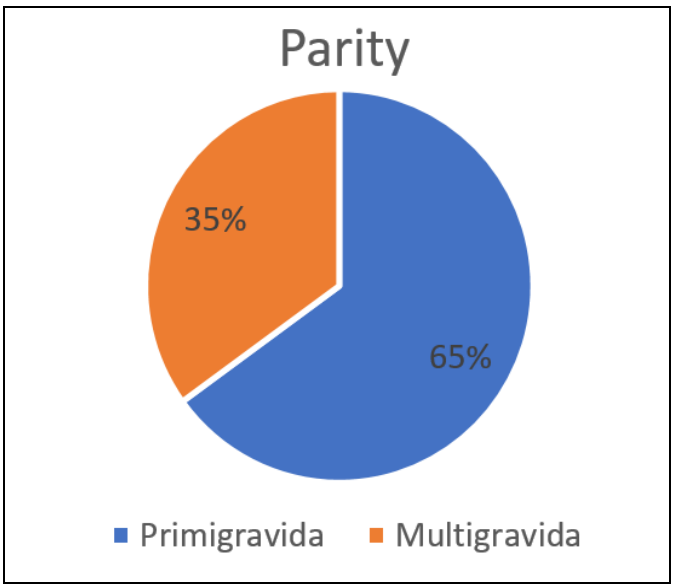

Fig 3: Distribution according to parity. (n=120)

From Figure 3, we see that PIH is most commonly seen in primigravidas (65%) as compared to multigravidas (35%)

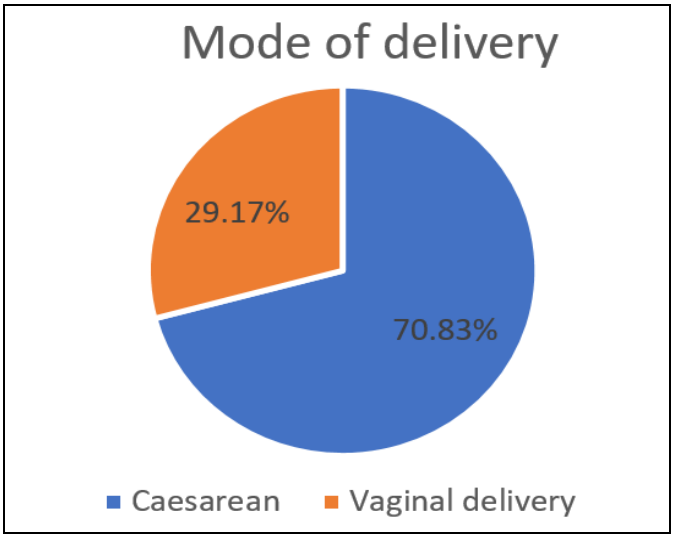

Fig 4: Mode of delivery. (n=120)

As shown in Figure 4, most cases of PIH were delivered by caesarean section (70.8%) as compared to vaginal delivery (29.1%).

Discussion

The incidence of PIH in our study was 7.2%.The incidence of PIH ranges from in different countries as 1.5% in Sweden as compared to 7.5% in Brazil [13].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 [14]. In a study done by Sachdeva *et al*, the incidence was found to be higher in rural setup [15]. 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 our study, majority of PIH cases were in age group of 25-30 years (52%.). In a study by shikha saxena *et al*. a majority of cases were in age group of 21-25 years age group [16]. In another study by Parmar MR *et al*. also majority of cases were in age group of 21- 25 years [17]. Therefore it can be concluded from these studies that young maternal age is a significant risk factor for developing of PIH. In our 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 (65%). 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 [18]. In a study by Shikha Saxena *et al*. also the majority of cases were primigravida (57%) [15]. Sibai and Cunningham in their world-wide study has also found the incidence of PIH to be higher in nulliparous population [5]. Our 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 [19,20]

Majority of cases in our study were delivered by caesarean section (71%). 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 (53%) and (37%) had preterm delivery which was quite opposite of study by Parmar MR *et al*. where only 42% were term and 57% were preterm [17].

The mean age of gestational age was 36wks which was similar to the study done by Rose J *et al*. Majority of preterm were delivered by caesarean section (59%) [22].

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*. [16, 23]

Conclusion

To conclude, the incidence of PIH is seen to be higher among young age group women. The risk is higher among the primigravida and in rural population. Better health care facilities and awareness among general population will help in reducing the incidence of PIH. 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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