Research Article

Epidemiological study of pregnancy induced hypertension

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Abstract

Objective: To study the sociodemographic factors, maternal and fetal outcome in pregnancy induced hypertension. **Methods:** This is a prospective observational study of 112 cases over a period of two years. Pregnant women with singleton pregnancy and with systolic BP >140mmHg and or diastolic BP>90 mmHg with more than 20 weeks gestation admitted in labour room were included in the study. Data was analysed with regard to age, parity, socioeconomic status, gestational age, blood group and birth weight. Maternal and fetal outcome was studied. **Results:** Total number of women admitted in labour room with diagnosis of pregnancy induced hypertension was 112. Majority of the women were primigravida (62.5%) in the age group of 20-25 years. Majority of women had B+ve blood group(39.28%), followed by O+ve(30.35%) and A+ve (22.32%) blood group. 26.77% women delivered preterm and 52% babies had low birth weight which included small for gestational age and IUGR babies. 9 women presented with eclampsia, 5 patients had APH and 3 patients were complicated by HELLP syndrome. Intrauterine death was seen in 5 cases. **Conclusion:** Early detection of pregnancy induced hypertension and good antenatal care and timely intervention may improve the maternal and perinatal outcome in women with pregnancy induced hypertension.

Keywords: Pregnancy induced hypertension, Eclampsia, IUGR.

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INTRODUCTION

Hypertensive disorders in pregnancy is one of the commonest medical disorder in pregnancy and form one deadly triad along with haemorrhage and infection which contributes greatly to maternal morbidity and mortality[1]. Worldwide, preeclampsia and eclampsia contribute to the death of a pregnant woman every 3 minutes[2]. Approximately 30% of hypertensive disorders of pregnancyare caused by chronic hypertension and 70% cases are diagnosed as gestational hypertension / preeclampsia[3]. Preeclampsia is a multisystem disorder of unknown etiology with raised blood pressure (140/90 mmHg) with proteinuria usually after 20 weeks gestation[4].Pregnancy induced hypertension occurs in 5% of all pregnancies. In USA, 15% of mortality rate in pregnant women is caused by hypertension and its complications, second cause of death after pulmonary embolism in this population[5]. In India, pregnancy induced hypertension continues to be responsible for the largest proportion of perinatal deaths resulting from prematurity and IUGR and is a major contributor to perinatal and maternal morbidity and mortality[6]. Pregnancies associated with hypertensive disorders are also associated with increased risk of adverse fetal, neonatal and maternal outcome including preterm birth, IUGR, perinatal death, APH, PPH and maternal death. Most deaths in PIH occur due to its complications and not due to hypertension per se[7]. Majority of these complications are preventable with good antenatal care. The objective of this study is to study the sociodemographic factors, maternal and fetal outcome in women with pregnancy induced hypertension.

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MATERIAL AND METHODS

This is a prospective, observational study carried out over a period of two years from June 2012 to May 2014 at M.N.R Medical College and Hospital. All pregnant women with singleton pregnancy with systolic BP >140mmHg and/ or diastolic BP >90mmHg on two occasions, six hours apart, after 20 weeks gestation admitted in labour room were included in the study. Women with multiple gestation, chronic hypertension were excluded from the study. Detailed history, clinical examination and necessary investigations were carried out. Patients were monitored for BP, development of complications related to Pregnancy induced hypertension and obstetric outcome.

RESULTS

During the study period, 112 women were diagnosed to have pregnancy induced hypertension.

Table 1: Age wise distribution

Age Group	Number (n = 12)	Percentage
< 19 years	11	9.8%
20-25years	76	67.85%
26-30years	21	18.75%
31-35years	04	3.57%

Majority (67.85%) women were in the age group of 20-25years. 9.8% women were teenagers and 3.5% women were more than 30years.

Table 2: Gravidawise distribution

Gravida	Number	Percentage
Primi	70	62.5%
G2	22	19.64%
G3	13	11.60%
G4	07	6.25%

62% women studied were primigravida and 17.85% were third gravida and more. Majority of women (60.50%) were belonging to low socioeconomic group. When we analysed blood groups of the women under study, we found that around 40% women were B+ve, 30.3% women were O+ve and 22.3% women had A+ve blood group

Table 3: Gestational age

Gestational age	No. of patients	Percentage
20-25 wks	01	0.89%
26-30wks	10	8.92%
31-35wks	19	16.96%
36-40 wks	80	71.42%
>40 wks	02	1.78%

Table 3 shows the gestatational age of most of the women (71.4%) were between 36-40 weeks of gestation and approximately 27% had preterm delivery (spontaneous/induced).

Table 4: Birth weight

Birth weight	No. of Patients	Percentage
<1kg	04	3.59%
1-1.5 kg	09	8.03%
1.5-2 kg	20	17.85%
2-2.5 kg	25	22.32%
2.5-3 kg	37	33.02%
3-3.5 kg	16	14.28%
>3.5kg	01	0.89%

Because this is a tertiary care centre and most of the patients are referred from outside and are complicated, 82% women underwent caesarean section. Moreover, 20% of the women included in the study were having previous caesarean section and many had associated obstetric or medical complications, which increased the rate of caesarean section in this pregnancy. When birth weight was considered, we found that 52% 0f babies had low birth weight and only 15% had birth weight >3kg.

Table 5: Complications

Risk factor	No. of patients	%
Severe preeclampsia	15	13.39%
Eclampsia	09	8.03%
Antepartum hemorrhage	05	4.46%
HELLP	03	2.6%
Deranged LFT	05	4.46%
IUGR	08	7.27%
Oligohydramnios	06	5.35%
IUD	05	4.46%

Among the complications, severe preeclampsia (13.39%), eclampsia (8.03%), IUGR (7.27%), Oligohydramnios (5.35%), APH (4.46%) and deranged LFT (4.46%) were the commonest. HELLP syndrome was seen in 3(2.6%) women. 3 women had low platelet count. Intrauterine death of fetus was found in 5 (4.46%) out of 112 women which we studied.95.54% women had live birth. Most of the newborn had APGAR score more than or equal to 7 at first and fifth minute of life.

DISCUSSION

Hypertensive disorder of pregnancy is considered to be a major worldwide health problem causing an increased risk of perinatal and maternal morbidity and mortality[8]. Pregnancy induced hypertension is a global problem and complicates approximately 10-17% of pregnancies. The incidence of pregnancy induced hypertension in India ranges from 5-15%[9]. Incidence of pregnancy induced hypertension in our study was 10.76%. Similar incidence of PIH (10.65%) was found in study by Shweta *et al*[9]. While Zibaeenez had *et al* in their study reported incidence of preeclampsia as 2.32%[10]. Most of the patients in our study were seen in the age group of 20-25years. 67.85% women were in the age group of 20-

25years.Similarly, Meshram *et al* reported 47.5% women in this age group[6]. Sandhya Sivakumar *et al* reported maternal mean age as 24.3 years[11]. In the study of Shweta *et al*, 36.7% women were between 21-25 years of age[9]. Majority (62.5%) of women in our study were primigravidas. Similarly Nwabueze peter *et al* reported 87% women in their study as primigravidas[1]. Most of the patients in the study by Shazia *et al* were primigravidas in the age group of 21-30 years[5]. While, Jasovic-Siveska *et al*, reported bimodal pattern of PIH in young primigravidas and oldermultiparas[12]. Contrary to this, Lamminpaa *et al* mentioned higher incidence of pre-eclampsia in advanced maternal age[13]. In the present study, 27% women had preterm delivery while 71.4% women were more than 36weeks of gestation at the time of admission. Similarly, Sandhya Sivakumar *et al*, reported the mean gestational age as 37.4 weeks[11]. Meshram *et al* also reported mean gestational age as 37.3 weeks with the range of 34-39 weeks[6].Farzana Nawaz *et al*, also reported mean gestational age as 37.37+/-2.25weeks[8]. While, in the study by Shazia Riaz *et al*, 45% patients had 28-36 weeks gestation and 53% had term pregnancy[5]. 60.50% women in the study were from low socioeconomic group. Similarly, Mehul T Parmar *et al* reported higher incidence of PIH in women with lower socioeconomic status having poor access to antenatal care[7]. When we analysed blood group of all women we found that, around 40% women were B+ve, 30.3% were O+ve and 22.3% women had A+ve blood group. Only 6 women had AB+ve and remaining 3 women had negative blood group. 82% women in our study underwent caesarean section. Higher caesarean section rate in our study might be because of associated complications. Variable results were observed regarding the mode of delivery among pregnancy induced hypertension cases in different studies. In the study by Zibaeenez had *et al*, frequency of caesarean section was 45.8%[10]. Studies by Miguil *et al*[14] and Dissanayake *et al*[15] showed caesarean section rates as 71% and 78% respectively which were comparable to our study. In our study 52% babies had low birth weight and 48% had birth weight more than 2.5kg.Shweta Anand *et al* also reported 60% of babies in their study to be low birth weight. Mean birth weight in their study was 1.7kg[9]. Mean birth weight in the study by Sandhya Sivakumar *et al* was 2.15kg[11]. Farzana Nawaz *et al* also reported mean birth weight as 2.48kg[8]. In the present study, 13.39 % women had severe preeclampsia, 8% had eclampsia, 4.46% women were complicated by APH, HELLP syndrome was seen in 2.6%, IUGR was seen in 7.27% women and 5.35% women had Oligohydramnios. 95.54% women had live births and only 5 women (4.46%) had intrauterine death of the fetus. Although the APGAR score of most of the newborn babies was more than or equal to 7,around 29 %babies required NICU admission for variable period because of their low birth weight. Meshram *et al* reported the incidence of HELLP syndrome as 10.63% and that of IUGR as 19.14% which was higher than our study[6]. Sibai *et al* reported the incidence of HELLP syndrome as 9.8%[16]. IUGR is frequently a sequalae of pregnancy induced hypertension. It can be conveniently diagnosed and monitored using clinical and ultrasonographic methods. In the study by Shweta *et al*[9], 44.5% babies were having IUGR and 75.5% of babies needed hospitalization which was higher as compared to our study. Humaira Zafar *et al*, also reported a higher incidence (25%) in their study. They also reported 28% incidence of oligohydramnios in IUGR patients [17]. In the study by Shazia Riaz *et al*, placental abruption was seen in 4% cases and HELLP syndrome was seen in 5% of women [5]. These results were comparable to our study. No maternal mortality was reported in our study.

CONCLUSION

The incidence of pregnancy induced hypertension was higher among young primigravidas with higher incidence of preterm deliveries and IUGR. As pregnancy induced hypertension is a multisystem disorder, its complications ranges from eclampsia to HELLP syndrome and in severe cases renal failure and disseminated intravascular coagulation which may be life threatening for the women. So, early detection of high risk women with timely referral to advanced tertiary care centres, early and timely treatment of preeclampsia may lead to improved maternal and perinatal outcome. For women who had preeclampsia in previous pregnancy, a systematic evaluation of underlying risk factors may help in its prevention in future pregnancy.

REFERENCES

1. O. Nwabueze Peter, C. Abanobi Okwuoma, O. Nwankwo Benjamin and E. Nwabueze Augustar. Occurence of pregnancy induced hypertension in selected health facilities in South East Nigeria. International Journal of Tropical Medicine2012; 7^2:86-92.
2. Myers JE, Baker PN. Hypertensive diseases and eclampsia. Current opinion Obstetrics and Gynecology 2002; 14^2:119-125.
3. Buchbinder A, Sibai BM, Carltis S, Mac Pherson C. Adverse Perinatal Outcomes are significantly higher in severe gestational hypertension than in mild preeclampsia. Am J.of Obstetrics and Gynecology 2002; 186:66-71.
4. Duley L. Preeclampsia and Hypertensive disorders of pregnancy. British medical bullletein 2003; 67:161-176.
5. Shazia Riaz Saadia Habib, Alia Jabeen. Frequency of maternal mortality and morbidity in pregnancy induced hypertension. J Ayub Med Coll Abbottabad 2011; 23^4:61-63.

6. D.P. Meshram, Y.H. Chavan, P.N. Kadam, M.G. Panchal, D.J. Ramteke. Maternal and fetal outcomes in Pregnancy Induced Hypertension –A hospital based study. International Journal of Pharmaceutical Science Invention 2014; 3^4:23-26.
7. Mehul T Parmar, Harsha M Solanki, Vibha V Gosalia. Study of Risk factors of perinatal death in pregnancy induced hypertension.National Journal of Community Medicine.2012; 3^4:703-707.
8. Farzana Nawaz, Shahida Sultan, Ilyas Siddiqi. Pregnancy outcome in primigravida complicated with pregnancy induced hypertension.J.Med.Sci 2014; 22^1:46-48.
9. Shweta Anand, Kirshnanand. Perinatal outcome in growth retarted babies born to normotensive and hypertensive mothers: A prospective study. Peoples Journal of scientific research 2012; 5^1:24-28.
10. MJ. Zibaeenezhad, M Ghodsi, P Arab, N Gholzom. The prevalence of hypertensive disorders in pregnancy in Shiraz, Southern Iran.Iranian cardiovascular research journal2010; 4^4:169-172.
11. Sandhyasivakumar, B. VishnuBhat and Bhawana Ashok Badhe. Effect of pregnancy induced hypertension on mothers and their babies. Indian journal of Pediatrics 2007; 74:623-625.
12. Jasovic-Siveska E, Jasovic V, Stoilova S. Previous pregnancy history, parity, maternal age and risk of pregnancy induced hypertension. BratislLekLitsy 2011; 112^4:188-191.
13. Lamminpaa R *et al*. Preeclampsia complicated by advanced maternal age: a registry based study on primiparous women in Finland 1997-2008.BMC Pregnancy childbirth 2012; 12^1:47.
14. Miguil M, Chekairi A. Eclampsia, Study of 342 cases. Hypertension and pregnancy 2008; 27^2:103-111.
15. Dissanayake VH *et al*. Morbidity and Mortality associated with preeclampsia at two tertiary care hospitals in Srilanka. Journal of ObstetricsandGynecology 2007; 33^1:56-62.
16. Sibai BM, Ramadan MK, UshaI, Salamam, Friedman SA. Maternal Morbidity and Mortality in 442 pregnancies with HELLP syndrome. Am J.of Obstetrics andGynecology1993; 169:1000-1006.
17. HumairaZafar, MubasharaNaz, Umber Fatima, FaizaIrshad. Frequency of IUGR in pregnancy Induced Hypertension. JUMDC 2012; 32:8-13.

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