MATERNAL AND FOETAL OUTCOME IN PREGNANCY INDUCED HYPERTENSION: A STUDY FROM RURAL TERTIARY CARE TEACHING HOSPITAL IN INDIA

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ABSTRACT

Background: Preeclampsia and eclampsia have been recognized as clinical entities since the times of Hippocrates. Pregnancy induced hypertension (PIH) is one of the commonest disorders associated with the increased risk of maternal and fetal complications. It is reported in the world literature that the incidence of eclampsia is on the decline, but still a menace in developing countries.
Objectives: To study the maternal and foetal outcome in pregnancy induced hypertension.
Material and Methods: A prospective randomized study was carried out from February 2009 to January 2010 in the Department of Obstetrics and Gynecology of Pravara Rural Hospital, Loni, India. A total of 100 pregnant women with PIH were enrolled in the study. A pre-tested interview tool was used to collect necessary information such as detailed history, clinical examination findings and investigations performed. Results were analysed using SPSS 13.0
Results: In the present study, the overall incidence of PIH was 8.96%, which includes preeclampsia in 7.26% and eclampsia in 1.70%. Preterm labour was the commonest maternal obstetrical complication observed in 18% of mild PIH and 48% of severe PIH cases. Prematurity was the commonest foetal complication seen in 17.99%, 47.62% and 52.63% of mild PIH, severe PIH and Eclampsia cases respectively.
Conclusion: Pregnancy induced hypertension is a common medical disorder seen associated with pregnancy in the rural population, especially among young primigravidas, who remain unregistered during pregnancy. Maternal and fetal morbidity and mortality can be reduced by early recognition and institutional management.

Keywords: Pregnancy induced hypertension; maternal outcome; perinatal outcome

1. INTRODUCTION

Hypertensive disorder is the second most common medical disorder seen during pregnancy. They, along with hemorrhage and infection, contribute greatly to maternal morbidity and mortality.[1] Pregnancy induced hypertension (PIH) is a pregnancy specific, multisystem disorder characterized by development of oedema, hypertension and proteinuria after 20 weeks of gestation.[2] The group of diseases includes preeclampsia and eclampsia,

which are peculiar to pregnancy. Preeclampsia is a common disease and is a significant contributor to maternal and neonatal morbidity and mortality.[3] With efficient antenatal care and early treatment of pregnancy induced hypertensive disorders, the serious form i.e. eclampsia has become almost a clinical rarity in developed countries. However, in developing country like ours and in the rural population, it still continues to be a major obstetric problem[4]. Most deaths in PIH occur due to its complications and not due to hypertension per se. Thus, we can reduce the maternal mortality by prevention and proper management of these complications. Hence, the present study was conducted to find out the incidence, high risk factors, and the maternal and perinatal outcome associated with PIH in the rural population.

2. MATERIALS AND METHODS

A prospective randomized study was carried out for a period one year from February 2009 to January 2010 in the Department of Obstetrics and Gynecology attached to Pravara Rural Hospital - a rural tertiary level health care referral centre in Loni, Maharashtra, India. A consecutive 100 pregnant women including, both booked and unbooked, who presented to Pravara Rural Hospital with pregnancy induced hypertension during the study period, were enrolled for the study.

2.1 Inclusion criteria: 1. Preeclampsia was diagnosed, when there was hypertension (BP ≥ 140/90 mmHg) with proteinuria and 2. Eclampsia was diagnosed, when preeclampsia occurred along with convulsions.

2.2 Exclusion criteria: 1. Gestational Hypertension [Hypertension (BP≥140/90 mmHg) without proteinuria]. 2. Superimposed preeclampsia (on chronic hypertension) [New onset proteinuria in hypertensive women but no proteinuria before 20 weeks gestation]. 3. Chronic hypertension [BP ≥ 140/90 mmHg before pregnancy or diagnosed before 20 weeks not attributable to gestational trophoblastic disease]. 4. Patients who were diagnosed with other causes of convulsions in pregnancy like cerebral malaria and epilepsy were excluded from the study.

On admission, a detailed history was taken; thorough clinical examination and relevant laboratory investigations were performed. Informed consent of each pregnant woman was taken. The ethics committee of the institute approved the study.

2.3 Statistical analysis: Data was entered in MS Excel and analyzed using Statistical Package of Social Sciences (SPSS) 13.0. Statistical significance was set at $P \leq 0.05$.

3. RESULT:

It was observed from **Table 1** that, out of the total 100 women with PIH, majority (47%) of the cases were less than 20 years of age, suggesting that preeclampsia and eclampsia are more common in teenage group.

It was evident from **Table 2** that, preterm labour was the commonest maternal complication affecting 7 out of 39 (17.94%) cases of mild PIH and 20 out of 42 (47.61%) cases of severe PIH. Abruptio placentae were the next common complication affecting 2(5.12%) pregnancies in mild PIH and 8 (19.04%) pregnancies in severe PIH. From cases having severe preeclampsia, three (7.14%) cases had ascites; two (4.76%) cases developed PPH and required blood transfusion. One (2.38%) case had renal failure and required dialysis.

Prematurity was the commonest fetal complication seen. In mild PIH, it was seen in 17.99% cases, in severe PIH it was seen in 47.62% cases, and in eclampsia it was seen in 52.63% of the cases. IUGR was the next common complication seen in 3 (7.69%) cases of mild PIH, 11 (26.19%) cases of severe PIH and 6 (31.58%) cases of eclampsia.

4. DISCUSSION:

In the present study, the overall incidence of PIH was 8.96%, which includes preeclampsia (mild as well as severe PIH) in 7.26% and eclampsia in 1.70%.

Similarly study by Bhattacharya S.[5] had reported the overall incidence of PIH to be 15.5% and Shalini K. *et al* [6] had reported the incidence of preeclampsia and eclampsia to be 7-10% and 0.5 to 1.8% respectively.

In the present study, out of 100 cases of PIH, majority 80% cases were unbooked. Out of these, 74.35% of mild PIH, 80.95% of severe PIH and 89.47% of eclampsia cases and had not received any kind of antenatal care during the entire pregnancy. Studies by Sudarsan S. *et al* [7] and Tukur *et al* [8] had also reported similar findings.

The present study revealed that, PIH was more common among primigravidas and constituted 65% of the total cases. Study by Bhattacharya S.[5] reported that 65.6% cases were primigravidas. Jose Villar *et al* [9] and Duckitt *et al* [10] also reported that primigravida was a risk factor for preeclampsia and eclampsia. In the present study, the incidence of PIH and eclampsia was higher in the age group of 15-20 years followed closely by the age group of 21-25 years. Audrey *et al* [11] concluded that maternal age less than 20 years was the strongest risk factor for both preeclampsia and eclampsia. Jiménez *et al* [12] concluded that eclampsia was more common (54.5%) in less than 19 years of age. Sudarsan S. *et al* [7] concluded that eclampsia involves young primigravidas and 87.6% of eclamptic patients were below 25 years of age in his study. Duckitt *et al* [10] observed teenage pregnancy to be one of the risk factors for PIH and eclampsia.

In the present study, rate of caesarean delivery, vaginal delivery and instrumental delivery were 35%, 59% and 6% respectively. Similar studies by Oladokun A *et al* [13], Miguil M *et al* [15] and Dissanayake VH *et al* [16] revealed caesarean section rates as 60%, 71% and 78% respectively. Al-Mulhim A.A [14] observed that the deliveries were more likely to be induced (22.8%) or be performed by caesarean section (14.9%).

In the present study, preterm labour was the commonest maternal complication affecting 7 out of 39 (17.94%) cases of mild PIH and 20 out of 42 (47.61%) cases of severe PIH. Abruptio placentae were the next common complication affecting 2 (5.12%) pregnancies in mild PIH and 8 (19.04%) pregnancies in severe PIH. In cases having severe preeclampsia, three (7.14%) had ascites; two (4.76%) had PPH and required blood transfusion. One (2.38%) case had renal failure and required dialysis. Similar study by Farid M. *et al* [17] reported that in the entire cohort of women with eclampsia, major maternal complications included abruptio placentae (10 percent), HELLP syndrome (11 percent), disseminated intravascular coagulopathy (6 percent), neurological deficits and aspiration pneumonia (7 percent), pulmonary oedema (5 percent), cardiopulmonary arrest (4 percent), acute renal failure (4 percent) and death (1 percent). Al-Mulhim A.A *et al* [14] stated that placental abruption was the most common maternal complication (12.6%) in women with preeclampsia, followed by oliguria (7.9%), coagulopathy (6.0%), and renal failure (4.1%). In a descriptive study by Igberase GO *et al* [18] most of the deaths (89.5%) were in unbooked women and the most common causes of death were acute renal failure, cardiopulmonary failure, disseminated intravascular coagulopathy and cerebrovascular accident.

In the present study, prematurity was the commonest fetal complication seen. In mild PIH, it was seen in 17.99% cases, in severe PIH it was seen in 47.62% cases, and in eclampsia it was seen in 52.63% of the cases. IUGR was the next common complication seen in 3 (7.69%) cases of mild PIH, 11 (26.19%) cases of severe PIH and 6 (31.58%) cases of eclampsia. In the study by Shaheen *et al* [19], perinatal mortality was 41.6 percent and prematurity was the main risk factor. Kapoor *et al* [20] concluded that, the incidence of premature babies was 23 percent and prematurity was one of the major risk factors for increasing the perinatal mortality.

CONCLUSION:

In the present study, pregnancy induced hypertension was still a very common problem in the rural population. It was common in young primigravidas, who remained unregistered during pregnancy. The adverse maternal and perinatal outcome can be improved by early registration, health education of couple, regular antenatal checkups, early identification of hypertension, and timely referral to tertiary care hospital, timely decision regarding mode of delivery and availability of specialist care during labour and after birth.

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Table 1: Distribution of pregnancy induced hypertension cases according to age group

Age group (yrs)	Total No. of cases	Mild PIH		Severe PIH		Eclampsia	
		No. of cases	%	No. of cases	%	No. of cases	%
15-20	47	19	48.71	18	42.85	10	52.63
21-25	33	12	30.76	15	35.71	06	31.57
26-30	15	05	12.82	08	19.04	02	10.52
31-35	04	02	5.12	01	2.38	01	5.26
>35	01	01	2.56	00	0.00	00	0.00
Total	100	**39**		**42**		**19**	

Table 2: Maternal and perinatal outcome in pregnancy induced hypertension (PIH)

Variables	Mild PIH (n=39)	Severe PIH (n=42)	Eclampsia (n=19)	p-value
1. Booking status				$\chi 2 = 1.97$, d.f.=2, p<0.05
Booked status	10	08	02	
Unbooked status	29	34	17	
2. Parity				$\chi 2 = 0.73$, d.f.=2, p>0.05
Primigravidas	25	29	11	
Multigravidas	14	13	08	
3. Mode of delivery				
Spontaneous vaginal delivery	24	26	09	$\chi 2 = 2.83$, d.f.=4, p>0.05
Forceps/Ventouse delivery	02	02	02	
Caesarean section (LSCS)	13	14	08	
4. Maternal complications				
Preterm labour	07	20	10	
Abruptio placentae	02	08	04	$\chi 2 = 0.73$, d.f.=10, p>0.05
Post partum haemorrhage	00	02	00	
HELLP Syndrome	00	02	00	
Renal failure	00	01	01	
Pleural effusion	00	03	00	
DIC	00	00	01	
5. Foetal complications				
Prematurity	07	20	10	
Birth asphyxia	01	02	05	$\chi 2 = 15.33$, d.f.=8, p<0.05
IUGR	03	11	06	
Intra uterine deaths	03	08	04	
Neonatal death	00	03	02	

HELLP syndrome - Hemolytic, Elevated Liver Enzymes, Low Platelets
DIC - Disseminated Intravascular Coagulation.
IUGR - Intra Uterine Growth Restriction.