FREQUENCY OF ABRUPTIO PLACENTAE AND INTRAUTERINE GROWTH RESTRICTION IN WOMEN WITH PRE-ECLAMPSIA AND PREGNANCY INDUCED HYPERTENSION (PIH)

Shaista Ambreen, Rubina Mushtaq, Khalida Perveen

Combined Military Hospital Rawalpindi, Pakistan

ABSTRACT

Objective: To determine frequency of Abruptio placentae and intrauterine growth restriction in pre-eclampsia and pregnancy induced hypertension (PIH).

Study Design: It was a cross sectional study.

Place and Duration of Study: The study was carried out over a period of 9 months from 19-3-2009 to 18-12-2009 in the Department of Obstetrics and Gynecology Military Hospital Rawalpindi, Pakistan.

Material and Methods: A total of 97 patients of PIH and pre-eclampsia out of 1525 patients with 20 weeks and onward gestation presented in the OPD of military hospital Rawalpindi (gynae/obs department) in 9 months from 19th March to 18th December 2009 who were included in the study. Patients were selected at 20 weeks onwards and outcome was recorded at delivery. Feto-maternal morbidity was seen in PIH and pre-eclampsia. The study outcome was noted as having intrauterine growth restriction (IUGR) or placental abruption.

Results: The majority of patients 73 (75.3%) were between 21-30 years and 23 (23.7%) patients were between 31-40 years whereas 1 (1.03%) patient was below 20 years of age. The mean age of patients was 28.9 ± 4.3 years. Out of total 97 patients, 81 (83.5%) had pregnancy induced hypertension while remaining 16 (16.5%) patients had pre-eclampsia. Out of 81 patients of pregnancy induced hypertension, 12 patients (14.8%) had IUGR and 3 patients (3.7%) had placental abruption. Out of 16 patients of pre-eclampsia, 2 (12.5%) each had IUGR and placental abruption.

Conclusion: In the current study 17.5% patients had IUGR and abruption placentae in women having PIH and pre-ecalmpsia. By controlling blood pressure (BP) patients can be prevented from having IUGR and abruption and its resultant consequences to some extent.

Keywords: Abruptio Placentae, Fetal Growth Restriction, PIH, Pre-Eclampsia.

INTRODUCTION

Hypertensive disorders are one of the common medical complications during pregnancy and are associated with high maternal and fetal morbidity and mortality in both under developed and developed world[1].

Pre-eclampsia and pregnancy induced hypertension (PIH) are responsible for substantial morbidity and mortality, perinatal deaths, preterm births and intrauterine growth restriction (IUGR)[2]. The International Society for the study of hypertension in pregnancy (ISSHP) defines PIH as blood pressure of at least 140/90 mmHg on two occasions >4 hours apart after 20 weeks (wks) gestation in a previously normotensive gravida and pre-eclampsia as onset of hypertension after 20 wks gestation with proteinuria >0.3gm/24 hours urine collections[2].

Correspondence: Dr Shaista Ambreen, Combined Military Hospital Rawalpindi, Pakistan
Email: shaistazubair675@gmail.com
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Pre-eclampsia complicates 5-7% of pregnancies[3]. Fetomaternal morbidity depends on gestational age at the time of disease onset, severity of disease, quality of management, presence or absence of pre-existing medical disorders[4,5]. The consequences of these disorders occur as maternal deaths which is rare, abruptio placentae in (1-4%), IUGR (10-25%), perinatal deaths (1-2%)6. Abruption is responsible for 8.3% maternal deaths and 41.6% stillbirths[7]. The prevalence of abruption in Pakistan is 4.4%[8].

As the risk of IUGR increases with the severity of PIH[9], early diagnosis, close medical supervision, and timely delivery are the cardinal requirements of the management. By controlling BP one can overcome the abruption and its consequences to some extent[9]. Fetal management (depending on gestational age) is done with prophylactic steroids below 34 weeks gestation with monitoring by fetal kick count chart, ultrasound for fetal growth, cardiotocography, twice-weekly Doppler ultrasound and timely delivery[10].

The major maternal hazards are the consequences could be severe hypertension, grand mal seizures and damage to other end organs. However, with modern management, preeclampsia can be ameliorated and eclampsia largely prevented[11].

In recent years there have been few advances but pre-eclampsia and PIH are still causing fetomaternal morbidity and mortality in our health set-ups. It was perceived that this study would help in early detection and timely referral of these women for proper management, provision of skilled and timely antenatal and intrapartum health care and management of complications so that resultant morbidity and mortality may be averted.

MATERIAL AND METHODS

This was a cross sectional study, conducted in the Department of Obstetrics and Gynaecology Military Hospital, Rawalpindi. A total of 97 women with PIH and preeclampsia from 20 wks onwards gestation were enrolled in a period of 9 months from 19-03-2009 to 18-12-2009. All participants belonged to same socioeconomic status and age. After explaining the objectives of study, written informed consent was taken from each woman. All patients with pre-eclampsia and PIH between 18 and 40 years of age, presenting with signs of abruption placentae were included in the study.

Patients having history of polyhydramnios, external cephalic version, cigarette smokers, alcohol, blunt trauma, large sized fibroid, preterm premature rupture of membranes, anemia, molar pregnancy, long standing heart disease, placenta previa, vasa previa, malnourished mothers were all excluded.

The study outcome was measured in terms of frequency of IUGR and abruptio placentae. IUGR was taken on the basis of symphisiofundal height less than 3cm than expected for gestational age. Selection bias and confounding parameters were addressed by making sure that data collection all study procedures were carried out by the study investigator herself so that data quality and continuity are maintained. careful history, clinical examination and relevant laboratory investigations [hemoglobin (HB%), platelets, prothrombin time (PT) & obstetrical ultrasound] were done.

Table: Distribution of cases by age (n=97).

Age (years)	No of patients	%age
< 20	01	1.0%
21-30	73	75.3%
31-40	23	23.7%
Mean ± SD	28.9 ± 4.3	

For data analysis SPSS software was used. Descriptive statistics was applied to calculate mean and standard deviation from continuous variables like age. Patients were selected

Frequency and percentages were calculated from categorical variables i.e. proteinuria, obstetrical ultrasound, IUGR and placental abruption.

RESULTS

The mean age of patients was 28.9 ± 4.3 years. Most of the study patients 73 (75.3%) were between 21-30 years and 23 (23.7%) patients were between 31-40 years of age whereas 1(1.03%) patient was below 20 years of age. (table-1).

Out of 97 patients, 81 (83.5%) had pregnancy induced hypertension while remaining 16 (16.5%) patients had pre-eclampsia (fig-1).

Of the patients with pregnancy induced hypertension, 12 (14.8%) had IUGR while 3 (3.7%) had placental abruption. Similarly, out of patients with preeclampsia, 2 (12.5%)patients each had IUGR and placental abruption (fig-2).

DISCUSSION

Global mortality for mothers during child birth is about 500,000 with majority occurring in developing world. In Pakistan with a total population of more than one hundred and eighty million, only 43% women have access to antenatal facilities and a meager 23% deliveries are being carried out by skilled personnel (doctors, nurses and midwifes). Pregnancy induced hypertension and preeclampsia is a serious pregnancy-specific complication that results in high maternal and perinatal morbidity and mortality, preterm births and IUGR worldwide[12].

Early identification of high-risk pregnant women and subsequent monitoring, are surely pivotal steps in prevention. With its life-threatening implications for both mothers and babies, pre-eclampsia continues to be one of the medical community's greatest challenges due to its complex presentation[13].

Our study showed that a significant number of pre-eclamptic pregnancies also occur for the first time in parous women. A similar report by Rasmussen and Irgens[14] witnessed that women with small for gestational age (SGA) births in the first pregnancy have an increased risk of preeclampsia in the next[15].

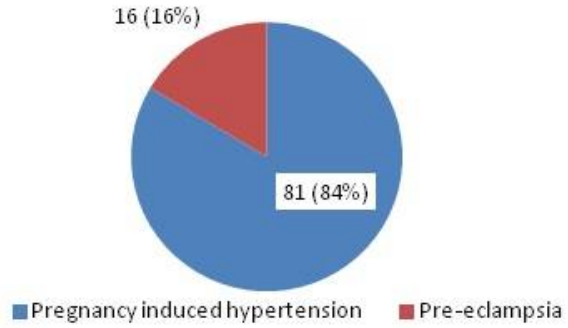

Figure-1: Distribution of cases by PIH and pre-eclampsia (n=97).

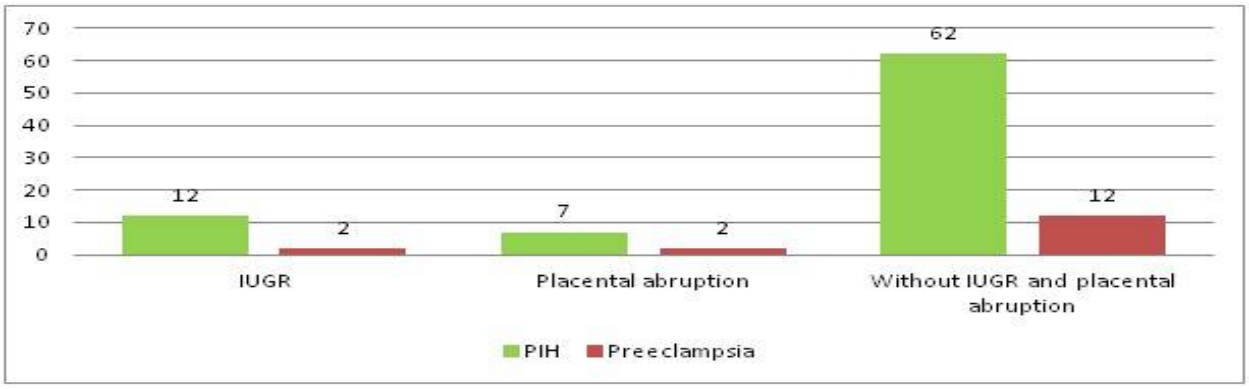

Figure-2: Frequency of IUGR and placental abruption in PIH and preeclampsia.

In the current study we found out that abruptio placentae was present in 8.6% women with PIH. In a comparable study by Tasleem et al a significant clinical correlation was found between PIH and abruptio placentaein 8% cases who did not received treatment[16,11]. Another local study at the Department of Obstetrics and Gynecology (unit-II) of Liaquat University Hospital, Hyderabad showed that there is a significant clinical correlation between PIH and abruptio placentae[17]. Our study findings are consistent with these studies.

Preeclampsia and gestational hypertension shared many risk factors, although there are differences that need further evaluation. Both conditions significantly increased morbidity and mortality. In the current study, IUGR in pregnancy induced hypertension (PIH) and pre-eclampsia was present in 14.8% and 12.5%, respectively. Conversely, preeclampsia and intrauterine growth restriction, often assumed to be related to placental insufficiency[18]. Moreover, there is independent associations placental abruption with severe fetal growth restriction, prolonged rupture of membranes, chorioamnionitis, PIH/ preeclampsia, and advanced maternal age[19]. Preeclampsia, gestational hypertension, and unexplained intrauterine growth restriction may have similar determinants and consequences.

Overall we noted that 17.5% study cases had IUGR and abruption placentae in pregnancies with PIH and preeclampsia. WHO estimates that, worldwide, over 100,000 women die from preeclampsia each year, and the condition continues to be responsible for maternal deaths (in developed countries)[20], perinatal mortality and morbidity, including IUGR and prematurity[21].

Many other investigators have also witnessed similar consequences of PIH and preeclampsia as shown by our findings. Seed PT et al showed multiple clinical risk factors increase the risk of preeclampsia and SGA[22]. Study by Morgan-Ortiz et al[23] showed significant association between low socioeconomic level and past history of preeclampsia. Study by Tuuli and Odibo[24] showed that preeclampsia and IUGR are major contributors to perinatal mortality and morbidity.

Accurate prediction is important for identifying those women who require more intensive monitoring, permitting earlier recognition and intervention, and allowing targeting of potential preventive measures to those at risk.

Many studies have proven the relation of early screening perinatal outcome, however, there is a further need of large prospective studies to not only evaluate the choice of parameters and strategies of combination to achieve the best predictive models[24] but also to rationalize the management options. In this way the rates of maternal mortality and pregnancy related complications in fetus can be averted. Identifying patients at risk for preeclampsia would allow an increase in perinatal surveillance and possibly decrease the inherent maternal and fetal morbidity and mortality associated with severe preeclampsia and eclampsia.

CONCLUSION

Based on our study findings it can be concluded that PIH and pre-eclampsia remains a common complication of pregnancy that leads to unacceptable increases in fetomaternal morbidity and mortality.We found a significant proportion of pregnancy outcome as IUGR and abruption placentae in women having PIH and preeclampsia.

Patients with suspicion of pregnancy induced hypertension and pre-eclampsia should be monitored closely so that fetomaternal outcome may be improved and risk of IUGR and Abruptio placentae is avoided.There is a need to

find out preventive measures, proper antenatal care and BP control can overcome PIH and pre-ecalmpsia and can improve fetomaternal outcome by reducing IUGR and abruption. We suggest that further large scale studies for validation of early screening of PIH and preeclampsia are required, moreover, interventional studies are needed to assess modalities that may prevent women from developing these conditions.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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