ORIGINAL ARTICLE

Frequency and Obstetric Outcome of Hypertensive Disorders of Pregnancy

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ABSTRACT

Objectives: To find out the frequency, maternal demographic characteristics and obstetric outcome of hypertensive disorders of pregnancy in a tertiary care hospital.
Study design: Descriptive study
Place and duration: This study was carried out at Gynae Unit I at Sir Ganga Ram Hospital, Lahore, during a period of one year.
Subjects and methods: All pregnant women admitted with hypertensive disorders during a period of one year were recruited in the study. A specific proforma was designed to record the demographic data.
Result: During the study period, 3.2% pregnant women were admitted with hypertensive disorders. Majority of these were between 21-35 years of age, para 1-3 and belonged to low socioeconomic class. Seventy percent presented with gestational hypertension, 21% with preeclampsia and 9% with chronic hypertension. About 82% of the cases had moderate to sever hypertension while 3.7% had eclampsia. 59% women delivered vaginally while 41% had caesarean section. Women with preeclampsia/eclampsia had higher risk of maternal morbidity and mortality and had adverse perinatal consequences as compared to the women with gestational hypertension in this study.
Conclusion: This study revealed hypertensive disorders of pregnancy as a major challenge for obstetricians contributing to adverse maternal and perinatal outcome. There is an urgent need to create awareness about early antenatal booking and provision of emergency obstetric care services at door step to improve obstetric outcome.
Key words: Gestational hypertension, Preeclampsia, Eclampsia, Chronic hypertension, Perinatal death.

INTRODUCTION

Hypertensive disorders of pregnancy are a major health burden in the obstetric population as it is one of the leading causes of maternal and perinatal morbidity and mortality[1]. It ranges from preeclampsia/eclampsia (PE/E), gestational hypertension, chronic hypertension (CH) and chronic hypertension superimposed preeclampsia.Each category has a different pathophysiology and feto-maternal consequences. The overall worldwide incidence is between 12-22%[1, 2].

Preeclampsia which unpredictably can progress to eclampsia is a life threatening complication of pregnancy. The incidence of PE is about 5-8% of all pregnancies[2]. PE/E contributes to maternal death after every three minutes, around the world[3]. Chronic hypertension complicates about 5% of all pregnancies and is becoming more common due to delayed child bearing[4]. A role in averting devastating effects of hypertensive disorders in developed world. However, in developing countries like Pakistan, social and financial constraints are major hindrance for the referral of pregnant women in antenatal clinics without any chance of early identification of the problem.

The aim of this study was to find out the frequency of hypertensive disorders of pregnancy, maternal demographic characteristics and obstetric outcome in a tertiary care hospital so that the strategies could be drawn up to avoid the adverse outcome in context of our circumstances.

METHOD

This descriptive study was carried out at Obstetrics and Gynecology Unit I of Sir Ganga Ram Hospital, Lahore, Pakistan from 1.7.2003 to 30.6.2004. Sir Ganga Ram Hospital is a tertiary care hospital affiliated with Fatima Jinnah Medical College Lahore, Pakistan. During one-year study period pregnant women with hypertensive disorders who were admitted either through emergency or out-patient department were included in the study.

Preeclampsia was defined according to the International Society for Study of Hypertension in Pregnancy[5]. This requires two recordings of diastolic blood pressure of 90 mm Hg or higher at least 4 hours apart or one recording of diastolic blood

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pressure of 120 mm Hg in a previously normotensive woman, and urine protein excretion of at least 300 mg in 24 hours or two readings of 2+ or higher on dipstick analysis of midstream or catheter urine specimens, if no 24 hours collections were available. Eclampsia was defined as the presence of seizures in women with Preeclampsia where the seizures could not be attributed to other causes. Gestational hypertension was diagnosed if two recordings of diastolic blood pressure of 90 mm Hg or higher at least 4 hours apart or one recording of diastolic blood pressure of 120 mm Hg in a previously normotensive woman, first appeared after 20 weeks of pregnancy without proteinuria. Chronic hypertension was diagnosed if the women had hypertension in pre-pregnancy period or before 20 weeks of pregnancy. Hypertension was classified as mild if diastolic BP recording was 90 mm of Hg, moderate if $\geq$91 but $\leq$ 110 mm of Hg and as sever if > 110 mm Hg.

RESULTS

During the study period, 4189 pregnant women were admitted in the obstetrical ward. About 3.2% of women (n=133) were diagnosed to have hypertensive disorders. Fifteen women left against medical advice and 11 were discharged on request and never came back, so obstetric outcome of only 107 cases was included in the present study.

In the group of pregnant women with hypertensive disorders, 74 women (69.16%) were diagnosed to have gestational hypertension, out of which four had twin gestation, 23 (21.49%) had preeclampsia and 10 (9.35%) had chronic hypertension. Majority of the cases were in the age range of 21-35 years, had a parity of 1-3 and were of low socioeconomic class. About 83% women with preeclampsia had not a single antenatal check up. (Table I)

Table I: Demographic and clinical data of subjects in study group

Pathological findings	Pre-eclampsia (n=23)	Gestational Hypertension (n=74)	Chronic Hypertension (n=10)	Total (n=107)
Hypertension				
Mild	1(4.34%)	18(24.32%)		19(17.75%)
Moderate	8(34.78%)	47(63.51%)	8(80%)	63(58.87%)
Severe	14 (60.86%)	9(12.16%)	2 (20%)	25(23.36%)
Proteinuria	23(100%)		2(20%)	25(23.36%)
↑ Fibrinogen degradation products	12(52.17%)	6 (8.1%)	1(10%)	19(17.75%)
↑ Prothrombin time/Partial thromboplastin time	10(43.4%)	18(24.32%)	1(10%)	29(27.10%)
Deranged Liver function test	2 (8.69%)		1(10%)	3(2.80%)
Deranged Renal function test	7(30.43%)	4(5.4%)	1(10%)	12(11.21%)
Abnormal Glucose tolerance test		1(1.35%)		1(0.93%)

Table II: Pathological findings in study group

Pathological findings	Pre-eclampsia (n=23)	Gestational Hypertension (n=74)	Chronic Hypertension (n=10)	Total (n=107)
Hypertension				
Mild	1(4.34%)	18(24.32%)		19(17.75%)
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Abnormal Glucose tolerance test		1(1.35%)		1(0.93%)

Past history of hypertensive disorders was present in 17 women (15.9%), out of which 4 women (23.5%) had past history of eclampsia. 29 women (27.1%) had family history of hypertension also. In the sub-group of Preeclampsia cases, 14 women (60.9%) had sever degree of hypertension, out of whom 6 (42.85%) had eclampsia. About 4% of the women had placental abruption in PE/E and gestational hypertension sub-groups. Renal or liver functions were impaired in about 40% of women with PE (Table II). Abnormal coagulation profile was mainly present in the women with preeclampsia. Termination of pregnancy was carried out by induction of labour in 29 women (27%). About 59% women had vaginal delivery; while 11 women (10.47%) had elective and 32 (30%) had emergency caesarean section (Table

III). Two women with eclampsia died just after admission before delivery. There were 28 (25.22%) perinatal deaths during the study period, majority of which were still births (Table III). Highest perinatal mortality (39%) was seen in the preeclampsia/eclampsia sub-group.

Table III: Obstetric outcome of study group

Pathological findings	**Pre-eclampsia (n=23)**	**Gestational Hypertension (n=74)**	**Chronic Hypertension (n=10)**	**Total (n=107)**
Mode of Delivery				
Normal vaginal	13(61.90%)	41(55.40%)	6 (60%)	60(57.14%)
Instrumental delivery	1(4.76%)		1(10%)	2(1.90%)
Caesarean section				
Emergency	7(33.33%)	24(32.43%)	1(10%)	32(30.47%)
Elective		9(12.16%)	2 (20%)	11(10.47%)
Died Undelivered	2(8.69%)			2 (1.86%)
Perinatal Consequences	**N =23**	**N=78 (4 twins)**	**N=10**	**Total =111**
Intrauterine death (undelivered maternal death)	2(8.69%)			2 (1.80%)
Still Births	4(17.39%)	12(15.38%)	3(30%)	20(17.11%)
Early Neonatal Death	3 (13.04%)	4(5.12%)		5(6.30%)
Premature	12(52.17%)	28(35.89%)	4 (40%)	44(41.12%)
Growth retarded	2 (8.69%)	5(6.41%)	1(10%)	8 (7.47%)
pgar score	**N=17**	**N=66**	**N=7**	**N=90**
At 1 min <5	3 (17.64%)	4(6.06%)	0	7(7.77%)
>5	14(82.35%)	62(93.93%)	7 (70%)	83(92.22%)
At 5 min <5	3(17.64%)	3(4.54%)	0	6(6.66%)
>5	14(82.35%)	63(95.45%)	7(70%)	84 93.33%
Prolonged admission in Nursery	4(23.52%)	9 (13.63%)	3(30%)	16(17.77%)

DISCUSSION

The present study presented the data about the prevalence, maternal demographic characteristics and obstetrical out come of the pregnant women with hypertensive disorders during one year period in a tertiary care hospital of Lahore, Pakistan. The frequency of hypertensive disorders in our hospital is about 3.2% which is similar to the reported incidence of 3.3% in a neighboring country, Iran[6]. The other reported incidence was 4.6% in Africa[7], 5.3% in Ethiopia[8] & Nigeria[9], 5.9% in USA[10] and 7.5 % in Brazil[11]. This variation may be due to racial, social, and environmental differences among these populations.

The frequency of gestational hypertension in this study (69%) was much higher than preeclampsia (21%). Poonyth[12] et al also reported higher incidence of gestational hypertension (70%) in their study as compared to PE (24%) while Familonia et al[9] published an incidence of 54% for PE/E and 26% for gestational hypertension in their study population.

Among the study subjects about 28% were primigravida in contrast to an Indian study[13]which revealed 57% primigravida. In the subgroup of PE in present report, about 22% women were primigravida. However, in the literature, nulliparity is a significant risk factor for preeclampsia/eclampsia [2, 11, 14.] Al-Mulhim et al [14] reported preeclampsia in a high percentage (40%) of women at extreme of reproductive age while in an other study 27% was teenagers[7] in contrast to the present series in which only 8% were >20 years and <36 years of age.

Preeclampsia /eclampsia were common among unbooked emergencies and low social class [15, 16] similar to our observation. Recurrence of hypertensive disorders of pregnancy is a common occurance[17] and was reported to be 16% in our patients. Preeclampsia is a heterogeneous disorder of unknown etiology but with an evidence of a significant genetic component[18,19]. In the present study because of illiteracy and poor health concepts of women exact type/cause of hypertension in the family members was difficult to assess but about 9% of study population in PE group had some type of hypertensive disorders in the family members.

Operative delivery is reported to be increased in hypertensive disorders of pregnancy[20] and the reported caesarean rate is about 44%[8] to 59%[2]. In our study, 41% women were delivered by caesarean section.

There were two maternal deaths (1.8%) due to eclampsia in our study. Both women died undelivered just after admission, because they were brought to hospital in such a critical condition that there was no chance of survival. Death before delivery is quoted in a study in Nigeria [21] as well. In an other centre in Pakistan, the reported maternal death due to eclampsia was 16% [22] but in this study subjects

recruited were only of eclampsia and not of hypertensive disorders of pregnancy in general.

The adverse perinatal outcome due to hypertensive disorders of pregnancy as evident from this report is similar to many other studies[2,8,21,22,23]. Fetomaternal morbidity and mortality associated with hypertensive disorders is alarming especially in developing countries. Reason being inadequate antenatal surveillance and management of these cases in less favorable context. Stress should be given on health education of community, status of women and issues regarding reproductive health. Facilities of antenatal surveillance should be provided at doorstep. High-risk obstetric population should be screened earlier in pregnancy. There should be system of early referral and better transport facilities for referral of these cases. Regular fetomaternal monitoring of high-risk case should be under care of specialist doctors and deliveries of such cases should be conducted in well-equipped hospital to minimize adverse maternal and perinatal outcome.

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