ORIGINAL ARTICLE

Recurrence of Pregnancy Induced Hypertension in Second Pregnancy

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ABSTRACT

Aim: To estimate the frequency of recurrence of pregnancy induced hypertension in 2nd pregnancy.
Study design: Descriptive case series
Place and duration of study: The Department of Obstetrics & Gynecology, Unit- II, Sir Ganga Ram Hospital, Lahore. six month duration from Aug 01, 2009 to Feb 01, 2010.
Methods: Eighty patients were selected in accordance with inclusion criteria. A detailed history and examination was done. At each antenatal visit, blood pressure was checked. The urine was examined for proteinuria. An obstetrical ultrasonography was performed to confirm single viable pregnancy. The patients were followed from 20 weeks of gestation, fortnightly upto 34 weeks
Results: Out of 80 patients having PIH in previous pregnancy, only 20 patients (25%) had recurrence of gestational hypertension, 7 patients (8.75%) had pre-eclampsia in current pregnancy while 53 patients (68.9%) had normotensive current pregnancy. None of these patients were observed to have eclampsia in second pregnancy. Thus overall risk of recurrence of PIH in second pregnancy, irrespective of the type of disorder was 25% and that of pre-eclampsia was 8.75% while to know the risks of recurrence of eclampsia, large population based study is required.
Keywords: Hypertension, pregnancy, eclampsia

INTRODUCTION

Pregnancy induced hypertension (PIH) affects 10% of all pregnancies[1]. PIH, with pre-eclampsia and ecclampsia is accompanied by an increase in fetal and maternal morbidity and mortality[2]. PIH is classified as gestational hypertension, pre-eclampsia and ecclampsia. Gestational hypertension is defined as diastolic blood pressure greater than 90mmHg on at least two occasions, six hours apart developing after 20 weeks of gestation, during labour or the puerperium in a previously normotensive woman[3]. Hypertension with proteinuria defines preeclampsia, and is a serious threat on fetal and even maternal prognosis[4]. Pre-eclampsia associated with new onset grandma seizures is termed as ecclampsia[5].

Pathophysiology of disorder is based on a very early abnormality of placentation, leading to insufficient blood supply to the foeto-placental unit. At the maternal level, the main consequence of placental ischemia is diffuse endothelial dysfunction, responsible for systemic vasoconstriction and clotting abnormalities[4]. Women with a previous pregnancy complicated by PIH have an increased risk for recurrence in second pregnancy. Recurrence of hypertensive disorders in pregnancy occurred in 58% to 94% of second pregnancies, depending on first pregnancy disorder[6]. Several risk factors have been associated with recurrence of hypertensive disorder in pregnancy. Among these are positive family history[7] and chronic hypertension[8]. Early onset hypertension has been associated with a higher recurrence rate of hypertension in subsequent pregnancy. For pre-eclampsia the risk of recurrence in subsequent pregnancies is 10-25% if the disease was diagnosed in third trimester and as high as 60-70% if disease was diagnosed in second trimester[9].

Overweight and weight gain between pregnancies are associated with recurrent hypertensive disorders in pregnancy[6]. A history of low birth weight adjusted for gestational age is associated with subsequent occurrence as well as recurrence of pre-eclampsia[10].

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METHODOLOGY

Eighty subjects fulfilling the inclusion criteria were selected from antenatal clinic of obstetrics and gynecology department, unit II, Sir Ganga Ram Hospital Lahore. Patients were informed about objectives of the study. Informed consent was taken for using their data in research. A detailed history and examination was done. At each antenatal visit, blood pressure was checked. The urine was examined for proteinuria. An obstetrical ultrasonography was performed to confirm single viable pregnancy. The patients will be followed from 20 weeks of gestation, fortnightly upto 34 weeks and then weekly till delivery for presence of PIH. The confounders like chronic hypertension and diabetes mellitus will be excluded by history and investigations.

RESULTS

All the information collected will be summarized on the designed proforma containing demography of the patient. Data will be stratified on the basis of type of hypertensive disorder in previous and present pregnancy. Data will be entered and analysed by SPSS version 10. Frequency and percentage were calculated for type of gestational hypertension in present pregnancy. MeanSD for age were calculated.

The study was carried out in 80 women (2nd Gravida), with history of pregnancy induced hypertension in previous pregnancy. Age of the patients taken for study ranged from 20–35 years. Mean age of the patients was 27.5±2.5 years. Majority of the patients 40(50%) were found to be between 26–30 years of age. And 24 patients (30%) were between 21–25 years (Table 1).

Type of pregnancy induced hypertension in previous pregnancy was noted. Majority of the patients, 61(76%) had gestational hypertension which is non-proteinuric hypertension in previous pregnancy. While 16(20%) pts had pre-eclampsia which is proteinuric hypertension and 3 patients (4%) had eclampsia in their last pregnancy (Table 2).

Gestational age at which the hypertensive disorder occurred in previous pregnancy was also noted. Majority of the patients 53(66.25%) were diagnosed to have PIH in their previous pregnancy at gestational age more than 32 weeks (>32 weeks) While 27 patients (33.75%) had PIH in previous pregnancy diagnosed before 32 week of gestations i.e., 20– 32 weeks of gestation (Table 3).

Recurrence of hypertensive disorders (PIH) in current pregnancy was noted regarding all three groups-gestational hypertension, Pre-eclampsia and Eclampsia. Out of 61 patients having gestational hypertension in previous pregnancy, 42 patients (68.9%) had normotensive current pregnancy, 15 patients (24.5%) had recurrent gestational hypertension and only 4 patients (6.6%) had pre-eclampsia in current pregnancy. None of these patients was noted to have eclampsia in second pregnancy (Table 4).

Out of 16 patients diagnosed as having pre-eclampsia in previous pregnancy, 11 patients (68.75%) had normotensive second pregnancy, while 3 patients (15%) developed gestational hypertension in second pregnancy, and only 2 patients (12.5%) had pre-eclampsia in second pregnancy. No pt was noted to have eclampsia in 2nd pregnancy (Table 5).

Three patients having eclampsia in previous pregnancy were also observed for recurrence of PIH in second pregnancy. Among these 3, 2(66.7%) had gestational hypertension in second pregnancy, while 1 patient (33.3%) developed pre-eclampsia in second pregnancy. Again none of these patients developed eclampsia in second pregnancy (Table 6).

Table 7 gives the summarize view of the type of hypertensive disorder in previous pregnancy, recurrence rate along with the type of disorder in second pregnancy. The overall risk of recurrence of gestational hypertension in second pregnancy was 25% (Table 8). Out of 61 patients having gestational hypertension in previous pregnancy, only 15 had recurrent gestational hypertension. Out of 16 patients having pre-eclampsia in last pregnancy, only 3 patients had gestational hypertension and out of 4 patients having eclampsia in previous pregnancy, 2 pts had gestational hypertension in 2nd pregnancy.

Thus, out of 80 patients having PIH in previous pregnancy 20 patients (25%) had gestational hypertension in second pregnancy, irrespective of the type of disorder in previous pregnancy.

Table 9 gives the overall view of risk of recurrence of pre-eclampsia in second pregnancy and that is found to be 8.75%. so, out of 61 patients having gestational hypertension in last pregnancy only 4 had pre-eclampsia in second pregnancy, only 2 patients out of 16 having pre-eclampsia in previous pregnancy and only one patient out of 3 patients having eclampsia in last pregnancy were complicated by Pre-eclampsia in second pregnancy. Hence, out of 80 patients having PIH in previous pregnancy, only 7 patients (8.75%) had recurrence of pre-eclampsia in second pregnancy, irrespective of the type of disorder in previous pregnancy. Eclampsia was not observed in any patient in our study.

Table 1: Age-wise distribution of patients (n=80)

Age (in years)	n	%age
20 — 25	24	30
26 — 30	40	50
31 — 35	16	20

Mean age ± SD= 27.5±2.5 years

Table 2: Type of pregnancy induced hypertension in previous pregnancy (n=80)

Type of Disorder	n	%age
Pregnancy induced hypertension	61	76
Pre-eclampsia	16	20
Eclampsia	3	4

Table 3: Gestational age at the time of diagnosis in previous pregnancy (n=80)

Gestational age (weeks)	n	%age
20—32 (Early onset)	27	33.75
>32 (Late onset)	53	66.25

Table 4: Recurrence of hypertensive disorder in second pregnancy after gestational hypertension (n=61)

Type of Disorder	n	%age
Normal	42	68.9
Gestational hypertension	15	24.5
Pre-eclampsia	4	6.6
Eclampsia	0	0

Table 5: Recurrence of hypertensive disorder in second pregnancy after pre-eclampsia (n=16)

Type of Disorder	n	%age
Normal	11	68.75
Pregnancy induced hypertension	3	18.75
Pre-eclampsia	2	12.5
Eclampsia	0	0

Table 6: Recurrence of hypertensive disorder in second pregnancy after eclampsia (n=3)

Type of Disorder	n	%age
Normal	0	0
Pregnancy induced hypertension	2	66.7
Pre-eclampsia	1	33.3
Eclampsia	0	0

Table 8: Overall risk of recurrence of gestational hypertension (G.H) in second pregnancy (n=80)

Previous Pregnancy		Subsequent Pregnancy	
Type of hyper-tensive disorder of pregnancy	n	Type of hyper-tensive disorder of pregnancy	n
Pregnancy induced hypertension	61	Gestational hypertension	15
Pre-eclampsia	16	Gestational hypertension	3
Eclampsia	3	G.H	2

Table 9: Overall risk of recurrence of proteinuric PIH (Pre-eclampsia) in second pregnancy (n=80)

Previous Pregnancy		Subsequent Pregnancy	
Type of hypertensive disorder of pregnancy	n	Type of Hypertensive disorder of Pregnancy	n
Gestational hypertension	61	Pre-eclampsia	4
Pre-eclampsia	16	Pre-eclampsia	2
Eclampsia	3	Pre-eclampsia	1

DISCUSSION

Hypertensive disorders of pregnancy continue to affect ~8% of all pregnancies, the incidence of preeclampsia has seen a 40% increase in recent years[11]. PIH, with pre-eclampsia and ecclampsia is accompanied by an increase in foetal and maternal morbidity and mortality[2].

Pregnancy induced hypertension (PIH) carries a significant rate of recurrence and affects12–15% of subsequent pregnancies[12].

This was hospital based study that was conducted in pregnant women with history of pregnancy induced hypertension in previous pregnancy. The aim of this study was to estimate the frequency of recurrence of PIH in second pregnancy so that, women having such high risk pregnancy can be counselled about the importance of frequent antenatal visits. Prophylactic measures can be taken to reduce the maternal and fetal morbidity and mortality associated with this serious obstetrical problem.

According to our study, most of the patients (68.9%) with gestational hypertension in their previous pregnancy had normotensive second pregnancy. While 25% had gestational hypertension and 8.75% had pre-eclampsia.

Among women with pre-eclampsia in last pregnancy, 68.75% had normotensive second pregnancy while 18.75% had gestational hypertension and 12.5% had pre-eclampsia. While among the 3 women having eclampsia in their last pregnancy, 66.6% patients developed gestational hypertension and 33.3% had pre-eclampsia in their second pregnancy. Hence, the overall recurrence risk of gestational hypertention. Preeclampsia in 2nd pregnancy was noted to be 25%, 8.75%, respectively.

These results were comparable to the results of study conducted by Brown MA and colleagues[13], who found that approximately 70% of the women had normotensive next pregnancy following a pregnancy affected by PIH. While recurrence rate of gestational hypertension is 26% and that of pre-eclampsia is 6% when previous pregnancy was complicated by gestational hypertension i.e., non proteinuric PIH but if previous pregnancy was complicated by pre-eclampsia i.e., proteinuric PIH, then the risk of recurrence of gestational hypertension and pre-eclampsia is same i.e. 14% each.

The results of are also comparable to Norwegian study in which the rate of recurrence of pre-eclampsia in subsequent pregnancy was found to be around 14%[14]. These results are also in accordance with the study conducted by Campbell et al[15] who observed rate of recurrence of PIH in second pregnancy .He reported that approximately 62% of the women with pre-eclampsia in their first pregnancy had normotensive second pregnancy, while 29% had gestational hypertension (non proteinuric hypertension) in their second pregnancy and 7.5% had recurrent pre-eclampsia. Women with gestational hypertension in their first pregnancy had a 69% chance of normotensive second pregnancy, while 29% had recurrent gestational hypertension, and 2% had recurrent pre-eclampsia. Thus, past obstetrical history is a very strong risk factor for recurrence of PIH in future pregnancy.

Interestingly, a few studies had reported a very high recurrence rate of PIH in second pregnancy. A study conducted by Hjartardottir S et al[6] reported that the recurrence of hypertensive disorder in second pregnancy occurred in 58%-94%. This gross difference from our study might be due to the population difference and also due gestational age of patients. Another systemic review of controlled

studies by Duckitt K and colleagues[16] have reported that the relative risk of recurrence of PIH in women with previous history of the disorder compared to women with no such history was 7.19 (95%)[24].

In our study, majority of the patients 66.25% had late onset PIH i.e., hypertension developed after 32 weeks of gestation. That's why the rate of recurrence of PIH in our study was comparatively smaller as compared to the study of Hjartardottir S et al[6] who reported much higher rate of recurrence than our study i.e., 73% for gestational hypertension and 58% for pre-eclampsia .The apparent reason for this gross difference in the recurrence rate of PIH in the two studies seem to be the gestational age at the time of onset of hypertension in previous pregnancy.

Women with early severe disease are at greater risk of recurrence (25–65%)[8] as compared to women who had mild disease during first pregnancy. Dildy and colleagues[17] suggested that recurrence rate following sever pre-eclampsia in initial pregnancy approaches around 50% in subsequent pregnancy.

Zhang J and colleague[18] also reported that the risk of recurrence of pre-eclampsia in subsequent pregnancy bears a significant association with gestational age at which PIH developed in first pregnancy i.e., 10–25% if the disease occurred in third trimester and as high as 60–70% if the disease occurred in second trimester.

Another study in this regard is of Mustello et al[19]. He observed that risk of recurrence of pre-eclampsia in the second pregnancy bears an inverse relation to the gestational age at the time of on Though our study was not selected according to gestational age at onset of PIH, but gestational age had a significant association with subsequent recurrence of PIH.

Surprisingly, we did not find a single case of recurrence of eclampsia in our study. The most logical justification in this regard is the fact that the widely reported incidence of ecclampsia is 1:2000[20].

CONCLUSION

- Women who had PIH in their first pregnancy, had higher risk of recurrence of PIH in second pregnancy, but not necessarily the same type.
- Risk of recurrence of PIH is greater if hypertensive disorder occurred at earlier gestation in first pregnancy.
- PIH recurs in almost 1/3rd of pregnant women.
- How high are the chances of getting the same problem in next pregnancy? Is a frequently asked question of women having PIH. This can be answered on the basis of this study.
- Women having such high risk pregnancy should be counseled about the importance of frequent antenatal visits.

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