ORIGINAL RESEARCH

A comparative study of maternal and perinatal outcome in primary and recurrent pregnancy induced hypertension

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ABSTRACT
Preeclampsia is a major cause of maternal and perinatal mortality and morbidity worldwide causing 15% of all direct maternal deaths in UK. There is 5 fold increases in the perinatal mortality in pre eclampsia with iatrogenic prematurity being the main culprit. Various risk factors for the development of gestational hypertension and preeclampsia are present, like prematurity, multiple pregnancy, extremes of maternal age, obesity, h/o hypertension or eclampsia, medical disorders (renal, neurofibromatosis etc.). A detailed history, clinical evaluation and investigations were done for all cases. All patients were followed up until they were discharged from the hospital after delivery. The definition of hypertensive disorders complicating pregnancy as defined by "working group report (2000) on high blood pressure in pregnancy" was taken for the diagnosis. The maximum number of days NICU stay was 23 days in the recurrent group for preterm care. Average number of days of NICU stay in primigravida and recurrent group was 6.07 and 7.9 days respectively. The maximum number of days of hospital stay in the primigravida and recurrent group was 20 and 23 days respectively.
Key words: Maternal outcome, perinatal outcome, pregnancy induced hypertension

INTRODUCTION

Preeclampsia is a multisystem disorder of vascular function specific to pregnancy which is typically characterised by hypertension, proteinuria, oedema and fetal compromise.[1]

Hypertensive disorders complicating pregnancy remain among the most significant unsolved problems in obstetrics. They are associated with an increased incidence of maternal and fetal complications.

Counselling of the patient who develops gestational hypertension in her first pregnancy is a difficult task for the Obstetrician. Woman with a history of gestational hypertension are at an increased risk for the development of recurrent diseases. They are at an increased risk for adverse perinatal outcome.[2]

In this study data pertaining to perinatal outcome for the woman who experience hypertensive disease in pregnancy for the second time has been compared to woman with hypertensive disease in their first pregnancy.

Preeclampsia is a major cause of maternal and perinatal mortality and morbidity worldwide causing 15% of all direct maternal deaths in UK. There is 5 fold increase in the perinatal mortality in pre eclampsia with iatrogenic prematurity being the main culprit.[3]

Various risk factors for the development of gestational hypertension and preeclampsia are present, like prematurity, multiple pregnancy, extremes of maternal age, obesity, h/o hypertension or eclampsia, medical disorders (renal, neurofibromatosis etc).

Prevention of pre eclampsia would be a great step towards prenatal care. Although many screening methods are available, none are sensitive or specific enough to be used routinely in low risk women.[4]

Use of preeclampsia community guidance (PRECOG) to screen for and to detect the onset of pre eclampsia, improvement of ANC along with active management of disease on its development will improve both maternal and perinatal outcome, as pre eclampsia matters.

METHODOLOGY

40 cases of primi gravida **(Group A)** with hypertensive disease in pregnancyadmitted to the above hospital in the study period were included40

cases of second gravida **(Group B)** with hypertensive disease in the present and previous pregnancy admitted to the above hospital in the study period were included.

A detailed history, clinical evaluation and investigations were done for all cases. All patients were followed up until they were discharged from the hospital after delivery. The definition of hypertensive disorders complicating pregnancy as defined by **"working group report (2000) on high blood pressure in pregnancy"** was taken for the diagnosis.

Blood pressure was recorded for all patients in the sitting position in the right arm with Sphygmomanometer. Proteinuria was checked and graded using 20% Sulpho Salicylic acid. Other investigations done included haemoglobin, blood grouping and Rh typing, complete count, differential WBC count, platelet count, peripheral smear examination, blood urea, serum uric acid, serum creatinine estimation and liver function tests. Urine microscopy was done in all cases. VDRL, HBsAg and HIV counselling was done in all the cases. Ophthalmic examination was done to evaluate fundal changes.

Diagnosis of hypertension in the previous pregnancy was based on either review of medical records if available or reliable history elicited from the patient.

Women with concurrent medical problems such as chronic hypertension, renal diseases, diabetes and connective tissue disorders were excluded from the study.

RESULTS

Table 1: Pregnancy Outcome in Both Groups

Outcome	Primigravida		Recurrent	
	Number	Percentage	Number	Percentage
Live Births	39	97.5%	35	87.5%
IUD	00	00%	05	12.5%
Still Births	01	2.5%	00	00%
Total	**40**	**100%**	**40**	**100%**

Table 2: Causes of IUD/Stillbirth

Causes	Primigravida	Recurrent
Abruption	00	03
IUGR with severeOligohydromnios	01 (Stillbirth)	02

Incidence of fetal demise was higher in recurrent group. Abruptio placenta was the most common cause of IUD in recurrent group, next being IUGR with severe Oligihydromnios.

Table 3: Abrutio Placeta Incidence

	Primigravida		Recurrent	
	Number	Percentage	Number	Percentage
Total	04	10%	07	17.5%
Live births	04		04	
IUD	00		03	

Incidence of abruptio placenta was higher in recurrent group which was the most common cause of IUD also.

Table 4: Presence of Proteinuria

Urine Albumin	Primigravida		Recurrent	
	Number	Percentage	Number	Percentage
Nil	10	25%	09	22.5%
Traces	11	27.5%	07	17.5%
1 +	05	12.5%	08	20%
2 +	10	25%	09	22.5%
3 +	04	10%	07	17.5%
4 +	00	00%	00	00%
Total	**40**	**100%**	**40**	**100%**

Table 5: Markers of Severity and Complications

Clinical Indicator& Complications	Primigravida		Recurrent	
	Number	Percentage	Number	Percentage
1. Diastolic BP ≥ 110 mm Hg	06	15%	11	27.5%
2. Proteinuria	30	75%	31	77.5%
3. Visual disturbances	03	7.5%	04	10%
4. S. creatinine > 1.2 mg/L	01	2.5%	02	5%
5. Convulsions (Ecclampsia)	02	05%	03	7.5%
6.Fetal growth restrictions	09	22.5%	10	25%
7.Pulmonary edema	00	00%	01	2.5%
8.HELLP syndrome	00	00%	01	2.5%
9. Maternal death	00	00%	02	5%
10.Renal failure	00	00%	02	5%

Table 6: Duration of Hospital Stay in Postnatal Period

Number of Days	Primigravida		Recurrent	
	Number	Percentage	Number	Percentage
≤ 5	03	7.5%	01	2.5%
6-10	20	50%	20	50%
11-15	12	30%	10	25%
≥ 16	05	12.5%	09	22.5%

The maximum number of days of hospital stay in the primigravida and recurrent group was 20 and 23 days respectively.

Table 7: Birth Weight Distributions

Birth Weight in Kgs	Primigravida		Recurrent	
	Number	Percentage	Number	Percentage
≤ 1.5	02	05%	06	15%
1.6 - 2.0	05	12.5%	05	12.5%
2.1 - 2.5	11	27.5%	07	17.5%
2.6 - 3.0	20	50%	20	50%
3.1 - 3.5	02	05%	02	05%
≥ 3.6	00	00%	00	00%
Total	**40**	**100%**	**40**	**100%**

Birth weight of less than 1.5 kg was seen in 15% of deliveries in the recurrent group compared to 5% in primigravida group. This was found to be statistically significant with the P value of less than 0.0001. The maximum birth weight in the primigravida group was 3.4 kg.

Table 8: Details of NICU Admissions

No. of days in NICU	Primigravida	Recurrent
1 - 3 days	07	06
4 - 6 days	12	02
7 -9 days	05	04
≥ 10 days	03	10
Total	**27**	**22**

The maximum number of days NICU stay was 23 days in the recurrent group for preterm care. Average number of days of NICU stay in primigravida and recurrent group was 6.07 and 7.9 days respectively.

Table 9: Causes for NICU Care

Causes	Primigravida	Recurrence
Preterm care	06	12
Sepsis	02	03
LBW	05	06
Respiratory distress	03	04
Total	**16**	**25**

Prematurity was the main reason necessitating NICU care in both the groups, next being LBW (Low Birth Weight).

DISCUSSION

Comparison of pregnancy outcome in the 2 groups, showed a 12.5% of intrauterine demise in the recurrent group as against 0% in the primigravida group. Calculation of P value showed that the incidence of fetal demise was significantly higher in women with recurrent disease when compared to primigravida. P value = 0.0011 of statistical significance. The relative risk did not correlate well with the study done by Hnat *et al*. in 2002.

The reason for this difference is attributable to the disparity in the sample size in the two studies. 1 case of still birth was seen in primigravida group.

Incidence of abruptio placentae in the primigravida group and recurrent group was 10% and 17.5% respectively. Relative risk for abruptio placenta did not correlate well with a previous study.[5] The reason for this difference is attributable to the disparity in the samples size in the two studies.

Both studies however showed an increased risk of abruption in the recurrent group and this was found to be statistically significant.

Thus, it can be inferred that the rates of abruption placenta and fetal demise were significantly higher with the recurrent disease. Similar observations were seen in a study done by Sibai *et al*. 1986.

Evaluation of the causes of intrauterine demise revealed that abruption,low birth weight and associated prematurity were significant reasons. Preterm labour was more common in women with recurrent disease.

When proteinuria was determined using sulfosaliylic acid cold test for proteins,25% of cases in primigravida group and 22.5% in the recurrent group did not show the presence of albuminuria.10% of cases in primigravida group and 17.5% of cases in recurrent group had a urine albumin of 3+.

Patients were discharged when the blood pressure was found to be 130/90mm of Hg or lesser. Anti-hypertensives were tapered and stopped in the postpartum period.

There were 2 cases of eclampsia in the recurrent group and 1 case of eclampsia in the primigravida group. 6 cases were started on magnesium sulphate regimen.

When birth weight analysis was done, 25% of births in the group with recurrent disease are equal to or lesser than 1.5 kg. This birth weight was seen in only 10% in primigravida group.

57.5% of births in the recurrent group weighed equal to or below 2.5 kg as against 32.5% of births in primigravida group. This was found to be statistically significant with a P value = 0.0021. Majority of births in the primigravida weighed between 2.6 kg to 3kg.

These results were similar to those observed by Hnat *et al*. in 2002 and also Sibai *et al*. in 1986.[6]

There was a significant increase in the low APGAR scores and neonatal intensive care unit admissions among the recurrent group. Most of these were due to increased incidence of low birth weight babies in this group. IUGR babies who were more common in recurrent group withstood the stress of labour poorly necessitating more neonatal resuscitation. Preterm care was the main indication for neonatal intensive care in recurrent group. These findings confirm the higher incidence of adverse perinatal outcome in women with recurrent disease. These results correlated well with previous studies by Hnat *et al*. in 2002 and Sibai *et al*. in 1986.[5]

CONCLUSION

- Incidence of intrauterine fetal demise and abruption was significantly higher in women with recurrent disease.
- There were 2 cases of ecclampsia in recurrent group and 1 case in primigravida group.
- There were 2 cases of maternal deaths in the recurrent group.

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