Research Article

J. Jayasutha et al. /BioMedRx 2013,1(1),86-89

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Assessment of impact of pregnancy-induce hypertension and patient counseling on pregnancy outcome

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Received on:17-09-2012; Revised on: 19-10-2012; Accepted on:10-12-2012

ABSTRACT

A perspective study was conducted in order to assess the impact of pregnancy-induced hypertension (PIH) on pregnancy outcome as well as to assess and improve the knowledge towards PIH among pregnant women by effective patient counseling. Fifty pregnant women were taken up for the study of which 32 women had PIH (classified as Group 1) and the remaining 18 had preeclampsia (classified as Group 2). A suitably designed questionnaire consisting of ten questions were given at baseline to assess patients' knowledge. Then the patients received counseling and patient information leaflets (PILs). Final follow up was made by administering the questionnaire to patients to assess the improvement in their knowledge. Also the cases were followed up till delivery of the child in order to assess pregnancy outcome. At the final follow up, a considerable improvement in patient's knowledge was observed in both the groups. In Group 1, 6.25 % of patients experienced preterm labour and in Group 2, 61.1 % of patients experienced preterm labour. Perinatal deaths were seen in 3.1 % of Group 1 and 38.8% were seen with Group 2 patients. And intrauterine growth retardation was observed in 3.1 % of patients in Group 1, and 44.5% of Group 2 patients. With both the groups, counseling made the patients understand better about the disease and therapy and thus enhanced compliance.

Keywords: Pregnancy-induced hypertension; Preeclampsia; Pregnancy outcome; Patient counseling.

INTRODUCTION

Hypertensive disorders are a major cause of perinatal and maternal morbidity and mortality worldwide because of complications such as preeclampsia, eclampsia, fetal growth retardation, premature birth or abruptio placentae[1, 2]. Pregnancy-induced hypertension (PIH) occurs after 20 weeks of gestation in women having blood pressure =140/90 mm Hg without proteinuria. However it resolves to baseline by 12 weeks postpartum. Preeclampsia, the non convulsive form of PIH with proteinuria[3], occurs in about 5 to 8 percent of all pregnancies[4, 5]. It occurs most often in young women with first pregnancy. It is more common in twin pregnancies, in women with chronic hypertension, preexisting diabetes, and in women who had PIH in a previous pregnancy[6]. Counseling about the warning symptoms is also important because it may facilitate women to consult the obstetrician in time to receive better treatment and prevent worsening of the disease. These outcomes can be achieved by prevention and diagnosis of disease, elimination or reduction of symptoms, arresting or slowing the disease progress and influencing the cure of the disease.

Patient counseling is an important means of achieving pharmaceutical care. Patient counseling should include an assessment of whether or not the information was received as intended and whether the patient understood how to use the information to improve the probability of positive therapeutic outcomes. Patient counseling should optimize patient's quality of life[8]. This study was conducted to assess the impact of PIH on pregnancy outcome as well as to assess and improve the knowledge towards PIH among pregnant women by effective patient counseling.

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METHODOLOGY

Permission and approval for the study was obtained from clinical ethics committee and scientific boards of the participating super specialty hospital situated at Trichy (Tamilnadu).

Sample size: The study was carried out in fifty pregnant women having PIH. Informed consent was obtained from all participating women, after they were given oral and written explanation about the study protocol in local vernacular. The women who consented to participate in the study on their admission to hospital or as outpatients were selected following the inclusion criteria as defined.

Inclusion and exclusion Criteria:

For inclusion in the study, the following criteria were required to be met: 1) Pregnant women with hypertension diagnosed after 20 weeks of gestation having blood pressure = 140/90 mm Hg; 2) Bad obstetric history due to pregnancy-induced hypertension. Criteria for exclusion were: 1) Cases where medical termination of pregnancy had been planned before 20 weeks of gestation; 2) Normal pregnant women; 3) Pre existing hypertension/ renal disease/ immunological disorder.

Methods adopted:

A total of 50 cases were assigned for the study based on the inclusion-exclusion criteria. Of these, 32 patients with PIH (Group 1) were put on methyldopa at 250-500mg two-four times daily (maximum daily dose 2g/day) and 18 patients with preeclampsia (Group 2) were put on methyldopa (as above) with nifedipine 20 mg two-three times daily (maximum daily dose 60 mg/day). Women with severe preeclampsia were admitted for inpatient monitoring in the 'high risk obstetric ward'. Women with mild PIH were not necessarily admitted in the hospital and were treated as outpatients and periodically reviewed. Complete demographic details such as age, chronicity of disease, family history of PIH, past obstetric history of PIH, and gravida were obtained in a suitably designed patient profile form for all the fifty patients. Maternal monitoring for inpatients included two hourly blood pressure measurements (Mercury sphygmomanometer) and Doppler ultrasonography twice a week in order to evaluate the fetal growth. Analysis of urine albumin was done in both the groups. Outpatient monitoring was performed at 'obstetric special care clinic' once fortnightly/monthly as the case may be. Here also similar approach to monitor blood pressure was performed and ultrasonography was performed once in a month/two months. All patients were followed until delivery to assess the pregnancy outcome.

Suitably designed questionnaire containing ten questions were administered by the Clinical Pharmacist to patients in both the study groups at baseline. The questionnaire was administered to the women personally through face to face contact. This is to assess knowledge of patients regarding their disease, medication and diet. Prepared Patient information leaflets (PILs) were also used. This was first designed in English and was translated into the local vernacular (Tamil). The leaflets contained information about PIH, its risk factors, symptoms, complications and dietary & life style modifications. After obtaining the baseline answer, patient counseling and patient information leaflet were provided to make the patients more aware about their disease, medication used and diet. On an average 30-45 minutes were spent with each patient depending on the education level and understanding capability of the patients. Final follow up were made to assess the improvement in patient knowledge.

Statistical method:

The collected data was subjected to analysis by using Student "t" test. $P<0.05$ was considered as statistically significant. Student't' test had been used to find the significance of total answers between before and after counseling intervention.

RESULTS

In Group 1, patients under treatment with methyldopa alone, 27% of patients had experienced preeclampsia or PIH in their previous pregnancy history and in Group 2, patients under the treatment of methyldopa with nifedipine, 20% had preeclampsia or PIH in their previous pregnancy.

In Group 1, 6 out of 32 (6/32) patients had family history of preeclampsia or PIH and in Group2, 6 out of 18 (6/18) patients had family history of preeclampsia or PIH. In Group 1, Only 19 patients (60%) were literate and in Group 2, 8 out of 18 patients (45%) were literate and remaining 55% were illiterate. Table 1 shows other demographic details such as age distribution, chronicity of the conditions, and the gravida status of women in percentage of the patient population in both the groups.

Table 1: Demographic details of women in Group 1 and Group 2

Characteristics	Group 1 (n=32)	Group 2 (n=18)
Age (year)		
18	3%	10%
21	30%	50%
26	47%	30%
31	20%	10%
Chronicity of disease		
20-25 Weeks	23%	10%
26-30 Weeks	23%	30%
31-35 Weeks	37%	25%
36-40 Weeks	17%	35%
Primigravidas	60%	75%
Multigravidas	40%	25%

The baseline mean blood pressure of Group 1 was 149.2 / 97.3 mm Hg and that of Group 2 was 172.3 / 119.3 mm Hg. At the final follow up, significant reduction in mean systolic and diastolic blood pressure was observed (P=0.0001). For Group 1 patients, at the final follow up, the mean blood pressure was reduced to 122.2 / 83.1 mm Hg and for Group 2 patients, the mean blood pressure was reduced to 125.4 / 84.5 mm Hg. No urinary albumin was observed in Group 1 patients. And the baseline mean urine albumin for Group 2 patients was 920 mg/dl and at final follow up it was observed having reduced to 113 mg/dl (P=0.0001) perhaps because of the considerable decrease in mean blood pressure.

All the patients in both groups were cooperative with the counselor and attended both sessions of intervention willingly without much necessity of convincing. Table 2 and 3 present's knowledge of pregnant women about PIH, medication usage, storage & importance of regime compliance and about diet before and after patient education and also indicates the improvement in percentage of patient knowledge after education.

Table 2: Knowledge Assessment in Group 1

S. No.	Knowledge About	Group 1 (n=32) Before Counseling Number	%	After Counseling Number	%
1.	What's PIH?	16	50%	32	100%
2.	Occurrence of PIH	7	22%	30	94%
3.	Symptoms of PIH	10	31%	29	91%
4.	Drugs used in PIH	24	75%	32	100%
5.	Drug regime	20	62%	30	94%
6.	Regularity in treatment	24	75%	32	100%
7.	Side effects realization	12	38%	28	88%
8.	Shelf life of the drugs used and their storage	27	84%	32	100%
9.	Food rich in iron, protein	21	67%	30	94%
10.	Food to be avoided	11	34%	28	88%
Total correct answers (Mean ±SD)		17.2±6.94		30.3±1.64	

*P-value *< 0.0001, extremely statistically significant (Pearson correlation and Independent samples t tests)*

Table 3: Knowledge Assessment in Group 2

S. No.	Knowledge About	Group 2 (n=18)			
		Before Counseling		After Counseling	
		Number	%	Number	%
1.	What's PIH?	8	45%	18	100%
2.	Occurrence of PIH	5	28%	15	83%
3.	Symptoms of PIH	4	22%	16	88%
4.	Drugs used in PIH	15	83%	18	100%
5.	Drug regime	11	60%	17	94%
6.	Regularity in treatment	15	82%	18	100%
7.	Side effects realization	7	39%	17	94%
8.	Shelf life of the drugs used and their storage	15	83%	18	100%
9.	Food rich in iron, protein	13	72%	16	88%
10.	Food to be avoided	4	22%	16	88%
Total correct answers (Mean ±SD)		**9.7±4.64**		**17±1.05**	

*P-value *<0.0002, extremely statistically significant*
(Pearson correlation and Independent samples t tests)

Table No. 4 shows pregnancy outcome for patients in Group 1 and Group 2. 60% of cesarean type of delivery was performed in Group 1 and in Group 2 patients, 70% of cesarean type of delivery was carried out.

Table 4: Pregnancy Outcomes

Outcome	Group 1 (n=32)	Group 2 (n=18)
Perinatal Death	01 (3.1%)	07 (38.88%)
Preterm labour	02 (6.25%)	11 (61.1%)
Intrauterine growth retardation	01 (3.1%)	08 (44.5%)
Maternal death	0%	0%

DISCUSSION

Pregnant women in primi gravida and women who had PIH in their previous pregnancy are more likely to develop PIH during their later pregnancies. Positive family history was found to be a significant risk factor and teenage of the mother was also found to be risk factor of PIH. Kirsten Duckitt et al[6] reported that risk of pre-eclampsia is increased in women with a previous history of pre-eclampsia, pre-existing diabetes, family history of PIH or preeclampsia. Goonewardene et al[7] reported that younger teenage mothers had a significantly higher risk of gestational hypertension and pre-eclampsia. Patient's knowledge about the disease, medication use, storage of medication, symptoms of PIH, side effects of medication as well as about the unsafe food during pregnancy was found improved after patient education (counseling). Frequent visit to the antenatal clinic, regular monitoring of blood pressure and following the doctor's advice properly were observed after patient counseling. It shows the importance of patient counseling to achieve better therapeutic outcomes. In this study it was observed that the active involvement of pharmacist in health care team can improve patient compliance and thereby the outcome of treatment given. Patients in both the groups showed improvement of their knowledge significantly after a single education meeting with pharmacist. Clinical pharmacist can play a major role in improving patient knowledge and adherence by providing patient education and patient information leaflets.

This is in tune with Cuspidi et al[9] who reported that single education meeting can improve patient knowledge about hypertension. They found that after the educational meeting the percentage & correct answers increased significantly. Oyira Emilia James et al[8] found positive correlation between adequate knowledge and attitude as the complications of hypertension during pregnancy could be prevented. From our study, it was seen that pregnancies complicated by preeclampsia are at increased risk of developing perinatal mortality, intrauterine growth retardation and preterm labour and it was less common in patient with PIH alone. Perinatal mortality rate was extremely poor in the group with proteinuric preeclampsia as was reported by Ferrazzani et al[10]. Lakshmi Seshadri et al[11] showed that proteinuria can be considered as an important marker of perinatal outcome. Perinatal mortality, preterm delivery and small-for-gestational-age were seen significantly more often in preeclampsia and also they found that nonproteinuric hypertension can be managed in the outpatient clinic unless the diastolic blood pressure rises to 100 mm Hg or more or proteinuria sets in. Lao TT et al[12] suggested that proteinuria in pre-eclampsia is associated with more severe fetal involvement and growth retardation. Our observations are in correlation with those reported by Friedman and Neff[13] who found an increase in the perinatal mortality and poorer fetal outcome in women with proteinuric hypertension as compared to normotensive women. Significant reduction in blood pressure was achieved in both the groups which results in reduced risk of maternal morbidity and mortality. Willy Visser et al[14] reported that expectant management with plasma volume expansion and pharmacologic vasodilatation under central hemodynamic monitoring of the maternal circulation may delay delivery and enhance fetal maturity and does not appear to be associated with an increased risk of maternal morbidity and mortality. Hall et al[15] found that management of PIH and preeclampsia in a tertiary centre diminished and limited the impact of serious maternal outcome.

CONCLUSION

Hence we conclude that intrauterine growth retardation, preterm labour, perinatal deaths are more common in women with preeclampsia than in women with PIH alone. Patient counseling makes the patient to understand better about their disease, diet modification and pharmacotherapy and thereby enhances compliance and adherence to therapy with an optimal outcome of therapy.

ACKNOWLEDGEMENT

I express my deepest gratitude to Dr. S. Chandra Kumar, M.D., Chairman and Dr. A. Meenakshi Sundari, M.D., DGO (Obstetrician and Gynecologist), Kaveri Medical Center Hospital and KMC Speciality Hospital, Tiruchirappalli, India for granting permission to carry out this study at their hospital which is a National Board approved one.

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Source of support: Nil, Conflict of interest: None Declared