Assessment of Lipoproteins in Pregnancy Induced Hypertension

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ABSTRACT :

Gestational hypertension, also referred to as pregnancy induced hypertension (PIH) is a condition characterized by high blood pressure during pregnancy. Gestational hypertension can lead to a serious condition called preeclampsia, also referred to as toxemia. Hypertension during pregnancy affects about 6-8% of pregnant women.

The present study was conducted in the Hospital in the North India. A total 80 women's were included in the study. 40 normal condition and 40 pregnant womens having hypertension were included in to the study.

The blood samples were collected and the estimation of blood urea, serum creatinine, Cholesterol, triglyceride, HDL, LDL, & VLDL is done.

The present study showed the changes in the lipid parameters in the pregnancy induced hypertension womens and normal pregnant womens. The levels of the Proteinuria, Blood urea, Serum creatinine were estimated as the function of the kidney function test. The lipid parameters were also estimated and showed marked changes in the two study groups. Hence the monitoring of the lipid parameters in PIH womens is important to avoid any complications.

Keywords: pregnancy induced hypertension, PIH, lipid, lipoproteins.

INTRODUCTION:

Gestational hypertension, also referred to as pregnancy induced hypertension (PIH) is a condition characterized by high blood pressure during pregnancy. Gestational hypertension can lead to a serious condition called preeclampsia, also referred to as toxemia. Hypertension during pregnancy affects about 6-8% of pregnant women.

Gestational hypertension or pregnancy-induced hypertension (PIH) is the development of new hypertension in a pregnant woman after 20 weeks gestation without the presence of protein in the urine or other signs of preeclampsia.[1] Hypertension is defined as having a blood pressure greater than 140/90 mm Hg.[1]

There exist several hypertensive states of pregnancy:

Gestational hypertension: Gestational hypertension is usually defined as having a blood pressure higher than 140/90 measured on two separate occasions, more than 6 hours apart, without the presence of protein in the urine and diagnosed after 20 weeks of gestation.[2]

Preeclampsia: Pre-eclampsia is gestational hypertension plus proteinuria (>300 mg of protein in a 24-hour urine sample). Severe preeclampsia involves a blood pressure greater than 160/110, with additional medical signs and symptoms. HELLP syndrome is a type of preeclampsia. It is a combination of three medical conditions: hemolytic anemia, elevated liver enzymes and low platelet count.

Eclampsia: This is when tonic-clonic seizures appear in a pregnant woman with high blood pressure and proteinuria.

Pre-eclampsia and eclampsia are sometimes treated as components of a common syndrome.[3]

Maternal causes

1. **Obesity**
- Age 35 years or more.
- Past history of D.M,Hypertension and Renal diseases.
- Adolescent pregnancy.
- New paternity.
- Thrombophilias (anti-phospholoipid syndrome, protein C/S deficiency, factor V Leiden)
- Having donated a kidney.[4]

2. **Pregnancy**
- Multiple gestation (twins or triplets, etc.)
- Placental abnormalities:
  1. Hyperplacentosis: Excessive exposure to chorionic villi.
  2. Placental ischemia.

3. **Family history**
- Family history of pre-eclampsia.

There is no specific treatment, but is monitored closely to rapidly identify pre-eclampsia and its life-threatening complications (HELLP syndrome and eclampsia).

Drug treatment options are limited, as many antihypertensives may negatively affect the fetus. Methyldopa, hydralazine, and labetalol are most commonly used for severe pregnancy hypertension.

The fetus is at increased risk for a variety of life-threatening conditions, including pulmonary hypoplasia (immature lungs). If the dangerous complications appear after the fetus has reached a point of viability, even though still immature, then an early delivery may be warranted to save the lives of both mother and baby. An appropriate plan for

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labor and delivery includes selection of a hospital with provisions for advanced life support of newborn babies.

Methodology:

The present study was conducted in the Hospital in the North India. A total 80 women's were included in the study. 40 normal condition and 40 pregnant womens having hypertension were included in to the study. These are divided in to two groups.

Group I: 40 normal condition pregnant womens

Group II: 40 womens having pregnancy induced hypertension (PIH)

The diagnosis of PIH was based on the definition of American College of Obstetrics & Gynecologist, systolic blood pressure greater than 140 mm of Hg or a rise of atleast 30 mm of Hg or diastolic blood pressure greater than 90 mm of Hg or a rise of atleast 15 mm of Hg (manifested on two occasion atleast 6 hrs apart) & proteinuria of 300 mg or greater in a 24 hrs urine collection or protein concentration of 1 gm/lt (on two occasion at least 6 hrs apart).

The blood samples were collected and the estimation of blood urea, serum creatinine, Cholesterol, triglyceride, HDL, LDL, & VLDL is done.

The ethical committee approves the study protocol. All the patients in the study were informed about the aim and the objectives of the study.

The patients having other cardiovascular problems & diabetes were not included in to the study.

Results & Discussion:

The age of the patients included in the study was 20-30 years. The following table indicates the data collected from 2 groups of the patients.

The present work has collected the data between the 2 study groups.

The increase in the triglycerides is observed in the present study. The Sattar et al concluded that the raised plasma TG may be a potential contribution to endothelial dysfunction which is related to hyperlipidemia [6].

The pregnancy induced hypertension is responsible for affecting the normal function of various organs. These are intern results in the disturbed functionality of the organs responsible for the lipid & lipoprotein metabolism.

The Uslu et al proposed that vascular lesions of PIH & arterial lesions of atherosclerosis share a common patho-physiological pathway which involves lipid metabolism [7].

Table 1 : Blood Pressure in 2 study group

Study Parameters	**Group I: Normal pregnant womens**	**Group II : PIH Womens**
Blood Pressure:		
Systolic	115.5 ± 6.3	118.3 ± 7.8
Diastolic	72.4 ± 6.2	97.8 ± 3.5

Table 2 : Proteinurea, Blood urea, Serum creatinine in 2 study group

Study Parameters	**Protein Urea**	**Blood urea mg/dL**	**Serum creatinine (mg/dL)**
Group I: Normal pregnant womens	None	17.5± 1.5	0.75 ± 0.13
Group II : PIH Womens	In 35 cases	18.3 ± 1.8	1.1 ± 0.18

Table 3 : Lipid parameters in 2 study group

Study Parameters	**Total Cholesterol (mg/dl)**	**High Density Lipids (mg/dl)**	**Low Density Lipids (mg/dl)**	**Very Low Density Lipid (mg/dl)**	**Triglycerides (mg/dl)**
Group I: Normal pregnant womens	191.4 ± 20.5	43.5 ± 5.8	119.6 ± 35.6	34.8 ± 6.2	186.8 ± 15.6
Group II : PIH Womens	201.6 ± 25.9	35.9 ± 6.8	110.5 ± 38.7	42.5 ± 8.9	210.9 ± 30.5

Conclusion:

The present study showed the changes in the lipid parameters in the pregnancy induced hypertension womens and normal pregnant womens. The levels of the Proteinuria, Blood urea, Serum creatinine were estimated as the function of the kidney function test. The lipid parameters were also estimated and showed marked changes in the two study groups. Hence the monitoring of the lipid parameters in PIH womens is important to avoid any complications.

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