Serum Insulin And Lipid Profile In Normal And Preeclamptic Pregnant Women

Thesis

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By

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Introduction:

Preeclampsia, a multisystem disorder unique to human pregnancy, remains a leading cause of maternal and fetal morbidity and mortality, particularly in developing countries. Prevalence for the condition has been variously cited as occurring in a range of 2% to 10% of pregnancies. Most recently, the incidence rate is 1.3% to 6.7% in developing countries and 0.4% to 2.8% in industrialized countries. **(*Villar et al., 2004*)**

Many researchers consider preeclampsia an end-stage disease. Recent data also suggest that it is not one disease but a heterogeneous syndrome. The condition is marked by the sudden onset of maternal hypertension, proteinuria, edema, excessive weight gain, and increased vascular resistance. The fetus is also affected, with risk of growth restriction, intrauterine

death, and premature delivery. An abnormal interaction of maternal and fetal tissue occurs at the uteroplacental interface. Although the detailed etiology of the condition is still unknown, it has become apparent that the cytotrophoblast differentiation pathway that leads to uterine invasion is defective. **(*Fisher et al., 2004*)**

In the last few years, much of the researchers published have highlighted the many factors that have been found to be associated with preeclampsia. Increased insulin resistance and pregnancy dyslipidemia were important subjects for these researchers. **(*Enquobahrie et al.,2004 and Thadhani R et al.,2004*).**

Early dyslipidemia that occurs in women who go on to develop preeclampsia may also serve as a diagnostic marker. In some studies, at 13 weeks` gestation, women who later developed preeclampsia had significantly higher levels of LDL cholesterol, triglycerides, and LDL/HDL ratios and significantly lower HDL levels than control women. In these studies, there was a linear increase in preeclampsia risk with increasing levels of LDL cholesterol, triglyceride concentrations, and LDL/HDL ratio. **(Raijmakers MT et al., 2004).**

Hyperinsulinemia and dyslipidemia are known to be associated with essential hypertension but their role in pregnancy-induced hypertension remains unclear.

Higher fasting cholesterol and insulin levels in mid- to late pregnancy are associated with increased risk for PIH. These

observations support a role for insulin resistance in the the development of this compication of pregnancy. **(Solomon et al., 1999)**

Similarities in certain biochemical variables between preeclampsia and the insulin resistance syndrome imply a possible link between insulin resistance and preeclampsia. Preeclampsia is a state of increased insulin resistance, and it persists for at least three months after pregnancy. This may be a pathogenetic factor in preeclampsia and may contribute to the excess cardiovascular morbidity among women with prior preeclampsia. **(Kaaja et al., 1999)**

Aim of the work:

The aim of the study is to measure the serum insulin, cholesterol, triglycerides, low density lipoprotein and high density lipoprotein in cases of preeclampsia compared with normal pregnant women

Patients and methods:

This study will be carried out on 90 women recruited from antenatal outpatient clinic and Obstetric Department of Ain

Shams University maternity Hospital. They will be divided into two groups:

- Group 1 (Study group) : 45 preeclamptic women.
- Group 2 (Control group) : 45 women with normal pregnancy.

*Inclusion criteria:

A) Normal Control group:

Composed of 45 pregnant women(age from 18 – 35 years) in the third trimester selected according to the following criteria:

1. No present, past, family or obstetric history suggestive of hypertension or diabetes mellitus.
2. All cases are normotensive with B.P<140/90mmHg on two separate occasions 6 hours apart with no albuminuria.
3. No history of other medical complications during pregnancy.
4. Normal fasting blood glucose levels.

B) Preeclamptic group:

Composed of 45 preeclamptic patients(age from 18 – 35 years) in their third trimester selected according to the following criteria:

1. No present, past, family or obstetric history suggestive of chronic hypertension or diabetes mellitus.
2. All cases are diagnosed to have preeclampsia with blood pressure more than or equal to 140/90mmHg on two separate occasions and positive albuminuria with or without edema.

3. The degree of preeclampsia varies from mild (BP≥140/90 mmHg and albumin +1 dipstick) to severe degree (BP>160/100 mmHg and albumin ≥ +2 dipstick).
4. No history of other medical complications during pregnancy.
5. Normal fasting blood glucose levels.

*Exclusion criteria include:

1. Women with past history of any medical disorders such as hypertension, diabetes mellitus or renal diseases.
2. Women with other complications of pregnancy.
3. Women who received any antihypertensive medication.
4. Women with multiple pregnancy.

*The two groups will be subjected to the following:

1. History: Detailed history from each patient with special reference to present, past, family and obstetric histories.
2. Examination:

-Body built and weight.
-Calculation of body mass index.
-Chest and heart examination.
-Checking for edema of both lower limbs.
-Abdominal examination.

3. Investigations:

-Blood urea and s.creatinine
-Urine analysis to detect albumin by dipsticks.

-Venous blood glucose: fasting (for at least 8 hours).
-Serum insulin level: fasting (for at least 8 hours).
-Serum triglycerides, cholesterol, high-density lipoprotein and low density lipoprotein (fasting for 12 hours).

*Specimen collection and preparation for analysis:

-Blood samples will be collected by venipuncture into plian tubes (without anticoagulant) avoiding hemolysis, after over night fasting.
-Blood samples will be centrifuged after complete clotting at 4000 rpm for 10 min.
-The separated serum will be stored frozen at-20oc.

*Laboratory investigations:

-Serum insulin: All samples will be assayed by immulite insulin. Principle of test: is a two-site chemiluminescent enzyme Immunometric assay for use with the IMMULITE Automated Analyzer (Immulite DPC cirrus).Results are expressed in (mic IU/mL).
-Blood glucose, blood urea, serum creatinine, serum cholesterol, serum triglyceride, serum high density lipoprotein and serum low density lipoprotein will be automated. RXL Analyzer from DADE Behring.

*Data Management:

Data will be collected ,revised then edited on the personal computer.

Data will then be analyezed statistically using SPSS statistical package version 13.

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