SUMMARY

Type of the study:

Prospective clinical study

Site and time:

the Obstetrics clinic in Benha Teaching Hospital between the period from June 2009 to January2010).

Aim of the study:

To determine the value of a single measurement of maternal serum B-hCG at 16 to 20 weeks and its role in anticipation and prediction of pregnancy induced hypertension and pre-eclampsia.

Materials:

The study included 300 healthy Egyptian primigravidae with a normal pregnancy between 16-20 weeks gestation.

Methods:

Full history: Family,medical,menstrual and personal.

Full clinical examination: General,abdominal and pelvic,careful measurement of blood pressure.

Testing for Proteinuria: in a midstream,clean-catch urine sample by the dipstick test.

Transabdominal ultrasound: for confirmation of the duration of gestation (singleton and viable fetus, with normal amniotic volume).

Inclusion criteria:1) The lady sure of the date of the last normal menstrual period.

2) No history of smoking, hypertension, diabetes mellitus.

3) Healthy by clinical examination.

4) Careful measurement of Blood pressure not > 140/90 mmHg.

5) No Proteinurea.

6) Normal transabdominal ultrasound.

Follow up

Primigravidae were scheduled for routine antenatal care visits till delivery.

Twenty one primigravida (7%) developed mild pre-eclampsia later in pregnancy. No one developed pregnancy-induced hypertension, severe pre-eclampsia or eclampsia.

Out of 279 the primigravidae who were normotensive, 21 that matched the 21 primigravidae who developed PE for age, gestational age, SBP, DBP and Wight were recruited as controls. Frozen serum collected at 16-20 weeks gestation from both groups was analyzed for B-hCG by the Enzyme-linked Immunosorbent Assay (ELTSA) method.

Results

Comparison of the 21 PG who developed mild PE and the 21 normotensive controls showed that:

There was no statistically significant difference between the two groups regarding mean systolic or diastolic blood pressure at the 16-20 weeks baseline visit ($p>0.05$). The mean B.P. however, started to be significantly higher in the pre-eclampsia group from the >20w gestation ($p<0.05$) and the level of significance increased with advancement of pregnancy starting from the > 24 w gestation ($p = 0.000$).

At the 16-20 weeks baseline visit there was no statistically significant difference between the two groups regarding mean weight ($p>0.05$). However mean weight started to be more in the pre-eclampsia group starting from the >28 w gestation,and the level of significance increased with advancement of pregnancy ($p = 0.45$).

Proteinurea started to appear after 24 w gestation. Also, with advancement of pregnancy more cases with ++ Proteinurea occurred.

The mean β-human chorionic gonadotrophin level at the 16-20 weeks gestation baseline visit was 41904±5439.713mIu/mL in the PE group compared to 28714.29±1901.127 in the normotensive group ($p = 0.000$).β-HCG was 1.3089 ± 0.25919 in the normotensive group versus 1.9238 ± 0.37523 Multiple of the medians (MoMS) in the pre-eclampsia group ($P < 0.000$).

Nine primigravidae in the pre-eclampsia delivered by caesarean section ;3 due to fetal distress, 4 due to precious baby and 2 cases due to cephalo pelvic disproportion.

CONCLUSIONS

The incidence of pre-eclampsia among the studied group of 300 Egyptian primigravidae was 7%, which is in the average range reported in the literature for other ethnic groups.

Pre-eclampsia that developed in the 21 primigravidae was mild.

Beta human chorionic gonadotrophin (B-hCG) measured at 16-20w. gestation was found to be significantly higher among primigravidae who developed pre-eclampsia later in pregnancy compared to normotensive controls.

A single measurement of serum B-hCG performed in primigravidae at 16 -20 weeks gestation was found to have a sensitivity of 85.7%,a specificity of 81% a positive predictive value of 81.82% and a negative predictive value of 85% denoting that it is a good test for prediction of PE.

RECOMMENDATIONS

Single measurement of serum B-hCG done at 16-20 w gestation in primigarvidae can be included in the routine antenatal care as a marker for prediction of pre-eclampsia later in pregnancy.