ABSTRACT AND KEY WORDS

AIM:

To study the role of maternal serum beta hCG for the prediction of pre-eclampsia by measuring at 13 - 20 weeks of gestation.

Primary objective:

1. To determine whether maternal serum beta hCG levels at 13-20 weeks gestation can predict pre-eclampsia and does it correlates with severity of pre-eclampsia.

Secondary objective:

1. To find the associated risk factors in patients who developed pre-eclampsia

STUDY POPULATION

This is a population based cohort study. My study population included total number of 200 antenatal women attending ANC clinic, department of obstetrics and gynecology, Kilpauk medical college hospital, chennai. They were selected according to the inclusion and exclusion criteria’s. This study was conducted from March 2013 to December 2013.

Inclusive criteria:

Pregnant normotensive, nonproteinuric women was randomly selected from the gestational age of 13 to 20 weeks of pregnancy irrespective of parity.

Exclusion criteria:

1. Multiple pregnancy
2. Congenital fetal malformations
3. Chromosomal disorders in fetus
4. Women with chronic hypertension
5. Diabetes mellitus complicating pregnancy
6. Heart disease complicating pregnancy
7. Women with renal disease.
8. Molar pregnancy
9. Gestational age < 13 and > 20 weeks

MATERIALS AND METHODS

- A detailed history was taken about her name, age, address, height, pre pregnancy weight, socioeconomic class, obstetric score, stress score, past history of preeclampsia and family history of preeclampsia.

- Thorough clinical examination was done.

- Laboratory investigation was done, includes basic hematological investigations, urine albumin and maternal serum beta hCG was estimated by ELISA technique.

- Informed consent was obtained from all subjects.

- Early ultrasound measurement of crown-rump length of the fetus and reliable menstrual history dates were used in gestational age calculation.

- The study subjects were followed once a month till 28 weeks of gestation, once a fortnight till 36 weeks, and once a week till delivery and observed for development of pre eclampsia.

- During each visit she was examined thoroughly including blood pressure, urine albumin, pedal edema and fetal well being is assured.
RESULTS OF THE STUDY

Our study population included 200 antenatal women who attended antenatal out- patient department in kilpauk medical college and were completely followed till term. Among them, serum b hCG predicted preeclampsia in 44 patients.

From this study it was found that, there is a statistical significance between preeclampsia cohort and normal cohort with regard to the following variables:

- Age
- Obstetric score
- Socioeconomic class
- BMI
- Serum beta HCG

- When age group was taken into consideration, about 36.4% developed preeclampsia and 11.5% did not develop preeclampsia in the age group < 20 years.

- In the age group > 30 years, 27.3% developed preeclampsia and 12.8% did not develop preeclampsia.

- There was statistical significance (p 0.000) between normal cohort and preeclampsia cohort with respect to age.

- The occurrence of pre eclampsia is common in teenage and elderly.

- 72.7% of preeclampsia occurred in primigravida, 22.7% of preeclampsia occurred in second gravida and 4.5% of preeclampsia occurred in third gravida.
There is statistical significance (p-0.029) between pre eclampsia and obstetric score. Pre eclampsia is more common among primigravida than in second and third gravida.

When Socioeconomic class was taken into consideration, 72.7% of preeclampsia cohort occurred in the class 5 and 22.7% of preeclamptic cohort belonged to class 4 socioeconomic class. There is no statistical significance with regard to SE class.

When BMI is taken about 52.3% of preeclampsia occurred in the moderately obese group 31.8% of preeclamptic cohort were in overweight group and 4.5% in normal BMI group.

The variable BMI is also statistically significant.

With the cut off value of b hCG value > 63200 for predicting mild pre eclampsia, the sensitivity is 48.1% and specificity is 90.4%. It has low sensitivity and high specificity in predicting mild pre eclampsia.

With the cut off value of b hCG > 71220 for predicting severe pre eclampsia, the sensitivity is 100% and specificity is 100%. It has good sensitivity and specificity in predicting severe pre eclampsia.

**Conclusion**

This study showed that measuring serum beta hcg in second trimester a(13-20weeks)is a useful indicator to identify women who are likely to develop pre eclampsia in the same pregnancy. Also higher levels are associated with increased severity of pre eclampsia.