AIMS AND OBJECTIVES

To establish association between high levels of fetal hemoglobin and alpha 1 microglobulin in maternal plasma and development of pre eclampsia in 10 to 16 weeks GA

MATERIALS AND METHODS

The present study was undertaken in the Department of Obstetrics and Gynaecology, between September 2016 and August 2017. This was a prospective cohort study done to establish association between high levels of fetal hemoglobin and alpha 1 microglobulin in pregnant women of 10 to 16 weeks of GA and subsequent development of preeclampsia in these women. A total of 100 pregnant women were included in the study.

INCLUSION CRITERIA:

- 10–16 weeks of pregnancy
- Singleton/Multiple pregnancy
- Age 20-35 years
- Both primi and multigravida
- BMI 16-35
EXCLUSION CRITERIA

- Diabetes
- Hypertension
- Renal disease
- Epilepsy
- Vascular disorders

PARAMETERS STUDIED

Fetal hemoglobin

Alpha 1 microglobulin

PROCEDURE:

Hundred pregnant women attending IOG hospital who were willing to participate in the study were recruited after getting consent. Blood samples of these women were collected and measured using ELISA. They were managed by department protocol and followed till delivery. General parameters like age, parity, BP, BMI, gestational age, mode of delivery and perinatal outcome were compared between both groups. The values of fetal hemoglobin and α1 microglobulin were correlated with the development of preeclampsia

STATISTICAL ANALYSIS:

Data were collected and included in a data based system and analysed by statistician. Parametric data were expressed as mean and standard deviation. It was analysed statistically using t-test and non parametric data were expressed as percentages and analyzed using chi square. Receiver operator characteristics analysis was used to identify the optimal threshold values of fetal hemoglobin and α1 microglobulin. Sensitivity, specificity, positive and negative predictive values
of fetal hemoglobin and alpha 1 microglobulin were profiled by curves. All participants were subjected to full history taking and clinical examination.

Fetal hemoglobin and alpha 1 microglobulin levels were measured by ELIZA technique.

SUMMARY

This prospective cohort study was conducted in the Department of Obstetrics and Gynaecology, ISO, KGH, Triplicane, Chennai. One hundred women were enrolled in the study. Plasma levels of HbF and α1 microglobulin were estimated.

Findings are summarized as follows:

- Mean age of women who developed preeclampsia was 26.22.
- Majority of women were primigravida.
- Mean BMI of preeclampsia women was 21.74.
- Mean arterial pressure was 111.33 mm of Hg in women who developed preeclampsia and 88.33 mm of Hg in normal pregnant women.
- Majority of the women who developed preeclampsia required one or more antihypertensives for control of blood pressure in the antenatal period.
- Induction of preeclamptic women were done at 37 weeks
- Mean gestational age at delivery was 37 weeks.
- Vaginal delivery was slightly higher in preeclamptic women. But this was not statistically significant.
Mean birth weight of babies born to preeclamptic mother was 2.75kg.

Serum levels of fetal hemoglobin and α1 microglobulin were higher in preeclamptic women compared with normal women. The difference was statistically significant.

CONCLUSION

From the present study it may be concluded that

Higher values of HbF and α1 microglobulin in pregnant women between 10 to 16 weeks gestational age positively correlates with development of preeclampsia in those women.

HbF and α1 microglobulin can be used as biomarkers in late first trimester and early second trimester of pregnancy for detecting preeclampsia.