Homocysteine – A Novel Diagnostic Serum Biomarker for adverse pregnancy outcome

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Abstract:

Background: The primary aim of good antenatal care is the identification and management of high-risk pregnancies and their complications. Any disturbances in placentation, increases the risk of early miscarriage and other complications like pre-eclampsia, abruptio placenta, intra-uterine fetal death (IUD) or intra-uterine growth restriction (IUGR). This study primarily studies the association of maternal serum biomarker-Homocysteine for the early diagnosis of adverse pregnancy outcome. Homocysteine is a thiol-containing amino acid produced by the intracellular demethylation of methionine. Increased levels of maternal serum homocysteine levels indicate an abnormality in the placental microvasculature attributable to placental insufficiency.

Method: This was a prospective cohort study involving 100 singleton gestations in Department of Obstetrics and Gynaecology, in Amrita Institute of Medical Sciences, Kochi, a tertiary care centre in southern India from July 2016 and September 2018. Serum Homocysteine estimation (tHcy) was done between 18-28 weeks of gestation. Their medical and obstetric history was obtained and participants were followed up until delivery. Statistical analysis done with SPSS, Chi Square test and diagnostic measures used.

Results: Out of the 100 samples, it was found that during the course of pregnancy, 15% were subject to hypertensive disorder at some point while 7 % had fetal growth restriction (FGR) and 7% had preterm birth. Statistically significant results were obtained when elevated tHcy was linked to the development of:

- Hypertensive disorders (p Value of 0.001) with a sensitivity of 27% and specificity-99%.
- FGR (Fetal growth restriction) (p Value of 0.039) with sensitivity and specificity of 29% and 98% respectively.
- Preterm birth (p Value of 0.001)
- Low APGAR score at birth (p Value- 0.02) but low sensitivity of 3.2%

Conclusion: Findings from this study certainly have potential clinical implications for the early diagnosis and management of high-risk pregnancies.

Biography:

POOJA RAMESH is a clinician specialised in Obstetrics and Gynaecology, India. She has completed her post-graduation, MD in a premiere institution which gave her a good opportunity for research related activities as well. She has done several presentations and has a few indexed publications to her credit as well.

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