How much of a predictor is low PAPP-A for poor perinatal outcome?

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Objective

Pregnancy Associated Plasma Protein A (PAPP-A) is a glycoprotein produced by placental trophoblasts and is used as part of the first trimester combined screening test. It tends to cleave insulin–like growth factor (IGF) binding proteins. Therefore, it can help release IGF which plays an important role in trophoblast invasion affecting placental development. Low Serum PAPP-A levels have been associated with adverse pregnancy outcomes such as, miscarriage, low birth weight, preterm birth, gestational hypertension and preeclampsia. A PAPP-A level of <5th centile (0. 44) is suggested to have high specificity but low PPV for IUGR while a level <1st centile (0. 29) has high specificity and strong PPV for IUGR.

Methods

We analyzed a total of 150 patients. A retrospective audit of the the levels of PAPPA and outcomes of pregnant women with low PAPP-A levels between April – Dec 2017 was performed. Low PAPP-A is defined in our unit as a level <0. 415 in line with the RCOG guidelines. All women with low PAPP-A underwent growth ultrasound scan surveillance once every 3 weeks from 28 gestational weeks until 40 weeks.

Results

26% of the babies were small for gestational age (SGA) as defined by estimated fetal growth <10TH centile on a customised growth chart. There was a trend of reducing growth velocity from 30 weeks in 40 % of cases. 12% of fetuses had abnormal dopplers in the form of raised umbilical artery PI >95th centile or abnormal EDF during the antenatal period. 10% were born pre-term. Maternal outcomes were identified as follows: (2%) miscarriage (2%), TOP (6%), hypertensive disorders (4%) and 6% had postpartum haemorrhage. In our cohort, majority (92%) of the SGA babies occurred in mothers with a PAPP-A levels between 0. 31-0. 41.

Conclusion

PAPPA is an important marker for adverse pregnancy outcomes. Although increased monitoring is recommended, it is important to identify the optimal mode and timing of surveillance for these women to achieve the best perinatal outcomes.