

First trimester screening: the increasing value of the test beyond aneuploidies analysis

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Objective. The aim of the study was to investigate the ability of first trimester maternal serum pregnancy associated with plasma protein A (PAPP-A), fetal fraction (FF), and uterine arteries pulsatility index (PI) in predicting obstetric complications.

Materials and Methods. This is a population-based retrospective cohort study conducted on all the women with singleton pregnancies booked for non-invasive prenatal testing at Fondazione Policlinico A. Gemelli between June 2015 and January 2021. 512 women were enrolled.

Results. Low PAPP-A (cut-off < 0.4 MoM) was associated with fetal losses (5.9% vs 1.5% p < 0.0001), preeclampsia (7.7% vs 1.8% p = 0.049) low-birth weight neonates (< 2500 g; 19.2% vs 7.9% p = 0.045), preterm delivery before 34 weeks

(11.5% vs 3.4% p = 0.039) and before 28 weeks (3.8% vs 0.5% p = 0.055). Low FF (cut-off < 7%) was associated with high BMI (p < 0.0001), caesarean section (54.1% vs 27.3% p = 0.009) and preterm delivery before 37 weeks (32.4% vs 16.4% p = 0.032). High uterine arteries PI (cut-off ≥ 95° percentile) was associated with fetal losses (10% vs 0.6% p = 0.018), very low-birth weight neonates (< 1500 g; 11.1% vs 0.6% p = 0.003) and preterm delivery before 37 weeks (55.5% vs 18.71% p = 0.008).

Conclusions. The first trimester biochemical assessment appears to play an important role not only for chromosomal anomalies, but also in early and successfully predicting and counselling women at higher risk of developing obstetric and perinatal complications.