EP Role of Fetal Doppler-Velocimetry as a predictive factor of neonatal outcome in Gestational Diabetes Mellitus

Erich Cosmi1, Gabriele Saccone2, Laura Sarno2, Angelo Sirico2, Cristina Teso1, Eugenio Ragazzi3, Giuseppe Maria Maruotti2, Silvia Visentin1

1. Woman's ans Child's Health, University of Padua, Padua, Italy.
2. High Risk Pregnancy Centre – Department of Neurosciences, Reproductive and Dentistry Sciences, University of Naples Federico II, Naples, Italy.
3. Department of Pharmaceutical and Pharmacological Sciences, University of Padua, Padua, Italy.

Objectives: Fetal Doppler-velocimetry is a useful technique in the evaluation of fetal well being in gestational diabetes mellitus (GDM) pregnancies.

Aims: (1) to evaluate if GDM pregnancies shows a different Doppler umbilical artery pattern versus the control group. (2) to establish if umbilical pulsatility index (UA-PI) could be suggestive, in different gestational week, of the maternal glycemic control. (3) to establish if UA-PI is related to fetal-maternal outcome.

Methods: This is a retrospective study which involved 170 pregnant women with singleton pregnancies complicated by GDM (only dietetic treatment), of different BMI and ethnicity. Fetal biometry and Doppler indexes referred to 28-32 GW and 34-36 GW. Pregnancies complicated by pre-gestational/gestational hypertension, type I or II diabetes, GDM (insulnic treatment), intra uterine growth restriction (IUGR), fetal malformations and maternal infection were excluded. A healthy control group, who perform routinely ultrasound in the third trimester and at the term of the pregnancy, was enrolled.

Results: Not significative differences about UA and uterine PI between GDM and control group were found, in the both ultrasound range. There was a statistical difference in EFW percentile, greater in GDM group (p < 0.01). A greater number of cesarean sections (p < 0.05) and neonatal weight centile (p< 0.01) were described in GDM group, as a significant UA-PI decrease between 28-32 and 34-36 GW (p< 0.01). Finally, a linear inverse regression showed a significant relationship between UA-PI, CA (p< 0.001), EFW (p< 0.001) and neonatal weight (p< 0.001).

Conclusions: This study shows a potential role of umbilical velocimetric indexes in the evaluation of maternal GDM and maternal-fetal outcome. More fetal UA-PI decrease, greater values of CA and EFW we found; this could suggest an inadequate metabolic maternal status and a bigger neonatal weight. Further investigations are needed to detect its predictive value in pregnancies complicated by LGA and macrosomic fetuses.