Maternal and foetal haemodynamics assessment to predict IUGR in twin pregnancies

Giulia **Gatti** [1], Benedetta **Lupoli** [1,2,*], Daniele **Farsetti** [1,2], Marta **Mancini** [1], Francesca **Pometti** [1,2], Grazia Maria **Tiralongo** [1], Damiano **Lo Presti** [1], Barbara **Vasapollo** [1,2], Herbert **Valensise** [1,2]

[1] Policlinico Casilino, Rome, Italy.
[2] Tor Vergata University, Rome, Italy.

DOI: 10.36129/jog.2024.S110

Objective. The aim of this study was to evaluate maternal haemodynamics and umbilical vein blood flow (QUV) in twin pregnancies between 24 and 28 weeks to identify possible predictors for FGR twin at birth.

Materials and Methods. 21 twin pregnancies, 10 monochorionic diamniotic and 11 dichorionic diamniotic, between 24 and 28 weeks were included in this study (n = 42 foetuses). Among these, 36 foetuses were AGA at birth and 6 developed FGR. All patients underwent a non-invasive maternal haemodynamics assessment using an Ultrasound Cardiac Output Monitor (USCOM®) and a complete foetal haemodynamic examination including QUV.

Results. in comparison with AGA, QUV and corrected for estimated foetal weight QUV (cQUV) were significantly lower in FGR foetuses between 24 and 28 weeks. Additionally, maternal cardiac output (CO) and inotropy index (iNO) were significantly lower in FGR, while systemic vascular resistance (SVR) was higher. According to ROC analysis, QUV centile (cut off ≤ 23 centile, AUC 0.90, 95%CI 0.76-0.97) and SVR (> 814 dynes × sec/cm^5, AUC 0.85, 95%CI 0.71-0.94) are the best predictors for FGR in twin pregnancy between 24 and 28 weeks, also shown by multivariate logistic regression analysis (AUC 0.94, 95%CI 0.83-0.99).

Conclusions. QUV and maternal haemodynamics evaluation can be useful tools to identify twin pregnancies with a higher risk to develop FGR twin.