Intraplacental villous artery Doppler as an independent predictor of placental morbidity
Babic I, Mejia A, Wrobleski JA, Shen M, Wen SW, Grynspan D, Moretti F
University of Ottawa, Ottawa, Canada

Objective
To validate intraplacental villous artery (IPVA) Doppler as a predictor of placenta-mediated diseases (PMDs) and to compare its predictive values with uterine artery (UtA) Doppler and placental biochemical markers.

Methods
IPVA and UtA resistance indices (PI and RI) were recorded at 18 - 24 weeks of gestation in a cohort of 117 women. The predictive value of IPVA, UtA and placental biochemical markers were analyzed and compared between the PMD (the women who developed preeclampsia or intrauterine growth restriction) and non-PMD group (the women who remained healthy throughout the pregnancy and three months postpartum) using the receiver operating characteristic (ROC) curves.

Results
Out of the 117 patients, 31 (26.5%) developed PMDs (17 preeclampsia and 14 intrauterine growth restriction). IPVA PI was significantly higher in PMD group in comparison to the non-PMD group (P=0.001). UtA PI and RI values showed no significant difference in the two groups (P=0.066, 0.104). IPVA PI sampled over the whole placenta (three main branches), and specifically in a central main stem villi showed strong association with PMDs in comparison to UtA (P=0.03, 0.001 vs 0.29).

Conclusion
IPVA PI appears superior in the prediction of PMDs when compared to UtA PI or RI and to placental biomarkers.