Performance of 1st trimester screening for FGR based on maternal characteristics and biophysical markers

Rezende LC, Rezende, KBC, Amim JR J, Dourado ALM, Bornia RBG
Maternidade Escola da Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil

Objective
To evaluate the FMF2012 screening program performance for FGR prediction, applied between 11 and 14 gestational weeks, in pregnant women attended at Maternidade Escola da UFRJ.

Methods
Cross sectional study. FGR was diagnosed when a newborn presented birth weight below the 5th percentile for gestational age and it was stratified a total FGR (all cases) and preterm FGR when deliveries occurred <37 weeks. FMF2012 algorithm sensitivity and specificity, positive (PPV) and negative predictive value (NPV), positive likelihood ratio (LR +) and area under the ROC curve (AUC) were calculated for the prediction of total and preterm FGR (FGR<37). Biophysical markers - mean arterial pressure (MAP) and mean uterine arteries pulsatility index (PlmUt) performances were compared by DeLong test and the difference was considered significative when p<0.05.

Results
The final sample consisted of 1480 cases. 69 (4.6%) developed total FGR, of which 12 (0.8%) were FGR<37. The AUC showed that the performance of FMF2012 combined model for total FGR prediction and PlmUt are comparable. For FGR <37 prediction it is comparable to MAP. Considering cutoff value > 1/150, total FGR screening showed: sensitivity: 47%; PPV: 8.66%; LR +: 1.88; Specificity: 75% and NPV: 96.72%. For the screening for FGR <37, we found: sensitivity: 66.6%; PPV: 2%; LR +: 2.58; Specificity: 74.59% and NPV: 99.63%.

Conclusion
FMF2012 algorithm performance in predicting FGR in our population was similar to that obtained in the reference population. The FMF2012 algorithm was validated in our population to predict FGR. PlmUt and MAP can respectively be used for the prediction of total FGR and preterm FGR.