Prospective analysis of sFlt-1/PIGF-Ratio and PAPP-A in late-onset preeclampsia or intrauterine growth restriction

University Hospital of Dresden, Dresden, Germany

Objective
To assess the predictive value of sFlt-1, PIGF, sFlt-1/PIGF-Ratio and PAPP-A in the 3rd trimester of pregnancies with late-onset preeclampsia and intrauterine growth restriction (IUGR) in an unselected population.

Methods
903 patients were examined prospectively from November 2013 until April 2016 at the University Hospital of Essen, in Germany. On their first routine visits there were no signs of preeclampsia or IUGR. IUGR was defined as birthweight below the 5th centile with abnormal fetal Doppler measurements.

Results
Logistic regression analysis was performed to adjust the measurements according to maternal age, BMI and gestational week at the time of analysis. Preeclampsia: OR per IQR for sFlt-1: 4.10 (2.90-6.20 95% CI, p: <0.0001); PIGF: 0.968 (0.956-0.978 95% CI, p:<0.0001); sFlt-1/PIGF-Ratio 1.48 (1.32-1.70 95% CI, p:<0.0001); PAPP-A: 1.83 (1.26-2.60 95% CI, p:0.001). ROC-Analysis in PE for sFlt-1/PIGF-Ratio: AUC 0.93 (0.87-0.99 95%-CI): Threshold 57.3, Sensitivity 84.4%, Specificity 93.0%. IUGR: OR per IQR for sFlt-1: 2.15 (1.59-3.00 95% CI, p: <0.0001); PIGF: 0.996 (0.992-0.998 95% CI, p:<0.01); sFlt-1/PIGF-Ratio 1.23 (1.13-1.39 95% CI, p:<0.0001); PAPP-A: 0.85 (0.43-1.50 95% CI, p:0.61). ROC-Analysis in IUGR for sFlt-1/PIGF-Ratio: AUC 0.70 (0.55-0.86 95%-CI): Threshold 63.6, Sensitivity 50.0%, Specificity 93.9%. For a sFlt-1/PIGF-Ratio threshold of 38: Sensitivity 37.6%, Specificity 85.9%.

Conclusion
There is a positive correlation between the markers and the pregnancy complications. The predictive value of the markers is stronger for preeclampsia compared to IUGR.