19th World Congress in Fetal Medicine

# The profile of angiogenic factors in preeclampsia and fetal growth restriction and its correlation with alpha-1-microglobulin

Youssef L, Erlandsson L, Åkerström B, Miranda J, Crispi F, Gratacos E, Hansson SR.
Fetal Medicine Research Center, BCNatal – Barcelona Center for Maternal-Fetal and Neonatal Medicine (Hospital Clínic and Hospital Sant Joan de Deu), IDIBAPS, University of Barcelona, Barcelona, Spain, Barcelona, Spain

## Objective

To evaluate the concentrations of placental growth factor (PlGF) and soluble fms-like tyrosine kinase-1 (sFlt-1) in the different phenotypes of preeclampsia (PE) and/or fetal growth restriction (FGR) and their correlation with alpha-1-microglobulin (A1M), a heme scavenger that reflects hemoglobin-induced oxidative stress.

## Methods

192 singleton pregnancies were recruited prospectively and classified into normotensive FGR (n=47), PE without FGR (n=45), PE with FGR (n=51) and uncomplicated pregnancies (n=49). The biomarkers PlGF, sFlt-1 and A1M were measured in maternal plasma by ELISA techniques. The results were adjusted for gestational age at sampling by multiple regression, in addition to performing Spearman correlation analysis.

## Results

PlGF was significantly lower in the different phenotypes of PE and/or FGR, whereas sFlt-1 and A1M were significantly higher in PE pregnancies. A1M was negatively correlated with PlGF ($r=-0.19$, $p=0.009$) and positively correlated with sFlt-1 ($r=0.40$, $p<0.001$) and sFlt-1/PlGF ratio ($r=0.33$, $p<0.001$). Indeed, A1M was positively correlated with sFlt-1 in FGR groups with and without PE even though sFlt-1 concentrations were however not statistically different in normotensive FGR compared to controls.

## Conclusion

Angiogenic factors imbalance is present in the different phenotypes of PE and/or FGR however high sFlt1 was specifically seen in PE. This imbalance may reflect the status of impaired blood perfusion and the associated oxidative stress leading to increased A1M in PE with and without FGR and also in cases of normotensive FGR with high sFlt1.