

MID-GESTATION ANGIOGENIC BIOMARKER LEVELS ARE INCREASED IN WOMEN AT HIGH RISK FOR PREECLAMPSIA

Tiffany A. Moore Simas, MD, MPH, MEd^{1ab}; Sybil Crawford, PhD^{1c}; Susie Bathgate, MD^{2a}; Jing Yang, BS^{1d}; Laura Robidoux, BS^{1a}; Melissa Moore, PhD^{1d}; Sharon Maynard, MD^{3e}

¹University of Massachusetts Medical School, Worcester, Massachusetts; ²George Washington University School of Medicine & Health Sciences, Washington, DD; ³Lehigh Valley Health Network, Allentown, PA; ^aOb/Gyn, ^bPediatrics, ^cMedicine, ^dNephrology, ^eBiochemistry & Molecular Pharmacology

Contact Information: TiffanyA.MooreSimas@UMassMemorial.org

Background: Pre-pregnancy hypertension and diabetes mellitus, multiple gestations, prior preeclampsia, are significant risk factors for preeclampsia. Whether altered maternal levels of angiogenic factors contribute to increased preeclampsia risk in these conditions is unknown. Our objective was to compare maternal serum angiogenic biomarker levels in women with major risk factors for preeclampsia and healthy controls.

Methods: Women presenting for prenatal care were enrolled if they had one of the following preeclampsia risk factors: pre-pregnancy hypertension and/or diabetes mellitus, nulliparity with pre-pregnancy BMI>30, multiple gestations, or prior preeclampsia. Healthy control pregnancies without these risk factors were enrolled for comparison. Maternal serum samples were collected at 3 pre-specified gestational windows between 23 and 36 weeks gestation. sFlt1, sEng, and PIGF were measured by ELISA. The (sFlt1+sEng):PIGF ratio was calculated and compared for each risk group at each gestational window.

Results: Gestational patterns of angiogenic biomarkers differed in high-risk groups vs. healthy control subjects. The angiogenic ratio (sFlt1+sEng):PIGF was higher for all high risk groups except obesity/nulliparity as compared with healthy control subjects after 28 weeks gestation. Biomarker ratio levels were highest in subjects with MG and prior PE, and differences from the health control group became more pronounced as gestation progressed. Women with hypertension/diabetes had more subtle differences as compared with healthy control subjects.

Conclusion: Women with preeclampsia risk factors had higher angiogenic ratios compared with healthy control women. This study illuminates the interplay between risk factors and placental angiogenic biomarkers in the pathogenesis of preeclampsia.