

- 17 **FIRST TRIMESTER THROMBUS PRECURSOR PROTEIN (TPP) PREDICTS ADVERSE PREGNANCY OUTCOME IN THROMBOPHILIC PATIENTS** MICHAEL PAIDAS¹, GABRIELLE URBAN¹, WAYNE KU¹, YALE ARKEL¹, ANNE DILLEY², REBARBER ANDREI¹, EDWARD KUCZYNSKI³, MATURI JEANINE¹, MARCELLA MIGNOSA¹, SANA KHAN¹, JONATHAN SCHOENFELD¹, CHARLES LOCKWOOD¹; ¹New York University, Obstetrics and Gynecology, New York, NY; ²CDC, Hematologic Diseases Branch, Atlanta, GA; ³New York University, Obstetrics/Gynecology, New York, NY

OBJECTIVE: No single test identifies patients with thrombophilia (TP) or the subset of such patients at risk for adverse pregnancy outcomes (APO). We posit that these at risk pregnancies would demonstrate increased thrombin generation, as measured by a sensitive marker for soluble fibrin polymers, TpP.

STUDY DESIGN: In this prospective, cohort study, we measured TpP by ELISA (American Biogenetic Sciences, Copiague, NY) throughout gestation among 50 healthy women with normal pregnancy outcomes, to establish the reference range for TpP, and in 38 TP patients having 40 pregnancies with: protein S deficiency (n = 6), factor V Leiden mutation (n = 13), prothrombin 20210 mutation (n = 6), hyperhomocysteinemia (n = 1), antiphospholipid antibody syndrome (n = 20), and thrombocytopenia (n = 3). We correlated TpP with APO including fetal loss, birth weight <10th%ile, severe preeclampsia and abruption.

RESULTS: First trimester mean TpP levels (ug/ml) were significantly higher among TP patients (n = 16) compared to controls (n = 36) (11.5 ± 14.0 vs. 3.7 ± 7.1 ; $P < .02$). Five TP patients had at least 2 thrombophilic conditions and their TpP values were higher than cases with one TP (26.4 ± 16.0 ; $P < .01$). Using a cutoff of 3.0 ug/ml, TpP had a sensitivity of 83%, specificity of 61%, positive and negative predictive values of 22% and 97%, respectively, for identifying APO. Despite heparin therapy, cases also had higher TpP values than controls in the 2nd trimester (21.7 ± 18.9 , n = 18 vs. 10.9 ± 12.8 , n = 30, respectively, $P < .01$) and 3rd trimester (35.1 ± 16.1 , n = 15 vs. 12.9 ± 13.9 , n = 30; $P = .04$). Despite treatment, TP patients delivered earlier than controls (33.6 ± 5.2 , n = 18 vs. 38.9 ± 2.6 wks, n = 30, respectively; $P < .01$), and had lower birth weights (2901 ± 924 vs. 3451 ± 585 gms; $P < .002$).

CONCLUSION: TpP levels in the 1st trimester can identify thrombophilic patients at risk for APO. TpP values were inversely related to birthweight and gestational age at delivery.