Pregnancy outcomes in women with positive first-trimester FMF algorithm screening test

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Objective
Three major placenta-mediated complications of pregnancy, namely preterm preeclampsia (PE), fetal growth restriction, and perinatal death could be prevented by low-dose aspirin initiated in the first-trimester. We aimed to explore pregnancy outcomes in women with a positive PE screening test using the Fetal Medicine Foundation (FMF) algorithm.

Methods
A prospective cohort study of Canadian pregnant women with singleton pregnancy were recruited at 11-14 weeks. Maternal age, BMI, method of conception, personal history of PE, ethnicity, mean arterial blood pressure, PAPP-A, PlGF and mean uterine artery pulsatility index were submitted onto the online FMF algorithm. Simple imputation was used for the treatment of missing values. Pregnancy outcomes, including PE, small for gestational age (SGA) <3rd centile and fetal death, were reported for women with a positive preterm PE screening test (≥1/70) and compared to women with a negative (<1/70) screening test.

Results
We included 6067 participants, 672 (11%) of which had a positive FMF screening test. The latter were at greater risk of PE (13.4% vs. 3.4%), preterm PE (3.7% vs. 0.3%), PE<34 weeks (1.3% vs. 0.09%), SGA<3rd centile (4.1% vs. 1.4%), preterm SGA<3rd centile (0.7% vs. 0.04%), fetal death (1.2% vs. 0.4%; p=0.004), miscarriage at 14-20 weeks (0.6% vs. 0.2%; p=0.04), or any of the above complications (16.8% vs. 5.0%) than women with a negative screening test (all with p<0.0001, except if otherwise specified). Thirty (4.5%) women with a positive test developed at least one of the severe complications (preterm PE, preterm SGA, fetal death) compared to 31 (0.6%) women with a negative screening test (p<0.0001) after exclusion of miscarriages.

Conclusion
Women with a first-trimester positive FMF preterm PE screening test are at high-risk for placenta-mediated complications of pregnancy that are preventable with low-dose aspirin in early pregnancy.