Objective
To determine the contribution of the external iliac artery (EIA) pulsatility index (PI) in the prediction of adverse pregnancy outcomes.

Methods
In women attending for routine care between 11(+0) and 13(+6) weeks of gestation, mean pulsatility index (PI) of both EIAs was correlated to maternal characteristics (maternal age, parity, body mass index and mean arterial blood pressure (MAP)) and ultrasound parameters including crown-rump length (CRL) and mean uterine artery PI. A multivariate Gaussian model was fitted to the distribution of log multiples of the median (MoM) PI in the four groups. Then we compared the log MoM EIA PI mean in those that developed preeclampsia (n=67), gestational hypertension (GH) (n=114), or small for gestational age (SGA) (n=396) with those unaffected by any of these outcomes (n=3339). Regression analysis was used to determine which of the factors among the maternal variables were significant to predict each complication by a combination of maternal variables and EIA PI.

Results
In the unaffected group, PI of EIA increased with maternal age, smoking and decreased with chronic hypertension. The mean log MoM external iliac artery PI was -0.01 (95% confidence interval [CI]-0.01 to -0.02) in the unaffected group, -0.03 (95% CI -0.06 to -0.01) in the preeclampsia group, -0.07 (95% CI -0.10 to -0.05) in the gestational hypertension group, and -0.02 (95% CI -0.10 to -0.05) in the SGA group. Compared with the unaffected population, the mean log MoM was significantly lower in the gestational hypertension group (t test 4.99, P=0.001), not significantly different in preeclampsia (t test -1.3, P=0.19), and not significantly different in SGA (t test 1.71, P=0.086).

Conclusion
In pregnancies complicated by preeclampsia and GH, alterations in the PI of the EIA might anticipate the onset of gestational hypertension. PI of EIA in the first trimester is decreased in women who develop preeclampsia and GH.