Uterine and umbilical arteries Doppler studies at 28 weeks after a pathological uterine artery Doppler in the mid trimester scan

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Objective
To determine the contribution of uterine and umbilical arteries PI Doppler studies at 28 weeks in women with increased uterine PI in their routine second trimester scan.

Methods
Women with increased mean PI in uterine arteries (UtA) at 19-22 weeks of gestation were booked for a growth scan including Doppler measurements of uterine and umbilical arteries at 28 weeks of gestation. Pregnancy outcomes included SGA below the 5th and 10th centiles and preeclampsia.

Results
During the study period, a total of 5109 women underwent routine anomaly ultrasound scan at 19-22 weeks of gestation. After excluding cases of missing data, abnormal karyotype or termination of pregnancy, 266 cases (5.8%) with an extra growth scan at 28 weeks due to abnormal PI in the uterine arteries at 19-22 weeks were included in our study. There were 72 (27.1%) cases of SGA infants below the 10th centile and 43 (16.2%) below the 5th centile. The prevalence of women with preeclampsia was 6.4% and with early onset preeclampsia (<34 weeks) was 1.9%. Multiple regression analysis showed that mean uterine artery PI is significantly associated with SGA < 10th centile.

Conclusion
The essential finding of our study was that uterine artery PI>95th centile performs well predicting preeclampsia, early onset preeclampsia and SGA. In women with abnormal uterine artery Doppler at mid-trimester scan, which persists at 28 weeks is associated with preeclampsia, early-onset preeclampsia and SGA. Umbilical artery PI at 28 weeks is not associated with these adverse pregnancy outcomes.