Maternal characteristics, fetal biometry and fetal Doppler indices at 28 weeks’ gestation
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Objective
To evaluate the role of maternal demographics, fetal biometry and fetal Doppler indices at 28 weeks of gestation in prediction of adverse pregnancy outcomes and the value of such assessment in deciding the timing of following monitoring.

Methods
Retrospective cohort study in a single tertiary referral center from 2000 to 2014. Population or Sample: singleton pregnancies routinely scanned between 27 and 30 weeks of gestation. Maternal demographics included maternal age, body mass index (BMI), ethnicity and medical history. Fetal biometry and birth weight values were converted in percentiles. Fetal Doppler umbilical artery, middle cerebral artery pulsatility indices (PI) and cerebroplacental ratio (CPR) were converted in MoMs. Multivariable logistic regression analysis was performed and the predictive accuracy was assessed using receiver operating characteristic (ROC) curves analysis. The main outcome measures were early third trimester prediction of adverse fetal outcomes: small-for-gestational age (SGA) births, preterm delivery, fetal distress in labour, emergency Caesarean section and admission to NNU.

Results
13313 patients underwent an early third trimester assessment. Maternal demographics, fetal biometry and fetal Doppler indices were significantly associated with the risk of SGA<5th centile (p <0.01) and preterm delivery. The performance of screening by maternal factors alone in prediction of adverse outcomes was poor (AUC=0.587). Fetal biometry as expected was the best predictor of SGA<5th centile (AUC=0.891). Fetal Doppler indices were good predictors of adverse fetal outcome with cerebroplacental ratio (CPR) showing the best performance in prediction of preterm delivery, admission in NNU and fetal distress in labour (AUC=0.810).

Conclusion
Routine second trimester assessment is able to identify almost 90% of fetuses fated to early-onset FGR by the use of uterine artery Doppler indices to schedule further ultrasound assessment at 28 weeks’ gestation. The findings of this study show that prenatal prediction of adverse fetal outcomes is improved by this approach and a 28 week assessment can be used to identify a population at significantly increased risk of adverse pregnancy outcomes.