Objective
To determine whether first trimester umbilical vein flow (UVBF) is related to subsequent development of large for gestational age (LGA) neonates.

Methods
This a secondary analysis of singleton pregnancies undergoing at 11+0 -13+6 weeks an evaluation of placental and fetal hemodynamics. Pregnancies with pregestational diabetes were excluded. Among these pregnancies 149 gave birth newborns with a birthweight >95th centile and were considered for this study. Umbilical vein diameter and time averaged maximum velocity were measured in UV intra-abdominal portion by real time and Doppler ultrasonography. A semi-automatic measurement software was used to obtain UV diameter values. UVBF was then calculated from UV diameter and TAMXV measurements. Since UVBF changes with increasing CRL, data were expressed as the number of standard deviations (z score) from which they differ from the expected mean. The influence of potential confounding variables such as maternal height, Body Mass Index (BMI), ethnicity and parity was tested by multivariate logistic regression.

Results

Conclusion
There is an augmented umbilical flow in fetuses developing macrosomia already present in the first trimester. This may provide the basis for identifying high-risk pregnancies of developing LGA that would be the subject of future intervention studies starting early in gestation.