

Abnormal Umbilical Artery Doppler Studies in Fetal Macrosomia: What do They Mean?

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Introduction. Large for gestational age infants have poorer neonatal outcomes. Umbilical artery Dopplers studies (UADS) assess health of pregnancies complicated by fetal growth restriction, yet their utility in suspected macrosomic fetuses (SMF) is unknown. We aimed to determine the relationship between abnormal UADS and adverse neonatal outcomes in SMFs.

Methods. This was a retrospective cohort study of pregnancies with SMF ≥ 36 -week gestation. Exclusion criteria included multiple gestations, fetal congenital anomalies, intrauterine fetal demise, and maternal age of < 18 . Abnormal UADS were systolic/diastolic ratio or pulsatility index ≥ 95 th percentile. Adverse neonatal outcomes were evaluated. Differences in neonatal outcomes between normal and abnormal UADS cohorts were analyzed using Chi-Square/Fisher Exact Tests and t-tests.

Results. Of 447 patients with SMF, 14 (3.1%) had abnormal UADS. More than 70% ($n = 10$, 71.4%) of patients with abnormal UADS experienced any adverse neonatal outcome compared to 45.3% ($n = 433$) of patients with normal UADS ($p = 0.05$). In individual adverse neonatal outcomes, hyperbilirubinemia (50.0% versus 11.0%, $p = 0.0005$), hypoglycemia (28.6% versus 8.6%, $p = 0.03$), and mean cord gas base deficit (5.8 ± 3.3 versus 4.0 ± 3.0 , $p = 0.04$) differed to statistical significance between abnormal and normal UADS patients. The rate of respiratory distress was higher in abnormal UADS group (28.6% versus 15.8%, $p = 0.26$), but this difference was not statistically significant.

Conclusions. Abnormal UADS in SMF increased risk of adverse neonatal outcome by 26%. Antenatal surveillance in SMF could be utilized to prepare for adverse events but further research is needed.