

OP07.28

The perinatal outcome of 48 IUGR fetuses with ARED

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Objective: To determine the perinatal outcome of fetuses with absent or reversed end-diastolic (ARED) flow in the umbilical artery (UA) Doppler.

Methods: Forty-eight IUGR fetuses between 24 and 34 gestational weeks with findings of ARED flow in the UA were prospectively followed. The fetuses monitored by repeat blood flow Doppler measurements of arterial and venous vessels, cardiotocography and biophysical scoring. Maternal evaluation and follow up was also carried out for detection of development of pre-eclampsia. Delivery was planned when nonreassuring findings were detected in any test. Perinatal outcomes were investigated up to the end of the first month of life.

Results: The overall survival of the fetuses until the end of neonatal period with ARED was 22.9% (37/48). Intrauterine fetal death was observed in three (6.3%) cases. All the three fetuses which had ARED before 26 weeks were all died in-utero. Of the three fetuses died *in utero*, two had reverse flow in umbilical artery, but normal 'A wave' in ductus venosus. Eight fetuses died in neonatal period (16.6%). The indications for delivery of the live born neonates which were subsequently died were nonreassuring CTG in three cases, reverse flow in UA and in a wave of DV in three cases, and reverse flow detected in UA in one case. Six cases were delivered between 26–28 weeks, and early neonatal death was observed in two cases. Among the 32 cases delivered between 28–32 weeks, fetal death is observed in one case and six of 31 live born neonates delivered between 28–32 weeks were subsequently died in neonatal period. All fetuses delivered at or beyond 34 weeks were survived.

Conclusions: ARED in UA Doppler is an ominous finding associated with high perinatal mortality, and the mortality rate decreases as the gestational age at delivery advances.

OP08: FETAL MACROSOMIA

OP08.01

Femoral soft tissue thickness as potential parameter for ultrasound estimation of fetal weight

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Objective: Estimation of fetal weight (EFW) is thought to be helpful in making management decision in cases of very low birthweight or large babies. Several sonographic attempts demonstrated different degrees of accuracy. Higher differences were found to be associated with circumference measurements. This prospective study was to assess the accuracy of the linear measurement of mid-thigh soft tissue mass (STM) in predicting the actual birthweight.

Methods: One hundred eight women at term with singleton uncomplicated pregnancies were consecutively recruited. Measurements of routine fetal biometric parameters (BPD, HC, AC, FL) and the STM were sonographically taken at admission. After magnification of a standard longitudinal view for the femur length measurement, STM was made as linear measurement from the outer margin of the skin to the outer margin of the mid-femur shaft at an angle of 0° to the transducer. This measurement was performed three times, and the average was recorded. 83 women who delivered within 48 hours from the scan were selected for the analysis. STM was assessed for significant linear relationship with actual birth weights and sonographic parameters such as AC and estimated fetal weight using Hadlock's formula (BPD, HC, AC, FL).

Results: The correct view was achieved immediately (9 ± 3 seconds) by experienced sonographers and STM was successfully taken in all cases with high reproducibility and precision, with an intra- and inter-observer variability of 0.7 ± 0.3 and 1.0 ± 0.4 mm, respectively. It was directly correlated with fetal AC ($r = 0.55$, $p < 0.001$), EFW ($r = 0.56$, $p < 0.001$), and actual birth weight ($r = 0.60$, $p < 0.001$), regardless the centile at birth (whether small- or large-for-gestational age).

Conclusions: The sonographic measurement of mid-thigh STM has a satisfactory reproducibility and correlates with birth weight. A larger number of cases can allow derivation of a fetal weight estimation formula.

OP08.02

Fetal subcutaneous adipose tissue and gestational diabetes mellitus

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Objective: Overgrowth of adipose tissue in fetuses of insulin-dependent diabetic mothers have been previously reported. This study was to assess the subcutaneous fat sonographically measured in fetuses of women with well-controlled gestational diabetes mellitus (GDM) at different gestational ages.

Methods: 45 women with well-controlled GDM and 21 controls were recruited. Ultrasound measurements of subcuticular tissue thickness at abdominal (AT) and suprascapular (ST) level were taken at 31 and 35 weeks of gestation, and subscapular skinfold thickness was also measured at birth. For the analysis, diabetic patients were divided into three groups according to maternal therapy (diet, regular insulin or insulin lispro).

Results: No difference was found for gestational age at delivery and birth weights between groups and for postprandial glycemia in the diabetic subgroups. Abdominal circumference was similar in all groups at 31 and at 35 weeks of gestation, though AT was thicker in fetuses of diabetic mothers than controls ($p < 0.05$). At 31 weeks, AT was increased in the group of women on regular insulin compared to those on insulin lispro or diet (4.5 ± 0.2 mm vs 3.9 ± 1.0 mm vs 3.7 ± 0.6 mm, respectively; $p < 0.05$). ST was increased in fetuses of women on either regular insulin or lispro compared to those on diet or controls at 31 weeks (4.4 ± 0.3 mm and 3.7 ± 1.3 mm vs 3.2 ± 1.1 mm and 3.5 ± 0.2 mm, respectively; $p < 0.05$). AT was smaller in controls than in fetuses of diabetic mothers at 35 weeks (4.8 ± 0.1 mm vs 5.7 ± 0.3 mm on average; $p < 0.05$). At birth, suprascapular skinfold was 4.4 ± 0.8 mm on average in infants of diabetic women and 3.8 ± 0.1 mm in controls ($p < 0.05$).

Conclusions: Adipose tissue is increased in fetuses of women with GDM, despite a satisfactory glycemic control. Fetuses of women with GDM treated with insulin lispro seem to have less fat. Further studies, involving larger numbers of pregnancies, will be necessary to validate these findings.

OP08.03

Clinical and ultrasound estimation of birth weight prior to induction of labor at term

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Objective: To assess and compare the accuracy of clinical and sonographic fetal weight estimation in predicting birthweight prior to induction of labor.

Methods: In a prospective study to estimate the fetal weight immediately prior to induction of labor, a transabdominal scan