Conclusions: The difference between estimated and actual birthweight decreased the closer the pregnancy was to term. Since the predictive accuracy of ultrasound estimation of birthweight improves with gestational age, growth assessments close to term are more likely to be helpful in delivery planning for diabetic women.

P20.07
Abdominal circumference growth velocity and cerebroplacental ratio as predictors of perinatal outcome in small-for-gestational-age fetuses

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Objectives: To investigate the relationship between abdominal circumference (AC) growth velocity and cerebroplacental ratio (CPR) to predict perinatal outcome in small for gestational age (SGA) fetuses.

Methods: A cohort of 238 singleton SGA fetuses at 36-38 weeks was created. Ultrasound fetal biometry, umbilical artery and middle cerebral artery Doppler measurements were performed for each fetus.

The AC growth velocity, defined as the Z score difference between 20 and 36 weeks divided by the interval in days between the two ultrasound evaluations, and the CPR centile were calculated. The lowest decile of the change in AC Z score was determined from a large database of 20 and 36 week scans in an unselected population at the John Radcliffe Hospital, Oxford, UK. The lowest decile cut-off of AC growth velocity and CPR less than 10th centile were defined as abnormal.

A composite adverse perinatal outcome (APO) was defined as 1+ of the following: umbilical artery pH <7.10, 5 min Apgar score <7, admission to neonatal intensive care, hypoglycaemia, intrapartum fetal distress requiring expedited delivery, and perinatal death.

A multivariate logistic regression analysis was performed to investigate the association between the lowest decile of AC growth velocity and CPR <10th centile, and the APO.

Results: Abnormal AC growth velocity (OR: 1.93, 95% CI: 1.03 - 3.63; p=0.04) and CPR <10th centile (OR: 2.84, 95% CI: 1.46 - 5.54; p=0.002) were independent predictors of APO. AC growth velocity and CPR centile were weakly correlated (r=0.22, p=0.001). Our model provided a good fit to the data (χ2=15.428, p=0.001). The EFW at last scan alone had a poor predictive value for SGA neonate (AUC: 0.52, 95% CI: 0.31 to 0.54). The multivariate model also had suboptimal fit according to Hosmer-Lemeshow test (P=0.002), but outperformed EFW alone for the prediction of SGA neonate.

Conclusions: Even though the prediction model shows modest precision and poor calibration for assessing the risk of SGA at birth in a cohort of estimated normal weight fetuses at ultrasound, the multivariate model outperforms EFW in the prediction of SGA neonate in a cohort of AGA fetuses at term.

P20.08
Prediction of small-for-gestational-age neonate in a cohort of estimated normal weight fetuses at term

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Objectives: Small-for-gestational-age (SGA) neonates are at increased risk of perinatal mortality and morbidity. Fetuses estimated by ultrasound to be appropriate for gestational age (AGA) at term could subsequently become SGA by the time they are born. We aimed to develop a predictive model for the risk of delivering an AGA neonate in a cohort of estimated AGA fetuses at term.

Methods: A cohort study of singleton fetuses at term with an estimated fetal weight (EFW) between 10th and 70th centile using the INTERGROWTH-21st charts. Major structural anomalies, aneuploidies, genetic syndromes, missing outcomes or stillbirths were excluded. The variables included known risk factors for SGA: maternal characteristics, EFW, fetal Doppler indices and interval to delivery. Logistic regression, ROC curve analysis and Hosmer-Lemeshow tests were used to analyse the data.

Results: 8267 AGA term pregnancies were included in the analysis, of which 2023 (24.4%) were SGA at birth. The prediction model (AUC 0.66, 95% CI: 0.63-0.68) included middle cerebral artery MoM (OR: 0.37, 95% CI: 0.50 to 0.66), interval to delivery >2 weeks (OR: 2.04, 95% CI: 1.82 to 2.28), and multiparity (OR: 0.42, 95% CI: 0.38 to 0.47). The EFW at last scan alone had a poor predictive value for SGA neonate (AUC: 0.52, 95% CI: 0.31 to 0.54). The multivariate model also had suboptimal fit according to Hosmer-Lemeshow test (P=0.002), but outperformed EFW alone for the prediction of SGA neonate.

Conclusions: Even though the prediction model shows modest precision and poor calibration for assessing the risk of SGA at birth in a cohort of estimated normal weight fetuses at ultrasound, the multivariate model outperforms EFW in the prediction of SGA neonate in a cohort of AGA fetuses at term.

P20.09
The probability of cephalic presentation across pregnancy in the INTERGROWTH-21st fetal growth longitudinal study

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Objectives: To describe the probability of cephalic presentation at each gestational age (GA) from 16+0 to 40+6 weeks using ultrasound in a longitudinal study.

Methods: The population sample was derived from the Fetal Growth Longitudinal Study (FGLS), a major component of the INTERGROWTH-21st Project, involving healthy women with a singleton pregnancy from urban areas in 8 countries. Women were scanned every 5±1 weeks for fetal presentation, biometry, and placental location. Summary statistics were used to describe demographic and pregnancy-related variables. The probability of cephalic presentation at a given GA was estimated at each completed week.
Results: Data from 19,482 ultrasound scans (n = 4,225 women in the FLGS cohort) were available for analysis. The demographics of participants, number of scans per woman, and the probability of cephalic presentation at each GA from 16 to 40 weeks' gestation were charted. The probability of cephalic presentation increased from 0.41 (95% CI 0.38 to 0.45) at 16 weeks' gestation to 0.97 (0.95 to 0.98) at 36 weeks' gestation and 0.98 (0.96 to 0.99) at 39 weeks' gestation.

Conclusions: It is well recognised that the probability of cephalic presentation increases with GA. Here, we present probabilities at each GA, derived from a longitudinal study of 4,225 individual fetuses, which should help clinicians to counsel women.

P20.10 Prediction of large-for-gestational-age neonate in a cohort of estimated normal weight fetuses at term
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Objectives: Large-for-gestational-age (LGA) fetuses are at higher risk of delivery complications and obstetric trauma. We aimed to develop a predictive model for the risk of delivering an LGA neonate in a cohort of estimated appropriate for gestational age (AGA) fetuses at term.

Methods: A retrospective cohort study of singleton fetuses at term with an estimated fetal weight (EFW) above the 10th centile using INTERGROWTH-21 charts. Major structural anomalies, aneuploidies, genetic syndromes, missing outcomes or stillbirths were excluded. Variables included known risk factors for LGA at birth: maternal characteristics, EFW, fetal Doppler indices and interval to delivery. Logistic regression, ROC curve analysis and Hosmer-Lemeshow tests were used to analyse the data.

Results: 19,482 pregnancies were included in the analysis, of which 1788 were LGA (>97th centile). The most important single parameter for the prediction of LGA was EFW centile (OR: 18.32 [95% CI: 6.67 to 50.6]) which 1788 were LGA (95%CI: 16.32 to 20.61), P < 0.001. The model had good calibration for assessing the risk of NNU admission in a cohort of suspected SGA fetuses. The predictive model can be useful for determining the need for NNU care in suspected SGA fetuses.

P20.11 Small-for-gestational-age (SGA) fetuses are at higher risk of neonatal unit (NNU) admission: we aimed to develop and validate a predictive model for the risk of NNU admission in SGA fetuses at term
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Objectives: Small-for-gestational-age (SGA) fetuses are at higher risk of neonatal unit (NNU) admission. We aimed to develop and validate a predictive model for the risk of NNU admission in SGA fetuses at term.

Methods: A single-centre cohort study of SGA [estimated fetal weight (EFW) < 10th centile using INTERGROWTH charts] singleton pregnancies at term. Major structural anomalies, aneuploidy, genetic syndromes, missing outcomes or stillbirth were excluded. Variables included known risk factors for NNU admission: maternal characteristics, EFW, abdominal circumference (AC), fetal Dopplers, gestational age (GA) at the ultrasound and delivery, induction of labour and intrapartum risk factors (meconium, augmentation using oxytocin, epidural, pyrexia, hemorrhage). Logistic regression, ROC curve analysis, and Hosmer-Lemeshow tests were used to analyse the data. Validation of the models was performed internally with bootstrapped datasets.

Results: 965 pregnancies were included in the analysis, of which 5.3% required NNU admission. The prediction model (AUC 0.73, 95% CI: 0.66-0.80) included maternal BMI (OR: 1.94 [95%CI: 1.05 to 3.54]), drug abuse (OR: 7.85 [95%CI: 2.48 to 26.62]), cerebroplacental ratio (CPR) MoM (OR: 0.26 [95%CI: 0.07 to 0.87]), GA at delivery (OR: 0.36 [95%CI: 0.19 to 0.65]) and intrapartum pyrexia (OR: 12.56 [95%CI: 3.58 to 39.74]). The results indicate that the model has good precision and, according to Hosmer-Lemeshow test, also has good fit (p = 0.99).

Conclusions: The prediction model shows modest precision and good calibration for assessing the risk of NNU admission in a cohort of suspected SGA fetuses. The predictive model can be useful for determining the need for NNU care in suspected SGA fetuses.

P21: PREDICTING PREGNANCIES AT RISK
P21.01 Perinatal outcomes of pregnancies conceived by assisted reproductive technologies in an 11+0–13+6 weeks screening program
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Objective: To evaluate the maternal and perinatal outcomes of singleton pregnancies conceived by assisted reproductive technologies (ART) compared to spontaneous pregnancies.

Methods: Case control study carried out as a part of an 11-14 weeks US. In case of ART, the type of technique used was obtained. The gestational age was adjusted by the CRL, and the uterine artery (UtA) Doppler was obtained for the prediction of placental insufficiency diseases. The perinatal outcome was obtained by a review of the medical chart or by contact with the patient. The odds ratios (OR) were obtained by univariate logistic regression analysis, and adjusted by maternal age and parity. A sub-analysis was performed, considering ovarian stimulation/intraterine insemination (OS/IUI) or in-vitro fertilization/intra-cytoplasmic sperm injection (IVF/ICSI).

Results: During the study period, 6,562 singleton pregnancies were evaluated with a known perinatal outcome. Of these, 105 patients (1.6%) were conceived by ART (42 OS/IUI and 63 IVF/ICSI). As expected, patients with ART were older and with higher rates of nulliparity compared to spontaneous pregnancies. There were no differences in BMI, smoking habit or chronic hypertension.