PF.66
Free fatty acid transfer across the placenta facilitated by lipoprotein lipase and its relationship with fetal adiposity

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Introduction Free fatty acids (FFA) transported by the placenta are important in fetal development. Gestational hyperlipidaemia results from increased FFA supply from adipose tissue and increased hepatic synthesis of very-low-density lipoprotein (VLDL). Lipoprotein lipase (LPL) hydrolyses VLDL, releasing FFAs. Angiopoietin-like proteins (ANGPTL) 3 and 4 regulate LPL in the plasma and increase with gestation. ANGPTL4 is expressed by the placenta. Less is known about ANGPTL3.
Methods The aim of this study was to relate placental expression of LPL and its regulators to the maternal plasma measures, and with cord blood measures of fetal nutrition. In healthy placenta (n = 21), expression of ANGPTL3, ANGPTL4, LPL and endogenous control TOP-1 was measured using reverse transcription quantitative polymerase chain reaction. Cord blood samples (n = 14) were analysed for lipid (colorimetric analysis) and leptin (enzyme-linked immunosorbent assay) concentrations.
Results Placental LPL expression was 84% of ANGPTL4. ANGPTL3 was undetected. Placental LPL and ANGPTL4 expression was unrelated to respective plasma mass. There were no correlations between placental LPL and ANGPTL4 expression and cord blood measures. A negative correlation was found between maternal plasma FFA and cord blood triglycerides (r = −0.72, P = 0.004).
Conclusion High levels of placental ANGPTL4 expression suggest involvement in the regulation of placental LPL. The lack of relationship between plasma protein mass and placental expression of LPL, ANGPTL3 and 4 suggests that the placenta is not the source of the gestational increase in plasma mass. The inverse association between maternal FFA and cord blood triglyceride levels suggests that high levels of maternal FFA may disrupt transfer of FFA to the fetus, which may result from placental ectopic fat formation.

PF.67
Gastroschisis: management and counselling in a tertiary referral centre

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Introduction The diagnosis of fetal anomaly on a scan is very distressing for expectant parents. Proper counselling regarding the pregnancy management and long-term outcomes will play a significant role in reducing parental anxiety. However, currently there is no national guideline regarding the management and monitoring of pregnancies affected with gastroschisis diagnosed after fetal scan.
Our aim was to review the management of fetal gastroschisis and the aspects covered in counselling so as to identify whether there is a need for a regional guideline.
Methods A retrospective audit of all the cases of gastroschisis identified through fetal scan over a period of 2 years in a busy tertiary referral hospital. Twenty-five cases of gastroschisis were identified and the management and counselling methods were analysed using case notes and database. Various outcome parameters like gestation at delivery, mode of delivery, baby weight, neonatal complication and hospital stay were collected.
Results Most of the pregnancies (70%) continued till term (37+ weeks) and had vaginal delivery after induction of labour. The birthweight adjusted to gestational age was within the normal range in most babies (75%). The median hospital stay was around 45 days with good short-term recovery. During the counselling, aspects of short-term management were always covered (96%) and remote complications like neurodevelopmental delays and future fertility of the child were not covered.
Conclusion Pregnancy management and counselling in women with isolated fetal gastroschisis was found to be overall good and a regional guideline will help in ensuring a standard practice.

PF.68
Effectiveness of ultrasound biometry at 34–36 weeks in the detection of small-for-gestational-age at birth

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Objective Antenatal detection of late onset fetal growth restriction remains a challenge. There is wide variation in current ultrasound scan regimens, which include a last assessment at 34, 35 or 36 weeks of gestation. We wanted to investigate the effectiveness of such protocols in detecting small-for-gestational-age (SGA) birthweight.
Methods The data were derived from a routinely collected NHS regional database of 129 954 singleton pregnancies excluding congenital abnormalities, which delivered between 2009 and 2012. The analysis included 40 213 pregnancies (30.9%) where, regardless of indication, a 'last scan' was undertaken between 34 weeks 0 days and 36 weeks 6 days gestation. The estimated fetal weight (EFW) was usually based on a Hadlock formula including fetal head, abdomen and femur measurements. Outcome was SGA at birth, defined as birthweight <10th customised centile.
Results The proportion of scans performed at 34.0–34.6, 35.0–35.6 and 36.0–36.6 weeks were 31.4%, 25.6% and 43.0%, respectively. The SGA detection rate (DR) was 19.3% at 34 weeks, 33.6% at 35 weeks and 36.1% at 36 weeks. The table lists the false positive rate and the positive and negative predictive values of scans at each gestational age window, as well as length of gestation in cases with and without antenatal detection of SGA.

Conclusion Ultrasound biometry in routine NHS practice between 34 and 36 weeks of gestation fails to detect the majority of babies born SGA. In pregnancies requiring ultrasound biometry, serial assessment should be continued until delivery.

Weeks of gestation	**34**	**35**	**36**
No. of pregnancies with a 'last scan'	12 612	10 285	17 301
% of all cases scanned at 34–36 weeks	31.4	25.6	43.1
SGA rate at birth (%)	14.1	18.4	19.3
Detection rate	**19.0**	**33.6**	**36.1**
False positive rate	1.3	3.7	3.5
Positive predictive value	71.1	67.3	71.3
Negative predictive value	88.1	86.5	86.4
Gestational age at delivery if EFW <10	262.4	268.5	270.0
Gestational age at delivery if EFW >10	277.3	276.5	277.3

PF.69
Prevalence of risk factors requiring serial ultrasound assessment of fetal growth according to new NHS England algorithm

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Objective RCOG guidelines recommend serial ultrasound scans in pregnancies at increased risk of fetal growth restriction. NHS England has developed a simplified algorithm for early pregnancy assessment as part of their new *Saving Babies Lives Care Bundle* (www.perinatal.org.uk/pdfs/SGA_risk_assessment_algorithm_NHSE_2015.pdf). We wanted to ascertain what proportion of our maternity population will require serial ultrasound scans according to this algorithm.

Methods We studied a regional database of 146 774 routinely collected singleton pregnancies excluding congenital anomalies, with data on all required prepregnancy and early pregnancy variables (Table 1) except antiphospholipid syndrome, renal impairment and fibroid uterus. Prevalence of each variable was calculated together with the cumulative risk, after accounting for overlap between groups.

Results Overall, 36.2% of our population had one or more of the listed risk factors for being small-for-gestational-age (SGA) (Table). The largest contribution was due to smoking with a combined prevalence of 18.3%, and accounting for 13.6% (36.2–22.6) of additional risk after other factors were included. The overall rate of SGA (<10th customised centile) was 13.2%, with a rate of 9.5% in pregnancies with no risk factors, rising to 19.8% with one or more of the risk factors listed (odds ratio [OR] 2.3, 95% CI 2.3–2.4). Pregnancies with one or more risk factors also had an increased risk of stillbirth, rising from 3.2/1000 (no risk) to 4.9/1000 (OR 1.6, 95% CI 1.3–1.9).

Conclusion The new algorithm helps to identify pregnancies at increased risk of SGA and stillbirth. However, additional ultrasound scan resources will be required for effective implementation.

Risk factor	**Prevalence (%)**	**Cumulative (%)**
Previous stillbirth	0.3	0.3
Previous SGA baby	6.3	6.5
Pre-existing hypertension	6.2	12.4
Pre-existing diabetes	0.7	13.1
Maternal age 40+	3.2	15.6
Body mass index 35+	8.1	21.8
Drug misuse	1.1	22.6
Smoker 10+ cigarettes/day	9.6	29.5
Smoker 1–9 cigarettes/day	8.7	**36.2**