## PF.35 THE MISSING LINK: COMBINING FETAL MEDICINE AND NEONATOLOGY DATASETS TO IMPROVE SERVICE EVALUATION

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**Introduction** As obstetricians, we are in danger of losing touch with our patients as they transition out of our care. The Fetal Medicine Unit (FMU) at University Hospitals Coventry and Warwickshire manage many at-risk pregnancies each year, and effective communication with the neonatology department ensures best care at delivery. However, there has been no system in place for regular review of patient outcomes. We proposed to develop a database, available to both departments, providing key information regarding events pre- and post-delivery, in order to improve quality of care through enablement of efficient audit and service evaluation.

**Methods** As a pilot, we collected data on pregnancies managed by the FMU between January and September 2012. Pregnancies were categorised according to reason for initial FMU referral. Obstetric data was collected from the Viewpoint database; neonatal from medical notes. We worked with the IT department to create a shared work space on the hospital intranet, which was then accessed for audit.

**Results** We identified 92 relevant pregnancies. The majority of FMU referrals were for increased Combined Risk Ratios (14%) or Gastrointestinal Tract abnormalities (14/%). Two service evaluations have already been completed using data from the database, and we have received positive feedback from both departments.

**Conclusions** The database successfully provides a platform from which regular audits and service evaluations can be made between the FMU and neonatology department. We plan to maintain this database, allowing us to provide parents with updated local neonatal outcomes, and to better enable clinicians to review and reflect.

## PF.36 AUDIT OF CONGENITAL CENTRAL NERVOUS SYSTEM (CNS) ANOMALIES: PATTERNS OF REFERRALS AND SERVICE IMPLICATIONS AFTER THE INTRODUCTION OF FIRST TRIMESTER SCREENING AND SECOND TRIMESTER ANOMALY ULTRASOUND IN SOUTH EAST SCOTLAND

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67 cases of fetal CNS anomalies from January 2010 – December 2011 were retrospectively reviewed. 80.6% from within the tertiary unit, and 19.4% referred from district general hospitals.

**Abstract PF.36 Table**

| | |
|---|---|
| Most common reasons for referral | Suspected neural tube defect 17.9%<br>Increased AFP 16.4%<br>Isolated ventriculomegaly 13.4%<br>Anencephaly 11.9%<br>Increased nuchal translucency 6% |
| Mean gestation at referral | 17 + 6 weeks |
| First FM appointment | 2 days after referral |
| Average number of FM scans | 2.8 scans<br>For terminations = 1.5 scans<br>For continuing pregnancies = 5.9 scans |
| Additional system anomalies | 13 cases |

Further investigations included chromosomal diagnosis; 1 CVS (normal), 7 amniocentesis (5 abnormal), 7 declined. Serology showed 3 positive for cytomegalovirus IgM. Fetal MRI was performed in 19 cases (28.4%) at average gestation 25+3. A second MRI in 2 cases (2.9%) at average gestation of 31+6. MRI was declined in 4 cases (5.9%). MRI confirmed the diagnosis or added additional information in 84.2%.

Pregnancy outcomes were 23 livebirths, 43 terminations (5 feticide) and 2 neonatal deaths. Post-mortem was performed in 55.2% of cases (86.1% of terminations). The findings added information in 40% of cases, including 4 further chromosomal abnormalities. Of the livebirths, 43.4% of babies were admitted to the Neonatal ICU with an average hospital admission of 21 days. Postnatal USS was performed in 82.6% and MRI in 52.2%. 82.6% had outpatient follow-up: 21.7% had a normal outcome, 21.7% showed global or isolated motor delay, and 13.1% were deceased. All were too early for a formal Baileys 2 year outcome.

The management of congenital CNS anomalies requires significant multidisciplinary care, sequential USS and often additional MRI. This audit had added information which can inform the care pathway.

## PF.37 MIDDLE CEREBRAL ARTERY DOPPLERS IN A LOW-RISK POPULATION

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**Objective** To construct reference intervals for middle cerebral artery Doppler indices in a low-risk population.

**Study design** This was a prospective, cross-sectional study involving low-risk women attending Cork University Maternity Hospital conducted concurrently with a primary study to construct normograms for fetal biometry. Women were recruited from their first trimester dating scan and randomly allocated to a single scan between 14–40 weeks gestation. Scans were performed by a sole researcher. Gestation was calculated using the estimated due date assigned by dating scan. Recruits were Irish Caucasian women with a singleton pregnancy. Women with conditions affecting placental function including hypertension, pre-eclampsia, renal disease, autoimmune disorders and diabetes mellitus were excluded. Fetuses at risk of anaemia were excluded as were fetuses with congenital anomalies. Middle cerebral artery Dopplers were sampled using the Voluson E8 ultrasound by GE Healthcare.

**Results** Nine-hundred-and-fifteen women were recruited. Seven-hundred-and-ninety-three women met the inclusion criteria and were scanned as per protocol. Median maternal age was 32 (range 17–44). Median BMI was 24.7 (range 17.1–48.6). Nulliparous women constituted 46.5% (369/793) of recruits, 32.6% (261/793) were expecting their second child, 18.3% (145/793) were expecting their third or fourth child, while only 2.3% (18/793) were grand multiparous. Reference intervals for middle cerebral artery peak systolic velocity (PSV) and pulsatility index (PI) were generated for this population.

**Conclusion** We have constructed reference interval for middle cerebral artery Doppler indices from 16 to 40 weeks in a low-risk population using up-to-date ultrasound equipment.

## PF.38 UPTAKE OF FREE FETAL DNA FOR ANEUPLOIDY SCREENING IN WOMEN OF ADVANCED MATERNAL AGE

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**Background** Free fetal DNA (ffDNA) testing for aneuploidy has recently started being offered to all women in our institution who are high risk for trisomy 21 (aged 35 or over at estimated date of delivery). We therefore examined the uptake rate of ffDNA for aneuploidy screening in women of advanced maternal age who had been seen by a genetic counsellor.

As this test has much higher sensitivity than other screening tests, we hypothesised that more women will have ffDNA than other forms of screening.

**Methods** We included 258 women who had singleton pregnancies and who were of advanced maternal age. We undertook a retrospective analysis of electronic chart data. Chi squared statistical analysis was performed on the data to determine statistical significance between groups based on age, nuchal thickness and parity.

**Results** 118 (46%) women had ffDNA for screening for aneuploidy, the remaining 140 (54%) chose either other screening options or no screening. Statistically there was no difference in choice between groups of women dependent on their calculated risk based on their age ($p = 0.15$). The size of the nuchal lucency measurement (within normal range) had no statistical effect on the choice ($p = 0.16$). Women who were primiparous were no more likely to have ffDNA than multiparous women ($p = 0.4$).

**Conclusions** Although ffDNA is a more accurate way of screening for aneuploidy, the majority of women are still using other forms of screening. We found that the uptake of ffDNA testing was not statistically significantly affected by age, nuchal thickness or parity.

## PF.39 CLINICAL RELEVANCE OF FETAL WEIGHT ESTIMATION IN SOUTHWEST UGANDA

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**Background** There is an increasing incidence of low birth weight babies (<2500 g) in Uganda. This can cause significant perinatal morbidity and mortality and is related to intrauterine growth restriction (IUGR). Estimated fetal weight (EFW) can be established clinically or sonographically and influences obstetric management. The accuracy of clinical and sonographic formulae needs to be established in Uganda due to resource limitations and increasing burden of IUGR.

**Methods** We prospectively studied term, cephalic, singleton pregnancies in Mbarara Regional Referral Hospital, Uganda. Clinical EFW was calculated using Dare's and Johnson's formulae, sonographic EFW used Hadlock C formula. Effects of the following variables were also examined: maternal age, body mass index, parity, gestational age, fetal sex and birth weight.

**Results** Ninety women were enrolled. Birth weight was correctly estimated (±10%) in 25.6%, 47.8% and 64.4% of the cases using Johnson's, Dare's and Hadlock's formulae respectively. Accuracy levels differed between the three formulae ($p < 0.001$). Johnon's is significantly less accurate than other formulae, whilst Hadlock's is significantly more accurate. Nine percent of deliveries had birth weight <2500 g, 88% had birth weight of 2500–4000 g, while 3% weighed >4000 g. The sensitivity of predicting birth weight of less than 2500 g was only 50% for ultrasound and 13% for clinical EFW, with 95% and 100% specificity respectively.

**Conclusion** Sonographic EFW is more accurate than clinical formulae. It best at predicting low birth weight fetuses, however, sensitivity remains low and better methods for identification need to be developed.

## PF.40 WITHDRAWN BY AUTHOR

## PF.41 'TO HAVE A LITTLE BIT OF HOPE IS LIKE BEING THROWN A LIFELINE' THE EXPERIENCE OF PREGNANT WOMEN WITH A DIAGNOSIS OF FETAL LOWER URINARY TRACT OBSTRUCTION (LUTO)

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**Introduction** The PLUTO: Percutaneous Shunting for Lower Urinary Tract Obstruction (LUTO) Study was a multi-centre, randomised, controlled trial (RCT) undertaken to evaluate the safety and efficacy of fetal vesicoamniotic bladder shunting in moderate to severe ante-natally diagnosed cases compared to conservative management. Within the trial a qualitative study explored women's motivation for entering the trial, and their experience of the condition and its management. The trial was terminated early, but the qualitative data collected provided an insight into being pregnant with a fetus with a serious medical condition.

**Aim** To gain insight into the experiences and perceptions of pregnant women asked to participate in an interventional fetal medicine trial requiring an invasive procedure.

**Method** Semi-structured interviews were undertaken with a purposive sample of women involved in the PLUTO trial (n = 6). The data were analysed thematically.

**Findings** Motivation for participation in the PLUTO trial was consistent with other research, and involved reasons of both altruism and self-interest. Loss of a normal pregnancy was precipitated by the current routine use of ante-natal scanning. This was associated with uncertainty for women and a decision making process that could only result in a less than ideal option.

**Conclusion** Undertaking a qualitative study within the PLUTO trial has illuminated the experience of receiving a prenatal diagnosis of LUTO following ultrasound scanning. The unexpected nature of the diagnosis itself and the evident uncertainty that permeates this condition and its management during pregnancy appears to exert some influence over women's decision making.

## PF.42 UNFUSED AMNION AND CHORION (UAC) AFTER 15 WEEKS GESTATION AND ASSOCIATION WITH CHROMOSOMAL ABNORMALITIES

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**Objectives** To assess a possible association between UAC and Trisomy 21.

**Method** Medical records of all women undergoing amniocentesis between April 2008 and October 2012 at RDH were analysed highlighting UAC and karyotype result.

**Results** 425 women underwent amniocentesis for standard screening rationale.

33 fetuses were diagnosed with trisomy 21, (incidence of 7.6%).

21 women had their amniocentesis delayed because of UAC (404 did not as the membranes were normally fused - NFM). Of these, 10 had a result confirming the presence of Trisomy 21, the remaining 11 had a normal result, 23 of the 404 with NFM had Trisomy 21.

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