

trophoblast death (from a baseline of  $17.8 \pm 2.6\%$  to  $30.8 \pm 2.7\%$ ,  $p = 0.0068$ ). In normoxic conditions VEGF<sub>165</sub>b decreased trophoblast death in a dose dependent manner from  $33.6\% \pm 0.6$  (control) to  $29.2\% \pm 0.9$  with 40 ng/ml VEGF<sub>165</sub>b to  $24.2\% \pm 3.5$  with 80 ng/ml VEGF<sub>165</sub>b, One way ANOVA,  $p = 0.0019$ , Dunnett's Multiple Comparison Test.

These findings suggest that VEGF<sub>165</sub>b deficiency is associated with trophoblast death, VEGF<sub>165</sub>b supplementation with trophoblast survival This has implications for pre-eclampsia pathophysiology.

**PM.23 WITHDRAWN BY AUTHOR**

**PM.24 QUANTITATIVE FETAL FIBRONECTIN AS A PREDICTOR OF PRETERM BIRTH IN ASYMPTOMATIC WOMEN WITH TRANS-ABDOMINAL CERCLAGE**

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**Background** Preterm birth (PTB) remains a significant cause of neonatal morbidity and mortality. The most accurate predictors of PTB are ultrasound determined cervical length (CL) and fetal fibronectin (fFN). Cervical cerclage in situ gives more false positive fFN results<sup>1</sup> but its value in abdominal cerclage is unknown. The aim of this study is to assess the accuracy of quantitative fFN for prediction of PTB (<34 weeks') in asymptomatic high-risk women with abdominal cerclage.

**Method** Secondary analysis of quantitative fFN results from EQUIPP study, taken between 20<sup>+0</sup> and 24<sup>+6</sup> week' in asymptomatic women referred to specialist antenatal clinics (2010–2012), with a trans-abdominal, elective or ultrasound-indicated (emergency) cervical cerclage.

**Results** Quantitative fFN may be most accurate for predicting PTB at <34 weeks' in women with abdominal cerclage (AUC 1.0 (95% CI 0.0–1.0), 0.82 (95% CI 0.70 – 0.94) and 0.60 (95% CI 0.45–0.75) respectively). For delivery at <34 weeks' the sensitivity and specificity of fFN testing was lower in women with elective and emergency cervical cerclage compared to women with abdominal cerclage (Table 1). The positive predictive value of the test is similar between groups.

**Abstract PM.24 Table 1**

Type of Cerclage	Sensitivity	Specificity	NPV	PPV
Abdominal (n = 20)	100%	95%	100%	50%
Elective Cervical (n = 67)	69%	81%	92%	47%
Emergency Cervical (n = 55)	74%	44%	70%	49%

**Conclusion** Asymptomatic high-risk women with cervical cerclage in situ may have more false positive fFN test than women with an abdominal cerclage. Quantitative fFN is an accurate predictor of PTB in women with abdominal cerclage.

**REFERENCE**

- Duhig K, Chandiramani M, Seed PT, Briley AT, Kenyon AP & Shennan AH. Fetal fibronectin as a predictor of spontaneous preterm labour in asymptomatic women with cervical cerclage. *BJOG* 2009;116: 799–803

**PM.25 THE IMPACT OF CERVICAL SURGERY ON INTERVENTION AND OUTCOME IN HIGH RISK PREGNANT WOMEN**

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**Background** A meta-analysis of 27 studies demonstrated that cervical surgery for cervical intraepithelial neoplasia (CIN) was associated with almost two-fold increased risk of preterm birth (PTB)<sup>1</sup>. A more recent epidemiological study has suggested no influence of cervical surgery on risk of PTB<sup>2</sup>. However, rates of intervention were not analysed. The aim of this study was to determine the impact of cervical surgery on intervention and pregnancy outcome in high-risk asymptomatic women.

**Methods** Analysis of 535 women attending preterm surveillance clinic at St. Thomas' hospital (1997 to 2011) with a history of one or two previous PTB/mid trimester loss. The rates of spontaneous preterm delivery (<37 weeks') and interventions were compared in women with and without destructive cervical surgery (DCS).

**Results** Previous cervical surgery did not significantly increase the risk of a further PTB (13/47 [28%] with history of DCS vs. 122/488 [25%] with no history of DCS,  $p = 0.68$ ). Women that had previous DCS were significantly more likely to require an ultrasound indicated cerclage compared to those that had no history of DCS (9/47 [19%] vs. 48/488 [10%] respectively;  $p < 0.05$ ).

**Conclusion** In this high-risk cohort, DCS increases the risk of intervention, but not the risk of subsequent PTB. Reports suggesting treatment is not a risk factor need to include effects on intervention<sup>2</sup>. This suggests that cervical surgery may be detrimental to the mechanical function of the cervix and further research to define the role of cerclage in women with prior PTB and DCS is warranted.

**REFERENCES**

- Kyrgiou M, Koliopoulos G, Martin-Hirsch P, Arbyn M, Prendiville W, Paraskevaidis E. Obstetric outcomes after conservative treatment for intraepithelial or early invasive cervical lesions: systematic review and meta-analysis. *Lancet* 2006; 367(9509):489–98
- Castanon, A., Brocklehurst, P., Evans, H. *et al*. Risk of preterm birth after treatment for cervical intraepithelial neoplasia among women attending colposcopy in England: retrospective-prospective cohort study. *BMJ* 2012;345: 5174.

**PM.26 QUANTIFICATION OF UTERINE SPIRAL ARTERY TRANSFORMATION FROM 11 – 19 WEEKS GESTATION**

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**Background** Uterine spiral artery (SpA) remodelling, characterised by loss of vascular smooth muscle (VSM), is essential for successful placentation; impaired SpA remodelling occurs in late miscarriage, pre-eclampsia and fetal growth restriction. Non-remodelled and completely remodelled SpA are easily identified histologically but identification of partially remodelled SpA is less defined; various stages have been proposed based on semi-quantitative scoring. The aim was to compare semi-quantitative scoring of VSM loss with quantification of VSM.

**Methods** Placental bed biopsies from women undergoing surgical pregnancy termination were immunostained to assess trophoblast (cytokeratin 7), endothelial cells (factor 8), myometrium and VSM (h-caldesmon,  $\alpha$  smooth muscle actin). SpA VSM was scored using 4 categories: SM1 = intact but separated; SM2 = <50% lost; SM3 = 50–90% lost; SM4 = >90% lost. 20 SpA were independently scored by 2 individuals who showed >95% concordance. VSM was also quantified using a computerised pixel counting (using Adobe Photoshop).

**Results** VSM loss was scored in 175 SpA (11–19 weeks gestation) in decidua, junctional zone and myometrium; SM1 = 47; SM2 = 24; SM3 = 35; SM4 = 69. The 4 categories of VSM loss correlated to the quantified VSM loss (analysis of variance  $P < 0.001$ ); differences in VSM % based on pixel counts between groups were confirmed with t tests: mean, standard deviation: SM1 76.76, 12.12; SM2 62.46, 13.03; SM3 38.50, 16.51; SM4 11.28, 12.69;  $P < 0.001$  all cases.

**Conclusion** Assessment of SpA remodelling may not require quantitative assessment since semi-quantitative scoring correlates well with quantified VSMC in partially remodelled SpA. This scoring technique provides an approach to assessment of uterine SpA remodelling in pregnancy pathology.

#### PM.27 GESTATIONAL DIABETES: IS IT SAFE NOT TO INDUCE?

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**Background** Despite recent advances in the management of Gestational Diabetes (GDM), there is a paucity of evidence addressing the ideal timing of delivery in women who are well controlled. If recent proposed changes to diagnostic criteria were to be adopted<sup>1</sup>, the incidence of GDM would increase up to 16%. This could potentially increase induction and caesarean section rate.

**Objective** To assess the safety of not routinely inducing well controlled gestational diabetic women at 38 weeks.

**Methods** Retrospective study in a district general hospital.

**Outcomes** Incidence of fetal macrosomia, stillbirth, caesarean section, shoulder dystocia, third degree tear, postpartum haemorrhage (PPH) and admission to SCBU in this population.

**Results** In 2012, 157 women were diagnosed as GDM according to WHO/NICE criteria; 47% were treated with Metformin and 15% with Insulin. 48 women, well-controlled on diet, Metformin, and/or Insulin, were allowed to go into spontaneous labour. 12 of these women were eventually induced for post-maturity.

The incidence of macrosomia, emergency caesarean section, third-degree tear, PPH, SCBU admission was 4%, 12.5%, 4%, 4% and 4% respectively. There were no cases of shoulder dystocia or still-birth. These figures are well below the national average.

**Conclusion** Treating well-controlled gestational diabetics conservatively at term is a safe management option.

#### REFERENCE

- Metzger BE, Gabbe SG, Persson B, Buchanan TA, Catalano PA, Damm P, Dyer AR, Leiva A, Hod M, Kitzmiller JL, et al. International association of diabetes and pregnancy study groups recommendations on the diagnosis and classification of hyperglycemia in pregnancy. *Diabetes Care* 2010;33:676–682.

#### PM.28 AUDIT ON CARE AND OUTCOME OF PREGNANCY IN WOMEN WITH MORBID OBESITY

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**Background** Obesity is one of the biggest challenges facing maternity services today. Women with obesity have significant higher complication rates and these can potentially be reduced with good quality clinical care.

**Objectives** To compare current practise at Royal Derby Hospital with the RCOG/CEMACE guideline on management of pregnant women with morbid obesity.

**Methods** A retrospective case-note audit of all women delivered at RDH between 01/09/2011 and 31/08/2012 with booking BMI  $\geq$  40.

**Results** There were 6252 deliveries at RDH with 140(2.24%) patients with BMI  $\geq$  40. We analysed 134 case notes. Glucose tolerance test was performed in 96.2% of patients at 28 weeks gestation and 55.2% had an anaesthetic review. 47.1% of women laboured spontaneously, 36.5% of labours were induced and 16.4% had elective caesarean section (CS). 67.8% of women had a normal vaginal delivery, the instrumental delivery and Emergency CS rate were 9.0% and 23.2% respectively. 89.6% of operative deliveries were either performed or supervised by ST6 and above. 96.2% had active management of 3<sup>rd</sup> stage and major postpartum haemorrhage

occurred in 8.2% of women. For term deliveries the birth weights ranged from 2620 g to 5080 g (21.6% greater than 4000 g). 47.3% had postnatal thromboprophylaxis with 81.4% on sufficient thromboprophylaxis for weight.

**Conclusion** The audit demonstrated that the guidelines were not being adhered to, particularly for anaesthetic assessment and venous thromboembolism risk. Review of our local guideline with more training for healthcare professionals involved in the care of this group of high risk patients is required to improve maternal and neonatal outcomes.

#### REFERENCE

CMAACE/RCOG Joint Guideline on 'Management of Women with Obesity in Pregnancy' - March 2010

#### PM.29 COMPARISON OF HEPATIC PERFUSION BETWEEN PRE-ECLAMPSIA AND NORMAL PREGNANCY

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**Objective** We wanted to provide evidence for or against the thus far, unaccepted theory that the genesis of pre-eclampsia arises from the maternal venous circulation. We also wanted to assess hepatic perfusion in pre-eclampsia using 3 dimensional ultrasound.

**Methods** We measured hepatic portal vein flow in 12 women with normal pregnancy and 11 women with pre-eclampsia using standard Doppler ultrasound. We evaluated the three dimensional (3D) indices of hepatic perfusion: flow index (FI), vascular index (VI) and vascularisation flow index (VFI) which are believed to reflect vascularity and flow intensity. Because of small numbers, a non-parametric test was used to test differences between groups.

**Results** Hepatic portal vein flow was not different between women with normal pregnancy compared to women with pre-eclampsia [228.1 (215.5–270.6) vs. 283.0 (145.9–344.6);  $p = 0.90$ ]. The 3D indices of hepatic perfusion were as follows [FI; 36.3(30.7–42.5) vs. 39.7 (27.7–44.2),  $p = 1.00$ ; VI; 11.7 (3.6–21.2) vs. 3.0 (0.5–7.6),  $p = 0.04$ ; VFI; 4.7 (1.2–8.3) vs. 1.2 (0.1–3.2),  $p = 0.06$  respectively].

**Conclusion** We were not able to provide evidence in support of the suggestion that the genesis of pre-eclampsia arises from the maternal venous circulation. Because of the wide variability of our data, overall we conclude that there is no difference in the 3D indices of hepatic perfusion in women with pre-eclampsia compared to normal pregnant women.

#### PM.30 WITHDRAWN BY AUTHOR

#### PM.31 A LITERATURE REVIEW OF INTERFERON BETA TREATMENT IN MULTIPLE SCLEROSIS PATIENTS DURING PREGNANCY – IMPLICATIONS FOR FUTURE RESEARCH

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Multiple sclerosis is a neurological disease caused by discrete plaques of demyelination at sites throughout the central nervous system caused by a T-Cell mediated immune response with an unknown trigger. It has a lifetime risk of 1:1000 in the UK, and is twice as prevalent in females with the typical onset being between 20 and 40 years of age, namely the childbearing ages.

There are many disease-modifying therapies used to treat Multiple Sclerosis. However, immunomodulatory and immunosuppressive drugs used at any stage of pregnancy may affect fetus formation and/or development.