share the same primary pathology. The clinical features of pre-eclampsia are consistent with hypoxia and the changes in oxygen delivery and consumption indices in women with severe disease are similar to that observed in distributive shock. However, so far there are no studies done on maternal tissue oxygenation levels in pregnancies complicated by pre-eclampsia and IUGR.

Methodology Women in their third trimester with pre-eclampsia, IUGR and normal pregnancy (n = 16, 6, 16 respectively) were recruited for the study. Filtrass strain gauge plethysmography was used to compare calf blood flow and Mediaid iPOX pulse oximeter was used to compare the oxygenation in the three groups.

Results The resting peripheral blood flow was significantly reduced in pre-eclampsia group compared to normal pregnancy group (mean ± SEM [2.1 ± 0.22 vs.1.01 ± 0.1], p = 0.003), however no change was demonstrated in IUGR group compared to normal pregnancy group (mean ± SEM [2.1 ± 0.22 vs.1.9 ± 0.5], p = 0.92). No significant difference was noted in maternal tissue oxygenation between the normal pregnancy, pre-eclampsia and IUGR groups (mean ± SEM [97.13 ± 0.4, 96.69 ± 0.33, 97.83 ± 0.47 respectively} p = 0.26). No correlation was found between blood flow and tissue oxygenation.

Conclusion This study demonstrated that there is reduced resting peripheral blood flow in women with pre-eclampsia but not in IUGR and the reduction in blood flow in pre-eclampsia is not associated with changes in tissue oxygenation.

PM.19 WITHDRAWN BY AUTHOR

PM.20 THYROID HORMONE ACTION IN THE DECIDUA DURING HUMAN PREGNANCY

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Introduction Maternal thyroid dysfunction is associated with complications of malplacentation including miscarriages and pre-eclampsia. We hypothesise that thyroid hormones (TH) play an important role within human decidua in regulating placentation.

Methods Deciduas from human pregnancy were obtained from 1st (8–11 weeks) and 2nd trimester (12–20 weeks) surgical terminations of pregnancy. Primary cultures of total decidual cells (TDC), and immunomagnetic bead isolated populations of stromal-enriched ($CD10^{+ve}$) and stromal-depleted ($CD10^{-ve}$) cells, uterine natural killer cells (uNKs; $CD56^{+ve}$) and macrophages ($CD14^{+ve}$) were treated with T3 (0.10,100 nM). Assessments were made of cell viability (MTT assay), cytokine and angiogenic growth factor secretion (immunomediated assay) and the effects of decidual cell-conditioned media on extravillous trophoblast (EVT) invasion through Matrigel®.

Results Immunohistochemistry showed the expression of TH transporters (MCT8, MCT10) and receptors (TRα1, TRβ1) required for TH-responsiveness in uNKs and macrophages from early gestation. The viability of TDC and cell isolates were unaffected by T3. In 1st trimester, T3 reduced IL-10 secretion by TDC and $CD10^{-ve}$ cells ($p < 0.01$), and reduced GM-CSF, IL-10, IL-1β, IL-6, MCP-1 by macrophages ($p < 0.01$). In 2nd trimester, T3 increased IL-10 by TDC ($p < 0.01$) and reduced IL-10 by uNKs ($p < 0.001$). T3 increased VEGF secretion by 1st trimester uNKs ($p < 0.05$), and angiopoietin-2 by 2nd trimester TDC and uNKs ($p < 0.05$). Conditioned media from T3-treated TDC and macrophages did not alter EVT invasion compared to untreated controls.

Conclusion TH regulate decidual cytokine and angiogenic growth factor secretion in a cell-specific and gestation-dependent manner. The summation of TH effects upon the secretome do not affect EVT invasion.

PM.21 COMPLIANCE WITH POSTNATAL THROMBOPROPHYLAXIS

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Background Venous thromboembolism (VTE) is the 3rd leading cause of maternal death in the UK[1]. In order to minimise VTE risk in the postnatal period, we introduced a new scoring system in June 2011, based on RCOG guidelines[2]. Every woman's VTE risk is scored, and those who meet predetermined criteria are discharged on a seven days (7/7) or six weeks (6/52) course of low molecular weight heparin (LMWH). There were concerns regarding patient compliance and so a survey was conducted to explore this.

Method Pharmacy data identified 113 postnatal women who were discharged in November 2011 on LMWH. A telephone survey in February 2012 assessed understanding of the need for LMWH, and compliance.

Results 52 women were successfully contacted: 29 had been prescribed a 7/7 course, and 23 a 6/52 course.

- 100% of women understood the need for LMWH.
- 96% of those on a 7/7 course completed all injections.
- Only 32% completed the 6/52 course.

We identified reasons for non-compliance and the destination of unused LMWH.

Conclusion Non-compliance has implications for both patient safety and cost. The survey highlighted the importance of effective patient education and identified a need for improved communication between primary and secondary care. A multidisciplinary approach, with all healthcare professionals emphasising the importance of LMWH in the postnatal period may improve long-term compliance. A patient information leaflet has since been introduced.

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PM.22 THE ROLE OF $VEGF_{165}b$ IN TROPHOBLAST SURVIVAL – IMPLICATIONS FOR PRE-ECLAMPSIA PATHOPHYSIOLOGY

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It is widely accepted that the pathophysiological foundations of pre-eclampsia are laid down in the first trimester, with inadequate invasion of placental trophoblasts into maternal spiral arteries of the uterus, resulting in defective arterial remodelling. The angiogenic VEGF family of glycoproteins are expressed in first trimester trophoblasts and are important factors in placental development, which occurs in a hypoxic (<2% O_2) environment up to 10–12 weeks and normoxia (>20% O_2) thereafter. First trimester $VEGF_{165}b$ levels are low in women destined to later develop pre-eclampsia, so we investigated whether $VEGF_{165}b$ plays a role in early trophoblast survival and therefore pre-eclampsia pathophysiology.

Trophoblast cells were cultured in hypoxic and normoxic environments, in the absence and presence of $VEGF_{165}b$ and a $VEGF_{165}b$ blocking antibody clone 56–1. Cell survival was studied via cytotoxicity experiments. Production of $VEGF_{165}b$ by trophoblasts was determined via enzyme linked immunoassay (ELISA).

$VEGF_{165}b$ production by trophoblasts was increased in response to hypoxia (hypoxia: 1812 ± 33 pg/ml vs. normoxia: 1407 ± 95 pg/ml, unpaired t test, p = 0.016), and inhibition of $VEGF_{165}b$ increased

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

These findings suggest that $VEGF_{165}b$ deficiency is associated with trophoblast death, $VEGF_{165}b$ 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[1] 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^{+0} and 24^{+6} 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.

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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)[1]. A more recent epidemiological study has suggested no influence of cervical surgery on risk of PTB[2]. 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[2]. 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.

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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, α 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 in175 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.