Abstracts


PM.17 IMPACT OF MATERNAL OBESEITY ON ACCURACY OF SONOGRAPHIC FETAL WEIGHT ESTIMATION IN IUGR
doi:10.1136/archdischild-2013-303966.102
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Objective The objective of this analysis, as part of the multicentre prospective PORTO Trial, was to determine whether increasing maternal BMI decreases the accuracy of sonographic fetal weight estimation in IUGR pregnancies.

Study design The PORTO Trial recruited 1,118 consecutive ultrasound-dated singleton IUGR pregnancies, defined as EFW < 10th centile. Maternal BMI was recorded at booking and divided into 4 subcategories. Accuracy of fetal weight assessment was defined as difference between EFW within 2 weeks of delivery and actual birthweight.

Results Of the 1,076 recruited patients with complete records, 693 (64%) were of normal weight (BMI < 25), 258 (24%) were overweight (BMI 25–30), 93 (9%) were obese class I (BMI 30–35) and 32 (3%) were obese class II (BMI 35–40) (Table 1). Overall, fetal weight estimation prior to delivery was within 6% of respective birthweight. EFW was not influenced by increasing maternal BMI and EFW accuracy was only marginally better in normal weight mothers. Greater BMI was associated with earlier gestational age at delivery.

Conclusion These data show that ultrasound is reliable in the assessment of fetal weight in IUGR in the presence of increased maternal BMI.

Abstract PM.17 Table 1 Outcomes for BMI Categories.

<table>
<thead>
<tr>
<th>BMI Category</th>
<th>Normal weight</th>
<th>Overweight</th>
<th>Obese Class I</th>
<th>Obese Class II</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean GA at delivery (weeks)</td>
<td>38.1</td>
<td>37.5</td>
<td>37.2</td>
<td>35.5</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Birthweight (g)</td>
<td>2543</td>
<td>2473</td>
<td>2414</td>
<td>1989</td>
<td>0.0055</td>
</tr>
<tr>
<td>EFW (&lt;2 weeks of delivery)</td>
<td>2426</td>
<td>2307</td>
<td>2317</td>
<td>1984</td>
<td>0.0011</td>
</tr>
<tr>
<td>Median % difference</td>
<td>6.3%</td>
<td>6.4%</td>
<td>5.9%</td>
<td>6.6%</td>
<td>0.9828</td>
</tr>
</tbody>
</table>

Note: P-value compares BMI < 25 to BMI > 25

PM.16 ULTRASOUND COLOUR-DOPPLER FOLLOWED BY SELECTIVE MR IMAGING: A CASE SERIES
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Morbidity adherent placenta (MAP) is the abnormal attachment of the placenta to the uterine wall in which trophoblastic cells invade the uterine tissues. MAP is rare, affecting 1 in 2500 pregnancies1, however it is associated with high fetomaternal morbidity and mortality2. Previous caesarean section is a major risk factor for development of MAP3, and complicates 24% of cases of placenta praevia after one prior caesarean section4. With the current trend of increasing caesarean section rates5, MAP will pose significant obstetric problems in the future.

Antenatal diagnosis of MAP has been shown to reduce maternal morbidity6. Recent guidance from the National Institute for Clinical Excellence suggests that in cases where there is suspicion of MAP, colour-doppler ultrasound should be used as a first line diagnostic tool7. Presence of irregular lacunae within the placental architecture and loss of the clear space in the retroploental plane are considered to be useful diagnostic criteria in ultrasound imaging of MAP8. Where such ultrasound changes are found, magnetic resonance imaging (MRI) can then be considered to confirm diagnosis and evaluate the extent of invasion which would aid management planning9.

We present a case series of 6 patients presenting to York Teaching Hospital in whom MAP was queried on the basis of previous caesarean section, placental localisation scan or clinical presentation. We discuss the role of colour-doppler Doppler ultrasound in the initial assessment of suspected MAP followed by selective use of MRI.

REFERENCES

PM.18 MATERNAL RESTING PERIPHERAL BLOOD FLOW AND TISSUE OXYGENATION IN PREGNANCIES COMPLICATED WITH PRE-ECLAMPSIA AND IUGR
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Background Pre-eclampsia is characterised by hypertension and proteinuria and associated with systemic hypoperfusion of multiple maternal organs. Intrauterine growth restriction (IUGR) is a recognised complication of pre-eclampsia and the two conditions
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 Mediawave 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 ± 0.35, 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 placentalization including miscarriages and pre-eclampsia. We hypothesise that thyroid hormones (TH) play an important role within human decidua in regulating placentation.

Methods
Decidua 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 (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 (immunoassay) 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. In order to minimise VTE risk in the postnatal period, we introduced a new scoring system in June 2011, based on RCOG guidelines. 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.

REFERENCES

PM.22 THE ROLE OF VEGFα 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% O2) environment up to 10–12 weeks and normoxia (>20% O2) thereafter. First trimester VEGFα levels are low in women destined to later develop pre-eclampsia, so we investigated whether VEGFα 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 VEGFα and a VEGFα blocking antibody clone 56–1. Cell survival was studied via cytotoxicity experiments. Production of VEGFα by trophoblasts was determined via enzyme linked immunosassay (ELISA).

VEGFα 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 VEGFα increased...