

that failed expectant management, 17.1mm, and for those that failed medical management, 17.8 mm. There were no statistically significant differences amongst these four groups. Applying cut-offs for size of EP mass and success rate of expectant or medical management, there was a trend observed for the success of medical management. The medical management success rate was stable at around 85% for EP <24 mm; however it lowered to 67% for EP >=24 mm and <28mm, and then to ~50% for EP >28mm. These differences were not statistically significant.

Conclusions: In this study, size of tubal EP mass was not found to be an independent predictor of successful expectant or medical management of EP.

OC19.02

Is there an optimal 48/0 hour hCG ratio cut-off to predict successful conservative management of tubal ectopic pregnancy?

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Objectives: Aim to determine the optimal cut-offs for 48/0 hour hCG ratio to predict successful conservative management of tubal ectopic pregnancy (EP).

Methods: This was a prospective cohort study of women presenting to the Early Pregnancy Unit (EPU) between January 2006 and September 2013. All women diagnosed with a tubal EP on TVS were included. The decision to offer expectant or medical management was based primarily on the 48/0 hCG ratio. With a ratio <1; expectant management was offered, whereas Methotrexate (MTX) was advised if the ratio was >=1.0. hCG levels at 0 and 48 hours were recorded, and the 48/0 hCG ratio was calculated. Logistic regression was performed to establish the relationship between 48/0 hCG ratio and subsequent successful conservative management.

Results: 5415 consecutive women attended the EPU. 227 (4.2%) cases of tubal EP were included in the final analysis. 113 cases were managed conservatively (49.8%). Of these, 61 were managed expectantly while 52 received MTX. The success rate for expectant and medical management was 84% and 83%, respectively.

The AUC for the 48/0 hour hCG ratio and successful expectant management was 0.66. At a ratio of <=0.5 the success rate was 100%. For hCG ratios >0.5; the success rate varied between 82 and 95%. For cases managed medically, the AUC for the 48/0 hour hCG ratio was 0.56. At a ratio of 1.08; the success rate was 89%, whereas with ratios >1.08; the success rate varied between 80 and 86%. With ratios <1.08; success rates were quite variable (50–88%).

Conclusions: The optimal hCG ratio associated with successful expectant management of tubal EP was 0.5. For medical management, an hCG ratio of 1.08 confers optimal success rate.

OC19.03

PAPP-A at 5–11 weeks' gestation and the prediction of pregnancy outcome

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Objectives: Pregnancy-associated plasma protein A (PAPP-A) is a biochemical marker currently used as part of combined first trimester screening. A low PAPP-A at 11–13 weeks' gestation is predictive of miscarriage and late adverse pregnancy outcomes. We aimed to determine whether PAPP-A measured at 5–11 weeks would be predictive of early pregnancy loss.

Methods: Women attending our early pregnancy assessment service at 5–11 weeks with symptoms of miscarriage were asked to participate. Those with sonographic evidence of a failed pregnancy were excluded. Maternal serum PAPP-A was quantified and levels were analysed in relation to pregnancy outcome.

Results: 94 women were recruited at a median of 7+3 days. Four women were subsequently excluded (2 congenital anomalies and 2 lost to follow-up). 80 (89%) women had ultrasound evidence of a live intrauterine pregnancy. All 13 pregnancies ending in first trimester miscarriage had a raw PAPP-A level of <0.06IU/L. Using a PAPP-A cut-off of <=0.06IU/L would detect early pregnancy loss with a sensitivity of 100% (95% CI 73–100%) and a specificity of 68% (95% CI 56–77%). Final pregnancy outcome data was available for 87 (97%) women with 13 late adverse outcomes. In those ongoing pregnancies with an early PAPP-A level of <=0.06IU/L there was a trend towards increased risk of late adverse obstetric outcomes (OR 2.4; 95% CI 0.7–8.1).

Conclusions: PAPP-A at 5–11 weeks could be used to predict ongoing risk of miscarriage. Greater numbers of women are required to determine if risk of other adverse outcomes can be predicted from this early gestation.

OC19.04

Ultrasonographic factors predicting a poor outcome in pregnancies between 8 and 10 + 6 week's gestation

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Objectives: The aim of this prospective study is to assess the value of ultrasonographic findings in predicting unfavourable outcome in pregnancies between 8 and 10 + 6 weeks' gestation (WG).

Methods: This is a prospective study on live embryos between 8 and 10 + 6 WG performed in a tertiary center by a single fetal medicine specialist. The local research ethic committee approved the study protocol and patients were enrolled after an informed written consent. Embryonic crown–rump length (CRL), heart rate (HR) and yolk sac diameter (YSD) were measured and new ultrasonographic findings (embryonic skin edema and hydrothorax) were evaluated transvaginally. Fetal outcome was evaluated at 22 WG. Miscarriages, chromosomal abnormalities and fetal malformations were recorded and considered as unfavourable outcome. Logistic regression analysis was used in order to evaluate if the continuous variables CRL, HR and YSD and the categorical variables skin edema and hydrothorax have a significant effect on unfavourable outcome.

Results: From October 2011 and December 2013; 1318 consecutive patients with a live embryo pregnancy between 16mm and 44mm of CRL were enrolled in this prospective study. Final outcome was available in 1244 as in 74 cases patients were lost to the follow-up. In 1182 cases, second trimester ultrasound confirmed a normal development. Follow-up revealed a miscarriage in 29 cases, a chromosomal abnormality in 6 cases and a fetal malformation in 27 cases. Multivariate logistic regression analysis showed that in the prediction of unfavourable outcome the risk was higher when skin edema (odds ratio: 13.457) and hydrothorax (odds ratio:19.965) were found. However, CRL, HR and YSD didn't have a significant effect on the risk of unfavorable outcome.

Conclusions: Early ultrasonographic evaluation between 8 and 10+6 WG allows predicting the risk of poor outcome. Skin edema and bilateral hydrothorax are high predictors of miscarriage, chromosomal abnormalities and fetal malformations.

OC19.05

Incidence of persistent trophoblastic tumor and the role of ultrasound scanning in the management of gestational trophoblastic disease: our experience in a University Hospital in London

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Objectives: To establish the sensitivity of transvaginal ultrasonography in the diagnosis of molar pregnancy and to establish incidence of persistent trophoblastic disease.

Methods: A retrospective cohort study carried out over a 12 year period, from January 2001 to December 2012 with 57,797 live births recorded in this time frame, looking at cases with a diagnosis of hydatidiform mole. Histology was confirmed in the referral tertiary hospital and patients were followed up for persistence of disease.

Results: 117 patients were found to have a probable diagnosis of gestational trophoblastic disease which was confirmed by the tertiary centre in 105 patients, with the remaining patients were found to have a hydropic miscarriage. The incidence of molar pregnancy was calculated to be 1 in 550 live births. The detection rate of complete moles was found to be 92.5%, but the detection rate of partial moles was 34.3% ($Z = 5.2849$; $p < 0.0001$). Overall, the detection rate of molar pregnancies by ultrasound scan was found to be 65.3%. The ultrasound detection rate was considerably better for complete moles than partial moles ($Z = 5.2849$; $p < 0.0001$). The incidence of persistent trophoblastic disease was 4.76% ($n = 5$) and 1 patient (0.9%) had gestational choriocarcinoma.

Conclusions: Pre-evacuation ultrasound yields a higher detection rate in complete moles than partial moles. The use of early ultrasound scanning has led to earlier diagnosis of molar pregnancies, however a significant proportion are still diagnosed as missed or incomplete miscarriage. Therefore histopathological diagnosis is necessary for confirmation of the diagnosis of gestational trophoblastic disease. 3.7% of the patients developed persistent trophoblastic disease requiring further treatment and hence the need to follow up these patients.

OC19.06

***The psychological effects and patient acceptability of a test to predict viability in early pregnancy: a prospective randomised study**

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Objectives: To establish if women obtain any measurable short-term psychological benefit or perceived benefit from having a test to determine the probability of their pregnancy being on-going when this is uncertain on ultrasound examination.

Methods: This was a prospective randomized controlled study conducted January 2012–June 2012 at the Early Pregnancy Unit of King's College Hospital. The study population was women who conceived spontaneously and had a single intrauterine gestational sac of <20mm mean diameter, with no visible embryo on their

first ultrasound scan. Eligible women were randomised to have a test to calculate the probability of viability (cases) or not (controls). Depression and anxiety levels were calculated using the Hospital Anxiety and Depression Score (HADS) and were performed prior to randomisation and seven days later. A repeat scan for pregnancy outcome was performed after one to two weeks as clinically indicated. A sample size of 69 in each group was calculated to have 80% power to detect a probability of 0.362 that an observation in the cases was less than an observation in controls using a Wilcoxon Mann-Whitney rank-sum test with a 0.05 two-sided significance.

Results: At recruitment there was no significant difference in anxiety levels between cases and controls. After seven days anxiety levels were significantly lower in cases than controls ($p = 0.04$). Of those who received the probability score, 55/70 (78.6% 95% CI 67.5–86.7%) found it useful and 58/70 (82.9% 95% CI 72.2–90.1) would choose to have the test in a future pregnancy if indicated.

Conclusions: This study has demonstrated that there is evidence of psychological benefit from a simple blood test that gives women the likelihood that their pregnancy will be on-going at the next scan.

OC19.07

Decision-tree analysis incorporating hCG levels versus risk prediction model (M4): prospective interventional study in the management of PUL

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Objectives: Aim to compare new hCG ratio algorithm to mathematical model M4 in management of women with PUL.

Methods: All women with PUL prospectively managed according to hCG model (see attachment). M4 model applied retrospectively to same dataset. M4 assigned proportion risk to all case: probable IUP/probable failed PUL/probable EP. If M4 assigned risk of EP as $\geq 5.0\%$, this was high risk PUL. Comparisons were made between the two models in terms of their relationship to clinical outcomes, misclassification and diagnostic capability at 2 & 7 days.

Results: 163 consecutive PULs recruited between Aug '11 and Feb' 14. 29 excluded and 134 cases included. Outcomes: 86 failed PUL (64.2%), 32 IUP (23.9%), 10 EP (7.5%), 5 persistent PUL (3.7%). On day 2; hCG model categorised 81 PUL as failed PUL. However 3/81 were EP and 1/81 was persistent PUL. The remaining 77 were safely discharged on day 2. M4 categorised 98 PULs as low risk (80 failed PUL & 18 IUP) and remaining 36 as high risk (EP risk $\geq 5.0\%$). 2/98 low risk PULs were EP and 1/98 was persistent PUL. Had all 80 low risk failed PUL (according to M4) been discharged at day 2; 4 IUP would have been missed. When the hCG ratios were >4.0 (2 cases), M4 assigned risk of 100% to failed PUL. Both protocols missed the same 2 cases of EP. Both models missed the same persistent PUL and follow up was 55 days. At day 7; hCG ratio algorithm had safely discharged another 3 patients as failed PUL and had correctly recalled another 15 patients, 3 of whom were EP and 12 were IUP. M4 had allocated high risk to 10 of these 18 patients (only 3 were EP), had correctly identified 5 cases as IUP, but had allocated higher risk of failed PUL to two IUP.

Conclusions: The new hCG ratio model confers the same ability as M4 to discharge low risk women at day 2; however M4 missed less EP, at the expense of inappropriately dismissing potentially viable IUP. Between days 2 and 7 hCG ratio model appears to outperform M4.

*This presentation is eligible for the Young Investigator award (to be presented in the closing plenary).