

strain measurements were evaluated using the interclass correlation coefficient (ICC).

Results: 76 images collected from 19 patients were examined. The mean and standard deviation strain values for the anterior and posterior cervical ROIs were 0.59 (SD: 0.13) for patients on progesterone and 0.49 (SD: 0.12) for patients not on progesterone ($p=0.09$). The mean and standard deviation strain values for the cervix less than 25mm and over 25mm were 0.49 (SD 0.10) and 0.56 (SD 1.51) with $p=0.42$. There was good correlation in the assessments made between the two operators (ICC = 0.83).

Conclusions: Cervical elastography is both feasible and has high interobserver reliability. Its clinical value needs to be assessed in further studies.

P14.03

Efficacy of progesterone in women with a short cervix; can elastography provide an objective evaluation of treatment efficacy?

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Objectives: Women with a short cervix have an increased risk of preterm delivery. Treatment with progesterone reduces their risk of preterm birth. This may be due to its affect on cervical extracellular matrix, interfering in the remodelling process. In this study we examine the feasibility of using elastography to look at the consistency of the cervix before and after treatment with progesterone.

Methods: Nine patients who had a short cervix identified through screening for risk of preterm delivery had elastography assessment (Accuvix XG, Samsung Medison, Seoul, Korea) prior to and ≥ 1 week after treatment with progesterone. The image collected during elastography was divided into four regions of interest; anterior and posterior cervical lips, the endocervical mucous plug / cervical canal and the whole cervix. Strain values were assessed using offline analysis software (Stiffmetool, Samsung Medison, Seoul, Korea). Measurements before and after progesterone were compared using the Wilcoxon signed-rank test.

Results: Although not statistically significant, there was an increase in stiffness in all regions except the endocervical canal and mucous plug. For the whole cervix, there was a 16% increase in stiffness of ($p=0.26$). Progesterone appeared to the greatest effect on the posterior cervical lip, with a 50% increase in stiffness ($p=0.17$). A pre mean 0.56 (SD 0.94) and post mean 0.61 (SD 0.08). The anterior cervical lip increased in stiffness by 3%, with a pre mean 0.44 (SD 0.05) and post mean 0.48 (SD 0.11), ($p=0.37$). The stiffness in the endocervical canal and mucous plug decreased by 4% after progesterone treatment, mean pre 0.54 (SD 1.4), and mean post 0.50 (SD 0.06), $p=0.37$.

Conclusions: These pilot data suggest that there may be a measurable effect of progesterone on the consistency of the cervix. A larger study is needed to confirm whether this is a statistically significant effect. If so, it may be possible to monitor the effectiveness of progesterone through elastography.

P14.04

Fetal adrenal gland volume and prediction of preterm birth

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Objectives: Given the importance of the fetal adrenal gland in the production of hormones critical to labor, we sought to evaluate whether sonographic 3-dimensional measurements of the fetal adrenal gland are a useful screening tool among asymptomatic women for spontaneous preterm birth (PTB).

Methods: We prospectively screened 128 non-anomalous singletons from 24–37 weeks' gestation with volumetric measurements of the fetal adrenal gland at their indicated antenatal sonogram. 3-dimensional images of the fetal adrenal were acquired, and volumes were calculated using Virtual Organ Computer-Aided Analysis (VOCAL) software. Labor and delivery outcomes were assessed and compared with respect to adrenal volume.

Results: There was a direct positive relationship between fetal gestational age and adrenal gland volume ($p=0.01$). When corrected for estimated fetal weight, the 11 women (9%) who delivered with spontaneous PTB had smaller adrenal glands than those who did not have a spontaneous PTB, 0.33 cm³/kg compared with 0.57 cm³/kg, respectively ($p=0.006$). There was no difference in volumes between those who delivered by spontaneous PTB within 7 days or greater than 14 days from sonographic adrenal measurement (0.34 cm³/kg vs 0.33 cm³/kg, $p=0.79$). Among women at increased risk of PTB (those with cerclage, short cervix during the index pregnancy, or prior PTB), those delivering after spontaneous PTB had smaller adrenal glands than those who did not: 0.32 cm³/kg compared to 0.53 cm³/kg, $p=0.06$. The same was true among those without an increased risk: 0.34 cm³/kg among spontaneous preterm births compared to 0.58 cm³/kg for those without, $p=0.07$.

Conclusions: When screening asymptomatic women, we expected to find enlarged fetal adrenal glands in pregnancies that would eventually deliver following spontaneous PTB. However, we found them to be significantly smaller. 3-dimensional evaluation of the fetal adrenal gland is not a useful screening tool for preterm birth among asymptomatic women before term.

P14.05

Preliminary report of 48-hours Atosiban administration in spontaneous preterm labor: Doppler blood flow assessment of placental and fetal circulation

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Objectives: To investigate whether any changes in placental and fetal circulation are observed in 21 pregnant women with spontaneous preterm labor within the first 48 hours of Atosiban therapy.

Methods: Detailed Doppler evaluation was performed prior to Atosiban administration and thereafter at 24 and 48 hours. Maternal heart rate and the pulsatility index (PI) in both uterine arteries were assessed. Fetal heart rate (FHR), the resistance (RI) and pulsatility index (PI) of umbilical (UA) and middle cerebral artery (MCA) were measured. Additionally cerebroplacental ratio was calculated. To determine changes over time in all study variables analysis of variance (ANOVA) for repeated measurements followed by Tukey-Kramer's post hoc test was used. The effects of additional clinical covariates were checked.

Results: Maternal heart rate and blood flow in (R-UtA/L-UtA) were not altered significantly during Atosiban administration. No significant changes in FHR as well as Doppler parameters (RI, PI, PSV) in UA and MCA were recorded after 24/48 hours of tocolytic treatment. The mean values of cerebroplacental ratio (CPR) remained unaltered during treatment.

Conclusions: 48-hours administration of Atosiban seems not to alter uterine nor fetal arterial blood flow pattern seriously. However, we cannot conclude definitely that there are absolutely no changes in