138 STOX1 GENE POLYMORPHISM RS10509305 AND REDUCED RISK OF PREECLAMPSIA (PE) BRENDAN H. GRUBBS[1], MELISSA L. WILSON[1], THOMAS MURPHY GOODWIN[2], SUE A. INGLES[1], [1]University of Southern California, Los Angeles, California, [2]Women's and Children's Hospital, Los Angeles, California

OBJECTIVE: Van Dijk, et al (Nature Genetics.37(5):514-19(2005)) have identified polymorphisms in the STOX1 gene, rs10509305 (thymine to cytosine substitution) and rs1341667 (adenine to cytosine substitution), which are associated with Dutch familial preeclampsia (PE) in a maternally imprinted manner. The goal of this study is to determine if the polymorphisms, are associated with PE in a primarily Latina population.

STUDY DESIGN: Cases of PE and controls were recruited retrospectively from delivery logs and during their postpartum hospital stay from 1999 − 2008. Controls were matched to cases on the basis of maternal age (± 5 years) and gestational age at delivery. DNA was collected from mothers and infants and data on risk factors were obtained by questionnaire. Samples were genotyped using TaqMan assays and statistical analysis was conducted using Stata 9.2. Logistic regression was used to model the association between genotypes and PE risk. Odds ratios and 95% confidence intervals were calculated for each polymorphism, in both maternal and child samples, after adjusting for maternal age and gestational age at delivery. For both SNPs, homozygotes for the risk allele were collapsed with heterozygotes to increase statistical power.

RESULTS: There was a significant reduction in the odds ratio [0.5 (CI 0.3-0.9) p=0.01] of PE with the presence of the maternal C allele for rs10509305, which was not observed with any fetal genotype. No significant association was found between the development of PE and maternal or child rs1341667 genotype.

CONCLUSION: Our finding of a decreased risk of PE with the maternal C polymorphism rs10509305 is the opposite association described in the original Van Dijk study, and should be better clarified with a larger sample size. While the remainder of our results, regarding STOX1 polymorphisms rs10509305 and rs1341667, and their lack of an association with PE development are consistent with subsequent studies of the STOX1 gene, this study may have lacked the statistical power necessary to detect a small effect of the putative alleles.

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139 ROLE OF MIDDLE CEREBRAL ARTERY (MCA) DOPPLER FOR PREDICTION OF ADVERSE NEONATAL OUTCOME IN FETAL GROWTH RESTRICTION (FGR) KIMBERLY HICKEY[1], JOHN PEZZULLO[2], SARAH POGGI[3], ALESSANDRO GHIDINI[3], [1]Georgetown University, Washington, District of Columbia, [2]Georgetown University, Biostatistics, Washington, District of Columbia, [3]INOVA Alexandria Hospital, Perinatal Diagnostic Center, Alexandria, Virginia

OBJECTIVE: Several Doppler indices, including peak systolic velocity (PSV) and pulsatility index (PI) at MCA, and umbilical artery (UA) PI have been proposed as predictors of adverse outcome in FGR. We have evaluated their independent predictive ability for neonatal complications.

STUDY DESIGN: In a cohort of singleton pregnancies diagnosed as FGR based on abdominal circumference <10th centile, demographic and sonographic factors were related to admission to NICU for reasons other than low birth weight alone using univariate and logistic regression analysis.

RESULTS: The study included a total of 55 cases; 14 were excluded for birth weight >9th centile. Average birth weight centile was 3.6 (range 0.1-9.0) and gestational age (GA) at delivery was 36.2 +/− 3.2 weeks. The interval between last MCA and delivery was 9.7 +/− 11.4 days. Multivariate analysis showed that among variables available to the obstetrician, including severity of FGR, only MCA-PSV was independently associated with adverse neonatal outcome (P=0.04).

CONCLUSION: Doppler assessment of MCA-PSV is the best prenatal predictor of admission to the NICU for reasons other than low birth weight alone.

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140 IS RISK ADJUSTED CESAREAN DELIVERY RATE IN PRIMPAROUS WOMEN A GOOD MEASURE OF QUALITY? SINDHU SRINIVAS[1], CORINNE FAGER[2], MICHAL RLOVITZ[1], SCOTT LORCH[2], [1]University of Pennsylvania, OBGYN; Maternal and Child Health Research Program, Philadelphia, Pennsylvania, [2]Children's Hospital of Philadelphia, Pennsylvania

OBJECTIVE: Since reduction of unnecessary cesarean deliveries (CD) is a public health goal, groups like Health Grades are publishing risk adjusted cesarean delivery (RACD) rates as a measure of obstetric (OB) quality of care. Yet, evidence supporting this is limited. We sought to validate RACD rate as a measure of OB quality through its association with other quality measures.

STUDY DESIGN: Linked birth certificate and hospital admission records for mother and infant were collected on all deliveries in Missouri from 1993-2003. An extensive risk adjustment model was created using maternal and fetal co-morbidities identified by ICD-9 codes. CD for previa, herpes, malpresentation & cord prolapse were excluded. Expected RACD rates in primiparous women were determined and a c-statistic was calculated. After determining hospital-level differences between observed and expected RACD rates, we performed a correlation analysis with maternal outcomes (infection, hemorrhage, prolonged length of stay (LOS)), neonatal outcomes (death rate, asphyxia, prolonged LOS), and patient safety indicators from AHRQ (birth trauma, injury with instrumented vaginal delivery (VD), non-instrumented VD, or CD).

RESULTS: 236,902 patients were evaluated from 108 hospitals. The c statistic for our RACD model was 0.64. RACD rate did not correlate with any maternal or neonatal outcomes. The correlation coefficient (CC) for RACD rate and maternal infection, hemorrhage and LOS were −0.23, −0.16, −0.06. The CC for RACD rate and neonatal death, asphyxia, and LOS were 0.19, −0.01, −0.03. The correlation between RACD and the 4 patient safety indicators were similarly poor (-.20, 0.12, −0.16, −0.19).

CONCLUSION: Despite risk adjustment, the poor c-statistic of our model suggests that RACD may be a quality measure. However, variations in RACD rates are not associated with important maternal or neonatal outcomes. Measuring OB quality is critical but cannot be achieved without validated measures. RACD should not be used and validated measures of OB quality need to be developed.

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141 COLLAGEN INTEGRITY OF THE UTERINE CERVIX REFLECTS AMNIOTIC FLUID CYTOKINE PROFILE SEAN KEELER[1], DANIEL KIEFER[2], ORION RUST[3], NADAV SCHWARTZ[1], MATTHEW SOTTILE[4], JEFFERY DALTON[5], CAROLYN SALAFIA[6], [1]New York University, New York, New York, [2]Winthrop University Hospital, Mineola, New York, [3]Lehigh Valley Hospital, Allentown, Pennsylvania, [4]University of Oregon, Oregon, [5]Placental Analytics, LCC, Larchmont, New York, [6]St. Luke's Roosevelt Hospital, New York, New York

OBJECTIVE: To determine if there is a correlation between the histological staining characteristics of cervical collagen and amniotic fluid (AF) cytokines in asymptomatic women with an ultrasonographic short cervix in the midtrimester.

STUDY DESIGN: Asymptomatic women with a transvaginal cervical length 25mm between 16-24 weeks underwent a micro-cervical biopsy and amniocentesis. AF cytokine concentrations were assayed using the Bio-Plex multianalyte detection and quantitation system (Bio-Rad, Hercules, CA.).Cervical biopsy specimens were stained with hematoxylin and eosin (H&E) and examined by a single reviewer blinded to clinical and assay data. One 40X photomicrograph was taken of each biopsy. The R channel (collagen stains red-pink with H&E stain) histogram was extracted and its mean, standard deviation, skew and kurtosis calculated. A single collagen staining factor score (CFS) was extracted from these data by principal components analysis. Spearman's correlation was used to compare the CFS to levels of AF cytokines.

RESULTS: Thirty three paired AF and micro-cervical biopsy specimens were available for analysis. Spearman's correlation demonstrated associations of the CFS with AF IL-6, IL-8, Eotaxin, IP-10 and MCP-1 (each p<0.05), but not with AF IL-10, G-CSF, INF-gamma, MIP-1a, or PDGF-bb (each p>0.10). A trend was seen with levels of MIP-1b (p=0.07).

CONCLUSION: Image segmentation allows extraction of collagen structural features that are highly correlated with inflammatory cytokines, suggesting that intra-amniotic inflammation and the structural integrity of the cervix are related. Further study may help elucidate the temporal relationship between collagen integrity and inflammation, allowing for pathway specific therapy.

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