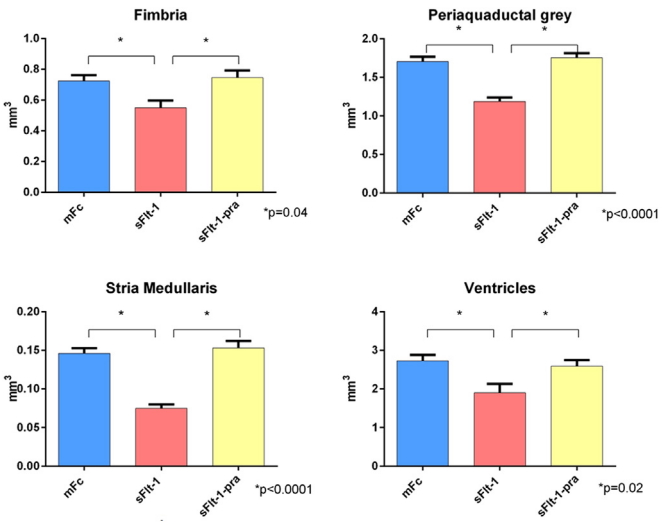

Gross volume in mm^3 for offspring brain regions which had significant loss of volume in the sFlt-1 group compared to mFc controls and pravastatin treatment group. Data presented as mean ± SEM.

38 Perinatal pharmacokinetics of azithromycin for cesarean prophylaxis

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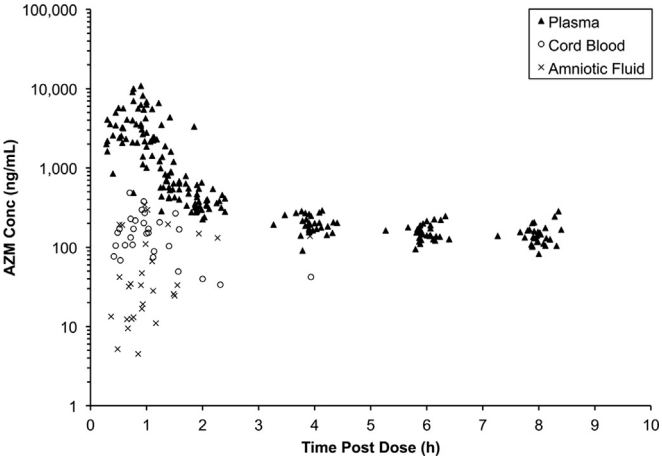
OBJECTIVE: Extended spectrum cesarean prophylaxis at cord clamp with cefazolin and azithromycin (AZI), which covers *Ureaplasma* spp, decreases post-cesarean infections. A clinical trial is underway to determine if addition of AZI to cefazolin prior to incision reduces surgical site infections. This study sought to evaluate the perinatal pharmacokinetics of AZI following a single pre-incision dose.

STUDY DESIGN: 30 women undergoing cesarean delivery were randomized to receive 500 mg of AZI IV initiated 15, 30, or 60 minutes prior to incision. Maternal plasma samples were drawn up to 8 hrs after the dose. Amniotic fluid (AF) and cord blood (CB) were collected at delivery. AZI and its added internal standard clarithromycin were extracted using a protein precipitation method. Analyte separation and detection were performed using high performance liquid chromatography and tandem mass spectrometry. The assay was linear from 2.5-5,000 ng/mL in a 50 μL sample. Plasma pharmacokinetic parameters were estimated using noncompartmental analysis.

RESULTS: The mean (SD) plasma area under the concentration-time curve ($AUC_{0-\infty}$), maximum concentration (C_{max}), and minimum concentration (C_{min}) were 6030 (2170) ng*h/mL, 4500 (2430) ng/mL, and 147 (43) ng/mL, respectively. Plasma C_{max} was reached within 1 hr and was over 2X the in vitro minimum inhibitory concentration (500-1000 ng/mL) of most *Ureaplasma* spp. The concentrations were sustained with a half-life of 6.2 hrs. The median AF concentration was 33 ng/mL at a median of 0.92 hrs post-dose. The median CB concentration was 152 ng/mL at a median of 0.95 hrs post-dose.

CONCLUSION: A single dose of AZI achieves effective and sustained maternal plasma concentrations, is rapidly transported across the placenta, and is detectable in both AF and CB. The transplacental transport indicates maternal treatment with AZI has the potential to reduce perinatal infections caused by *Ureaplasma* spp. Additional studies are underway quantifying AZI in adipose and myometrium to further define the role of AZI in cesarean prophylaxis.

Maternal plasma, cord blood, and amniotic fluid AZI concentrations following a single pre-incision dose



39 Progression of ultrasound findings of fetal syphilis following maternal treatment

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OBJECTIVE: To evaluate ultrasound findings of fetal syphilis and describe their progression after maternal treatment.

STUDY DESIGN: This is a retrospective cohort study from September 1984 to June 2011 of women diagnosed with syphilis after 18 weeks of gestation who had an ultrasound to evaluate fetal syphilis. Women not treated prior to delivery were excluded. If the ultrasound showed evidence of fetal syphilis, it was repeated weekly until resolution or delivery. Patient demographics, ultrasound findings, stage of syphilis, delivery and infant outcomes were recorded. Standard statistical analyses were performed.

RESULTS: 235 women met inclusion criteria and 73 (30%) had evidence of fetal syphilis on initial ultrasound. Abnormalities were more common in early stage disease (58%). These included hepatosplenomegaly (HSM) (81%), placentomegaly (21%), ascites (11%), polyhydramnios (11%) and abnormal MCA dopplers (32%). Polyhydramnios was the first abnormality to resolve and did so by 2.8 +/− 0.3 weeks after treatment. This was followed by resolution of ascites, placentomegaly, MCA doppler abnormalities and finally HSM. Infant outcomes were available for 142 deliveries. Overall,32(23%) were diagnosed with congenital syphilis. Congenital syphilis was more common when antenatal ultrasound abnormalities were present (49% vs.15%, $p<0.001$). However, 9(56%) of those infants were born < 4 weeks after maternal treatment. In infants who had an abnormal ultrasound but born with congenital syphilis >4 weeks after maternal treatment, HSM was the only finding still present on exam at delivery (28%).

CONCLUSION: This is the first study to describe the course of fetal syphilis after antepartum treatment. Sonographic signs of fetal syphilis confer a higher risk of congenital syphilis at delivery for all

maternal stages. Hepatosplenomegaly develops early and resolves last after antepartum treatment. Further studies are needed to clarify whether findings at delivery are due to active infection or cure with resolving abnormalities.

40 Should the "39 week rule" apply to women with multiple prior cesarean deliveries?

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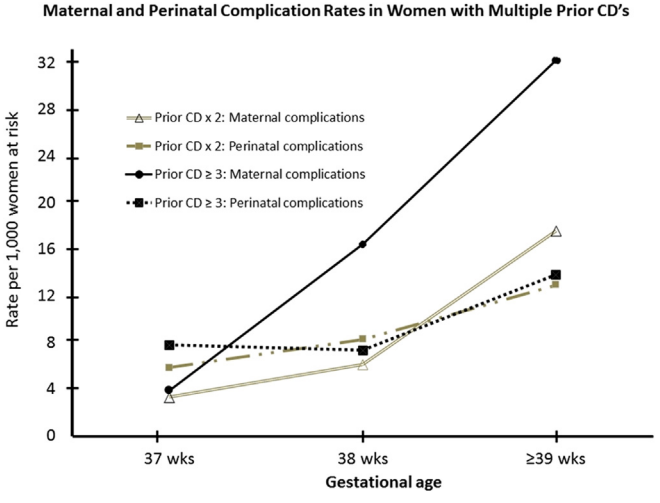
OBJECTIVE: There is a paucity of evidence regarding the optimal time to perform repeat cesarean delivery (CD) in women with multiple prior CD's. The current recommendation for the timing of delivery is 39 weeks, regardless of the number of prior CD's. We hypothesize that women with ≥ 2 previous CD's will benefit from early term delivery in order to decrease maternal complications without increasing adverse perinatal outcomes.

STUDY DESIGN: Women with ≥ 2 previous CD's who achieved ≥ 37 weeks 0 days were studied. Exclusion criteria were underlying medical (e.g. chronic HTN, diabetes) or obstetrical conditions (e.g. multiple gestations, placenta previa, prior classical CD) that required indicated delivery prior to 39 wks. Risks for adverse maternal and/or perinatal outcomes were calculated based on the timing of delivery vs. those women who remained undelivered. The maternal composite included any of the following: transfusion, hysterectomy, operative injury (cystotomy, ureteral injury, or bowel injury), coagulopathy, thromboembolic event, pulmonary edema, or death. The perinatal composite included any of the following: respiratory distress syndrome, necrotizing enterocolitis, intraventricular hemorrhage grades 3 or 4, seizures, or death (fetal or neonatal).

RESULTS: There were 6,435 women who met the study criteria and were analyzed. Complication rates were significantly different across gestational ages for both maternal ($p < 0.05$) and neonatal outcomes ($p < 0.05$). For women with prior CD x 2, the risk of adverse maternal outcomes increased three-fold with a concomitant increase in the risk of adverse perinatal outcomes between 38 to 39 weeks. In women with ≥ 3 previous CD's, the risk of maternal complications increased four-fold between 37 to 38 weeks (see Figure).

CONCLUSION: Our findings suggest that the optimal time for scheduled delivery of women with 2 previous CD's is between 38 wks 0 and 38wk 6 days and between 37 wks 0 and 37 wks 6 days for women with ≥ 3 previous CD's.



41 Effect of lactation on maternal postpartum cardiometabolic status—a murine mode

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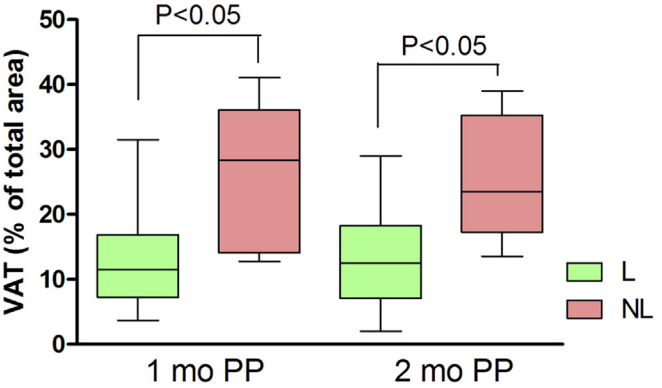
[1]University of Texas Medical Branch, Obstetrics and Gynecology, Galveston, TX, [2]University of Texas Medical Branch, Center for Biomedical Engineering, Galveston, TX, [3]UNC School of Medicine, Obstetrics and Gynecology, Chapel Hill, NC

OBJECTIVE: Lactation is associated with reduction in maternal metabolic disease and hypertension later in life; however the findings in humans may be confounded by socioeconomic factors. We sought to determine the independent contribution of lactation on future metabolic and cardiovascular parameters in a murine model.

STUDY DESIGN: Following delivery, CD-1 female mice were randomly divided into two groups: lactating (L, nursed pups for 3 weeks, n=10), and nonlactating (NL, pups were removed after birth, n=10). During the first week of gestation and at 1 month postpartum (mo PP) systolic (SBP), diastolic (DBP) and mean arterial (MAP) blood pressure were measured via non-invasive tail-cuff blood pressure monitoring system. Visceral (VAT) and subcutaneous adipose tissue (SAT) were measured using a micro-computed tomography scanner at 1 and 2 mo PP. Cardiac ejection fraction (EF), cardiac output (CO) and the ratio of the early (E) to late (A) ventricular filling velocities (MV E/A) were evaluated at 2 mo PP using Visualsonics Vevo 770 high resolution micro-ultrasound. Results were analyzed using Student's t-test (significance: $P<0.05$).

RESULTS: There was no significant blood pressure difference between groups during week 1 of pregnancy. Though at 1 mo PP, SBP (122.2 ± 7.1 vs 96.8 ± 9.8 mmHg, P=0.04), DBP (87.0 ± 6.8 vs 65.9 ± 6.1 mmHg, P=0.04) and MAP (102.7 ± 7.1 vs 80.2 ± 6.8 mmHg; P=0.04) were significantly higher in NL mice than in L mice. VAT was significantly increased in NL mice at 1 and 2 mo PP (Fig), while SAT did not differ between the groups. At 2 mo PP, EF (51.7 ± 1.5 vs 60. 5 ± 3.7 %; P=0.04), CO (13.6 ± 0.8 vs 17.3 ± 1.4; P=0.04) and MV E/A (1.4 ± 0.1 vs 1.7 ± 0.1; P=0.04) were significantly lower in NL mice than L mice.

CONCLUSION: Our data provide novel evidence of a direct beneficial effect of lactation on long-term maternal cardiovascular function and adiposity. Discussions regarding the impact of lactation on health should include these maternal benefits in addition to the already accepted benefits to the infant.



Box plot: median, 25th-ile, 75th-ile, max and min values. L- lactating group, NL - nonlactating group, mo PP - months postpartum.