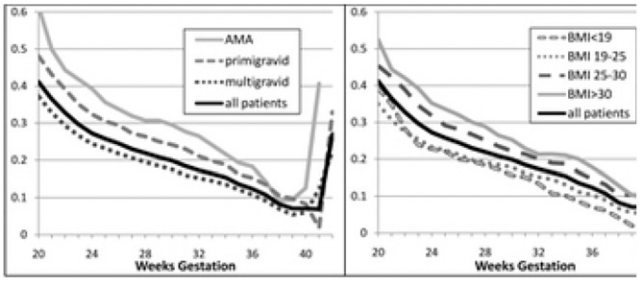
130 THE PROSPECTIVE RISK OF STILLBIRTH VARIES IN VIABLE PREGNANCIES BY MATERNAL AGE, PARITY, AND PRE-PREGNANCY BODY MASS INDEX (BMI) TRACY MANUCK[1], CARA HEUSER[1], SHAHEEN HOSSAIN[2], ROBERT SATTERFIELD[2], MICHAEL VARNER[1], [1]University of Utah, Salt Lake City, Utah, [2]Utah Department of Health, Salt Lake City, Utah

OBJECTIVE: Unexplained stillbirth remains the largest contributor to perinatal mortality in the Western world; its etiology is frequently unknown, but likely varies by gestational age (GA) and maternal characteristics. Our purpose was to examine the influence of GA and maternal characteristics on prospective risk of stillbirth.

STUDY DESIGN: Retrospective cohort of all women from 2000-2003 with a Utah live birth or stillbirth certificate of a singleton non-anomalous pregnancy. Prospective stillbirth risk was calculated by dividing the number of undelivered patients destined to have a stillbirth by the total number of undelivered patients at 1 week GA increments. Ongoing pregnancies were assumed viable until the gestational week the stillbirth was delivered. Data were stratified by delivery GA, maternal age, parity, and prepregnancy BMI; prospective risk was calculated for each group.

RESULTS: 186,724 live births and 772 stillbirths met inclusion criteria. Likelihood of stillbirth was highest at 20 weeks gestation, and fell steadily until rising sharply at 40-41 weeks. Women of advanced maternal age (AMA) 35 years, primigravidas, and overweight/obese women (BMI 25) had an increased prospective risk of stillbirth throughout gestation when compared with the entire population.



Prospective stillbirth risk per 100 viable pregnancies

CONCLUSION: Overweight/obese, primigravid, and AMA women had a higher prospective stillbirth risk throughout pregnancy. These population based data are important when counseling patients and considering further investigations of this devastating complication.

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131 ASSESSMENT OF BACTERIAL ENZYMATIC ACTIVITY IN THE LOWER GENITAL TRACT TO PREDICT SPONTANEOUS PRETERM DELIVERY CORRINA OXFORD[1], DEIRDRE MCCULLOUGH[1], MARY I. DELANEY[2], ANDREW ONDERDONK[3], MEHMET GENC[1], [1]Brigham and Women's Hospital, Boston, Massachusetts, [2]Harvard University, Laboratory Medicine and Pathology, Boston, MA, [3]Harvard University, Boston, Massachusetts

OBJECTIVE: To determine the utility of measuring phospholipase A2 (PLA2), phospholipase C (PLC), and lipase activity levels in cervicovaginal secretions to predict spontaneous preterm delivery.

STUDY DESIGN: This is a prospective cohort study involving 229 pregnant women attending our center for prenatal care. Cervicovaginal samples were first collected between 18-22 weeks and subsequently, between 26-32 weeks. The samples were assayed for PLA2, PLC and lipase activity. Logistic regression analysis was used to determine whether such enzyme activity is an independent predictor for spontaneous preterm delivery or PPROM after controlling for a history of preterm delivery, vaginal bleeding, insurance status, parity and race.

RESULTS: Of 229 women, 35 (15%) delivered prior to 37 weeks' gestation. Of the preterm deliveries, 17 (49%) was complicated by PPROM. Univariate analysis revealed that a history of preterm delivery, multiparity and lack of health insurance was significantly more common in the preterm delivery group. Lipase enzymatic activity determined at 26-32 weeks was an independent predictor of spontaneous preterm birth ($p=0.038$). However, PLA2 and PLC failed to predict preterm birth. PPROM could not be predicted by any of the biomarkers studied. The change in enzymatic activity between the second and third trimester samples also failed to predict spontaneous preterm birth or PPROM.

CONCLUSION: Lipase or lipase-producing bacteria in the lower genital tract may play a role in the pathogenesis of spontaneous preterm birth.

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132 AMNIOTIC FLUID DIFFERENTIALLY MODULATES THE PROSTANOID SYSTEM IN CHORIOAMNIOTIC MEMBRANES DURING TERM AND PRETERM LABOR GUSTAVO LEGUIZAMON[1], MANUEL WOLFSON[2], ANA MARIA FRANCHI[3], MARIANA FARINA[2], [1]CEMIC, Obstetrics Gynecology, Buenos Aires, BS AS, Argentina, [2]CEFyBO-CONICET, Bs As, Bs AS, Argentina, [3]CEFyBO-CONICET, Bs. As, Bs As, Argentina

OBJECTIVE: We hypothesize that term and preterm amniotic fluid obtained before and during labor modulate PG synthesis and degradation in chorioamniotic membranes.

STUDY DESIGN: Amniotic fluid was obtained from (n=12) singleton pregnancies with intact membranes according to the following paradigms: term labor (TL) (n=3) and non labor (TNL) (n= 3), as well as preterm labor (PTL) (n=3) and non labor (PTNL) (n=3). Explant cultures from term non labor choriodecidual membranes were incubated with the amniotic fluids. COX-2, PGDH, and EP1 expression were determined by Western Blot and PGE2 levels measured by radioimmunoanalysis. Culture viability was determined by incubations with LPS.

RESULTS: Explant viability was confirmed by enhanced synthesis of PGE2 after incubation with LPS (control 50 pg/mL vs. LPS 200 pg/mL) ($p< 0.05$). PGE2 was increased by incubation with term (80 pg/mL vs. 125 pg/mL) and preterm (81 pg/mL vs 115 pg/mL) ($p< 0.05$) amniotic fluid from labor. Explants cultures incubated with preterm amniotic fluids showed increase expression of COX-2 with PTL and no change with PTNL. PGDH protein levels decreased with PTL and were enhanced with PTNL. EP1 expression did not change. Explants incubated with term fluids did not change COX-2 expression with TL or TNL and decreased expression of PGDH with TL and TNL. Finally, EP1 levels decreased with TNL and increased with TL

CONCLUSION: Amniotic fluid modulates differentially the prostanoid system in fetal membranes during term and preterm labor. We speculate that increase PGDH expression with PTNL amniotic fluid could be associated with maintenance of uterine quiescence.

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133 INTERLEUKIN-6 LEVELS IN CERVICOVAGINAL FLUID EARLY IN PREGNANCY ARE ELEVATED IN WOMEN WHO DELIVER PRETERM. SAMUEL PARRY[1], MARY D. SAMMEL[2], DINA APPLEBY[2], YUJIE MA[1], JIAN ZHANG[1], BONNIE CLOTHIER[1], MARJORIE K. JEFFCOAT[2], GEORGE A. MACONES[3], [1]University of Pennsylvania, Department of Obstetrics and Gynecology, Maternal and Child Health Research Program, Philadelphia, Pennsylvania, [2]University of Pennsylvania, Philadelphia, Pennsylvania, [3]Washington University in St. Louis, St. Louis, Missouri

OBJECTIVE: Given the association between intrauterine inflammation and early spontaneous preterm delivery (SPTD), we sought to determine if screening cervicovaginal fluid samples early in pregnancy for inflammatory proteins that are associated with fetal membrane degradation (interleukin-6 [IL-6], neutrophil collagenase [matrix metalloproteinase-8, MMP-8]) could identify women at risk for early SPTD.

STUDY DESIGN: Cervicovaginal fluid samples were collected at initial prenatal visits (<20 weeks' gestation) in a large cohort of women (N=1,508) presenting for routine prenatal care. Levels of IL-6 and MMP-8 were determined in each sample by ELISA, and IL-6 and MMP-8 levels were normalized to total protein (TP) levels in each sample. The primary outcome of interest was SPTD at <35 weeks of gestation. Because IL-6/TP and MMP-8/TP levels were not normally distributed, comparisons were made between outcomes groups using Wilcoxon rank sum tests.

RESULTS: Among women who experienced SPTD at <35 weeks (N=75), rank scores of IL-6/TP were significantly greater than rank scores of women who delivered at term (>37 weeks, P=0.008). However, IL-6/TP levels among all SPTDs (<37 weeks, N=151) were not significantly greater than term deliveries (P=0.29). Rank scores of MMP-8/TP were not significantly different among women who experienced SPTD at <35 weeks compared to women with term deliveries (P=0.88). After controlling for confounders (history of SPTD, maternal race, bacterial vaginosis, sexually transmitted diseases, and periodontal disease) using multivariable logistic regression, the relationship between IL-6/TP and SPTD at <35 weeks remained significant (P=0.024).

CONCLUSION: Spontaneous preterm delivery at less than 37 weeks of gestation is multi-factorial. However, inflammation is closely associated with early SPTD, and this study suggests that inflammatory mediators such as IL-6 in cervicovaginal fluid samples may be useful as non-invasive biomarkers for early SPTD.

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