Continental Ballroom 4, Hilton San Francisco

9 17 ALPHA HYDROXY-PROGESTERONE CAPROATE (17P) TREATMENT REDUCES CERVICAL SHORTENING INHIBITING CERVICAL INTERLEUKIN-1 SECRETION

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OBJECTIVE: To evaluate if 17P treatment affect Cervical ripening through changes in cervical markers of inflammation, cytokines and Nitric Oxide.

STUDY DESIGN: Hospitalized patients remaining undelivered after a preterm labor episode occurring at 25-33 weeks, were randomly allocated either to observation (22 cases) or to receive 341 mg of i.m. 17P (23 cases), twice/week, until 36th week. Patients with a positive vaginal/urinary culture were excluded. A cervical swab and an ultrasound measure of cervical length (CL, in mm) were performed before, at 7th and 21st day post-treatment.

Cervical fluid, collected beyond external os avoiding shear stress and blood, was weighted and stored for Interleukin (IL)-1, IL-6, IL-8, Tumor necrosis factor alpha (TNF), and for Nitrates/Nitrites (NOx) enzyme immunoassays.

RESULTS: Observation group reported a progressive shortening of CL which was significantly reduced in 17P group. In Observation group, cervical IL-1 levels remained stable while in 17P group they were reduced during follow-up (Table). In neither groups IL-6, IL-8, TNFalpha and NOx showed significant changes. In 17P group 5 patients (21.7%) delivered prior 37th week while this occurred in 12 patients of observation group (54.5%, $P<0.05$).

CONCLUSION: High-dose 17P reduces preterm delivery in patients at risk because of shortened cervix. Such an effect is mediate through the inhibition of both the progressive shortening of the cervix and the cervical IL-1 secretion.

Data as Mean±SD; $P<0.05$ between groups either at *ANOVA or at Mann-Whitney

	CL OBS	CL 17P	IL-1 OBS	IL-1 17P	IL-6 OBS	IL-6 17P
BASELINE	24.5±10.2	24.7±9.6	3.23±3.07	3.92±4.25	0.27±0.15	0.30±0.25
7th day	21.9±9.6	23.7±9.7	3.84±3.50	2.18±2.57	0.55±0.74	0.53±0.67
21st day	19.4±9.1*	22.4±9.1	3.81±2.96	2.42±2.78	0.37±0.41	0.64±1.10

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10 PROGESTERONE PROTECTS CHORION AND DECIDUA CELLS FROM CALCIUM INDUCED CELL DEATH IN PRIMARY CELL CULTURE

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OBJECTIVE: Progesterone governs a wide range of biological processes including the maintenance of pregnancy, including an anti-apoptotic action in various cell types and tissues. Our recent studies suggest that progesterone receptor mRNA and protein are expressed in chorion and decidua cells from fetal membranes (Mills et al., 2006) and apoptotic cell death is common in the cell layers of the fetal membranes (Murtha, 2001). Our study objective was to determine whether progesterone exerts an anti-apoptotic effect in cultured chorion and decidua cells.

STUDY DESIGN: Fetal membrane samples were collected from term elective repeat cesarean deliveries and chorion and decidua cells processed and cultured as previously published. Cells were pretreated with progesterone and exposed to calcimycin, a calcium ionophore (A23187) which increases intracellular calcium concentrations. Cell viability was determined using a cell viability assay with estimates performed in quadruplicate within each of 5 replicates. Dose response curves were performed for all experimental conditions. Percent cell viability was calculated with respect to untreated chorion or decidua cells. Data were analyzed using paired T tests with significance defined as $P<.05$.

RESULTS: Exposure to calcimycin consistently resulted in reduction of cell viability in both chorion and decidua cells in a dose dependent fashion. In fetal chorion cells, progesterone (1μmol) followed by calcimycin (10μmol) significantly increased cell viability compared to calcimycin treatment alone (67 vs. 24%, $P=0.003$). When decidua cells were treated in the same fashion there was a trend toward improved cell viability in the progesterone pretreated cells compared to the calcimycin alone (58 vs. 35%, $P=0.1$). The progesterone receptor antagonist, RTI, blocked the protective effect of progesterone in both the chorion and decidua.

CONCLUSION: These preliminary results suggest that progesterone provides a protective, anti-apoptotic effect in human fetal membrane cells which may be mediated directly through the progesterone receptor.

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11 THE EFFECT OF ANTEPARTUM PERIODONTAL THERAPY ON PRETERM BIRTH RATE ACCORDING TO CERVICAL LENGTH: A RANDOMIZED PILOT STUDY

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OBJECTIVE: To determine if cervical length affects the impact of antepartum periodontal therapy on preterm birth rate.

STUDY DESIGN: This was a randomized controlled pilot study to determine the effect of antepartum periodontal therapy on preterm birth risk among women at high risk for preterm birth (prior spontaneous PTB). Women with periodontal disease identified at dental screening visit <16 weeks were randomized to antepartum periodontal therapy. The antepartum intervention group received periodontal scaling and root planning at 16-20 weeks gestation followed by use of a Sonicare-Plus® power toothbrush with oral health instructions the remainder of the pregnancy. The control group received a manual toothbrush without oral health instructions. At 22 weeks' gestation, participants underwent a transvaginal ultrasound for cervical length measurement. The primary outcome was preterm delivery <37 weeks.

RESULTS: Baseline characteristics including cervical length of the 31 women in the periodontal intervention group and the 32 women in the control group were similar, except for baseline periodontal pockets which were unbalanced after randomization. Among women with a cervical length <30 mm, preterm delivery was similar between the control and intervention groups (50% versus 38%, $P=0.66$). Compared to women with a cervical length 30 mm, preterm delivery was also similar between the control and intervention groups (41% versus 22%, $P=0.17$). However, after adjusting for the baseline imbalance in periodontal disease among women with a cervical length 30 mm, periodontal therapy significantly decreased the odds of preterm delivery (OR = 0.12; 95% CI 0.02-0.78). For women with cervical length <30 mm the intervention did not reach significance (OR = 0.61; 95% CI 0.09-4.13).

CONCLUSION: In women with periodontal disease at the beginning of pregnancy, periodontal treatment may be more effective in preventing preterm delivery among women with normal cervical length compared to women with shortened cervix.

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12 NON-INVASIVE DIAGNOSIS OF INTRA-AMNIOTIC INFECTION AND PRETERM BIRTH FROM PROTEOMIC ANALYSIS OF VAGINAL FLUID

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OBJECTIVE: To identify non-invasive predictors of intra-amniotic infection (IAI) and preterm birth (PTB), we conducted a systematic analysis of the vaginal fluid proteome.

STUDY DESIGN: Vaginal fluid samples from a prospective observational cohort of 284 women in preterm labor at 20-34 weeks' gestation were analyzed. IAI was defined as a positive amniotic fluid (AF) culture and/or AF interleukin-6 >2000 pg/mL. PTB was defined as ≤34 weeks. Vaginal fluid proteome analysis was performed using fluorescence 2D gel analysis, multidimensional liquid chromatography tandem mass spectrometry (2D LC-MS/MS) and label-free quantification . Pair-wise comparison was performed using ÷2 tests and statistical significance determined after adjusting for multiple comparisons. Immunoassays were used for accurate quantification and evaluated using Receiver Operating Characteristic (ROC) curves and logistic regression.

RESULTS: Of 284 subjects, 153 (54%) delivered at ≤34 weeks and 56 (37%) of these had IAI. There were no significant differences in demographic or reproductive factors between PTB/IAI, PTB/no IAI and term groups. Vaginal fluid proteome analysis revealed 154 unique proteins. Label-free quantification identified 16 proteins differentially expressed ($p<0.05$) in PTB and IAI. Trend analysis (term,PTB,PTB/IAI) showed 8 proteins as significant ($p<0.05$), including immunoregulators (calgranulins, L-plastin, lysozyme, lactoferrin, leukocyte elastase), acute phase proteins (alpha-1-acid glycoprotein, profilin, matrix metalloprotease-9) and high abundance AF proteins (insulin-like growth factor binding protein1 and vitamin D binding protein). Preliminary analysis of 4 potential biomarkers showed good discrimination with area under (AU)ROCs from 0.64 to 0.82. Logistic regression increased discriminant ability (AUROC>0.85).

CONCLUSION: Vaginal fluid proteome analyses identified novel predictors of IAI and PTB. These could provide a sensitive, non-invasive test to diagnose PTB complicated by IAI.

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