

**66 TERBUTALINE VERSUS NITROGLYCERIN FOR ACUTE INTRAPARTUM FETAL RESUSCITATION** KRISTIN PULLEN<sup>1</sup>, LARISA TAYLOR<sup>1</sup>, SARAH WALLER<sup>1</sup>, ELIZABETH LANGEN<sup>1</sup>, MAURICE DRUZIN<sup>1</sup>, EDWARD RILEY<sup>2</sup>, AARON CAUGHEY<sup>3</sup>, YASSER EL-SAYED<sup>1</sup>, <sup>1</sup>Stanford University, Obstetrics and Gynecology, Stanford, California, <sup>2</sup>Stanford University, Anesthesia, Stanford, California, <sup>3</sup>University of California, San Francisco, Obstetrics, Gynecology, and Reproductive Sciences, San Francisco, California

**OBJECTIVE:** To compare terbutaline (TERB) to nitroglycerin (NITRO) for acute treatment of non-reassuring fetal heart rate tracing (NRFHT) in labor.

**STUDY DESIGN:** Women between 32-42 weeks' gestation were randomly assigned to 250 mcg TERB or 400 mcg NITRO intravenously for NRFHT in labor. Obstetricians were blinded to study drug. Primary outcome was Successful Acute Resuscitation defined as complete resolution of NRFHT within 10 minutes, no recurrence of NRFHT or readministration of tocolytic within 30 minutes, and no operative delivery (forceps, vacuum, cesarean) within 1 hour of study drug. Subsequent episodes of NRFHT were managed per physician discretion. NRFHT included prolonged, severe variable or late decelerations, and tachycardia with decreased variability. 110 patients were required for 80% power to detect a 50% difference, alpha = .05 and beta = 0.2.

**RESULTS:** 956 women were screened. 110 women had intrapartum NRFHT; 57 received TERB and 53 NITRO. Successful acute resuscitation rates were similar, TERB 72% and NITRO 64%. TERB resulted in lower mean contraction (ctx) frequency (3.4 vs 4.6 ctx/10 minutes) and greater resolution of severe variable decelerations (67% vs 17%). Mean maternal heart rate increased with TERB (80 to 99 bpm;  $p < 0.001$ ) and NITRO (84 to 93 bpm;  $p = 0.005$ ). Mean arterial pressure (MAP) declined with NITRO (81 to 76 mmHg;  $p = 0.02$ ), but not TERB (82 to 81 mmHg;  $p = 0.73$ ).

**CONCLUSION:** Although NITRO was as effective as TERB for acute therapy of NRFHT in labor, TERB provided more effective tocolysis, greater acute resolution of severe variable decelerations, and less impact on MAP. Ultimate NRFHT operative delivery rates remained high.

#### TERB vs. NITRO

	TERB	NITRO	P-value
Gestational Age (weeks)	39.4	39.8	0.16
Cervical dilation (cm)	6.1	6.7	0.28
Overall Success	72%	64%	0.38
Success-severe variables	67%	17%	0.046
Mean ctx per 10 minutes post study drug	3.4	4.6	0.001
Ultimate Operative delivery for NRFHT	47%	47%	0.98

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**67 THE EFFECT OF ORAL EVENING PRIMROSE OIL ON BISHOP SCORE AND CERVICAL LENGTH AMONG TERM GRAVIDAS** KAREN ALESSANDRA TY-TORREDES<sup>1</sup>, <sup>1</sup>Our Lady of Lourdes Hospital, Obstetrics and Gynecology, Manila, Philippines

**OBJECTIVE:** To determine if treatment with Evening Primrose Oil (EPO) at a dose of 1 capsule given thrice daily for 1 week shows a greater effect on Bishop score by internal examination and cervical length on transvaginal ultrasound compared to placebo among term gravidas awaiting onset of labor.

**STUDY DESIGN:** Randomized double-blind, placebo-controlled clinical trial.

**RESULTS:** Among seventy-one subjects who completed the study, there was a significant improvement in Bishop score in the EPO group with a mean difference of  $3.68 \pm 1.57$  compared to  $1.51 \pm 1.58$  for placebo ( $p = 0.0001$ ). Also, there was a significant reduction in cervical length with a mean difference of  $0.89 \pm 0.63$  in the EPO group ( $n = 38$ ) compared to a mean of  $0.42 \pm 0.31$  in the placebo group ( $n = 33$ ) ( $p = 0.001$ ). Pre and post-treatment Modified Biophysical profile and non-stress test were normal for all fetuses studied. Stratification analysis for parity and age of gestation showed greater impact on nulliparas and those  $> 39$  weeks age of gestation. There was no significant difference in the interval from onset or end of treatment to onset of labor between the two groups. The use of oxytocin was similar in both groups (50% in EPO and 49% in placebo group). Significantly more patients delivered vaginally in the EPO group (70% versus 51%). There was no significant difference in the birthweights of the neonates when comparing EPO and placebo group.

**CONCLUSION:** Evening Primrose Oil given 1 capsule thrice daily for 1 week has a significant effect in Bishop score and cervical length by transvaginal ultrasound compared to placebo and there was no effect on fetal safety profile monitored by modified biophysical profile and non-stress test. Its use as a cervical priming agent to enhance success rate for vaginal delivery may be considered for healthy term gravidas awaiting onset of labor.

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**68 A RANDOMIZED CONTROLLED TRIAL OF TRANS-CERVICAL FOLEY CATHETER WITH AND WITHOUT EXTRA-AMNIOTIC SALINE INFUSION (EASI) FOR LABOR INDUCTION** MONIQUE LIN<sup>1</sup>, MATTHEW TREASTER<sup>2</sup>, KIMBERLY REID<sup>3</sup>, FRANCIS NUTHALAPATY<sup>4</sup>, PATRICK RAMSEY<sup>2</sup>, GEORGE LU<sup>5</sup>, <sup>1</sup>University of Alabama at Birmingham, Obstetrics and Gynecology, Birmingham, Alabama, <sup>2</sup>University of Missouri-Kansas City, Department of Obstetrics and Gynecology, Kansas City, Missouri, <sup>3</sup>St. Lukes Hospital of Kansas City, Kansas City, Missouri, <sup>4</sup>University of Alabama at Birmingham, Obstetrics & Gynecology, Greenville, South Carolina, <sup>5</sup>University of Alabama at Birmingham, Obstetrics/Gynecology, Birmingham, Alabama, <sup>6</sup>Obstetrix Medical Group of Kansas & Missouri, Kansas City, Missouri

**OBJECTIVE:** To compare the efficacy of transcervical Foley catheter alone to Foley catheter with an extraamniotic saline infusion (EASI) for cervical ripening and labor induction in women with an unfavorable cervix.

**STUDY DESIGN:** Consenting women presenting with a Bishop score  $\leq 6$ , cephalic presentation and intact membranes were randomly assigned to either Foley or EASI, and concurrent oxytocin administration. Exclusion criteria included those that normally preclude a trial of labor. Primary outcome was induction-to-delivery interval (IDI). Secondary outcomes included vaginal delivery rates at 12 and 24 hours, and rates of cesarean delivery, maternal and neonatal morbidity. Analysis was by intent to treat. Planned sample size was based on detecting a 4-hour IDI difference between groups.

**RESULTS:** 182 women at 3 sites were randomized. Demographic characteristics, including parity, gestational age and initial Bishop score were similar between arms. Median IDI in the Foley arm ( $N = 89$ ) (13.4 (IQR 9.6-16.7) hours) was similar to that in the EASI arm ( $N = 93$ ) (12.1 (IQR 8.8-18.5) hours) (Wilcoxon  $p = 0.81$ ). The proportion of women delivering vaginally at 12 and 24 hours were 12 hours-Foley 42.5% vs. EASI 58.2% ( $\chi^2 p = 0.06$ ), 24 hours-Foley 93.2% vs. EASI 92.5% ( $\chi^2 p = 0.89$ ). Cesarean rates for Foley (18.0%) and EASI (28.0%) were not statistically significant ( $\chi^2 p = 0.11$ ). Rates of chorioamnionitis, endometritis and wound infection were similar between groups. A higher proportion of women in the EASI group had infants with an Apgar score  $< 7$  at 5 minutes (EASI 8.6%, Foley 0%,  $p = 0.007$ ).

**CONCLUSION:** When compared to EASI, use of Foley catheter alone has similar IDI with possibly decreased rates of Cesarean, low 5-minute Apgar scores and vaginal birth at 12 hours.

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**69 GENE EXPRESSION SIGNATURE PATHWAYS IN THE HUMAN UTERINE CERVIX BEFORE AND AFTER SPONTANEOUS TERM PARTURITION** SONIA HASSAN<sup>1</sup>, ROBERTO ROMERO<sup>2</sup>, ADI L. TARCA<sup>3</sup>, SERIN DRAGHICI<sup>3</sup>, NAHLA KHALEK<sup>1</sup>, NATALIA CAMACHO<sup>1</sup>, POOJA MITTAL<sup>1</sup>, BO HYUN YOON<sup>4</sup>, JIMMY ESPINOZA<sup>1</sup>, YORAM SOROKIN<sup>1</sup>, JOHN MALONE JR<sup>1</sup>, <sup>1</sup>Wayne State University School of Medicine, Department of Obstetrics and Gynecology, Detroit, Michigan, <sup>2</sup>Perinatology Research Branch, NICHD, NIH, DHHS, Detroit, Michigan, <sup>3</sup>Wayne State University, Department of Computer Science, Detroit, Michigan, <sup>4</sup>Seoul National University College of Medicine, Department of Obstetrics and Gynecology, Seoul, South Korea

**OBJECTIVE:** The transcriptome of the uterine cervix before and after spontaneous labor has been described (AJOG 2006). The next step is the discovery of gene 'signature networks' characterizing biological processes and cellular mechanisms involved in the reported differential gene expression. The objective of this study was to identify such 'signature networks.'

**STUDY DESIGN:** The cervical transcriptome before and after labor was evaluated utilizing cervical biopsies (7 before and 9 after) and Affymetrix GeneChip® microarrays. Pathway analysis was conducted using two databases: KEGG and Metacore®. While Metacore® contains ~450 known human signaling and metabolic pathways, KEGG contains ~250. Over or under represented pathways (reference = hgu133plus2 Affymetrix® array) were identified. P-values were adjusted using the false discovery rate method.

**RESULTS:** The 1,192 differentially expressed probesets could be mapped on 290 of 450 pathways in the Metacore® database. We tested for enrichment in these 290 pathways and 52 were significant ( $p < 0.05$ ). The top 5 significant pathways were: 1) chemokines and adhesion, 2) extracellular matrix remodeling, 3) plasmin signaling, 4) plasminogen activator (PLAU) signaling, and 5) vascular endothelial growth factor (VEGF)-family signaling. KEGG database pathway mapping resulted in only 4 significant pathways: Cytokine-cytokine receptor interaction, Complement and coagulation cascades, Calcium signaling pathway, and Arginine and proline metabolism.

**CONCLUSION:** 1) Cervical remodeling after term spontaneous labor is associated with stereotypic changes in gene expression signature pathways; 2) Pathways that emerged as involved in cervical remodeling implicate "suspected pathways" (chemokines and adhesion, extracellular matrix remodeling, VEGF-family signaling) and previously unsuspected pathways such as plasmin and PLAU signaling; 3) These findings were confirmed by the use of two databases; 4) Analysis of high-throughput data using pathway analysis improves understanding of the biological mechanisms involved in cervical dilatation and remodeling.

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