GENERAL

Abstracts 1 – 8

Moderators: Sarah J. Kilpatrick, MD, PhD, President, SMFM; Michael R. Foley, MD, Immediate Past President, SMFM, Duane Alexander, MD, Honorary Moderator

1 Identification of signature pathways at the site of rupture in chorionic membranes in spontaneous labor at term

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OBJECTIVE: The mechanisms responsible for spontaneous rupture of membranes (SROM) remain to be elucidated. This study was undertaken to examine differences in the transcriptome between the site of membrane rupture and a section of the chorionic membranes away from the site of rupture.

STUDY DESIGN: Extra-placental membranes were prospectively collected from women who underwent a vaginal delivery after SROM at term. Membranes with histological chorioamnionitis or meconium staining were excluded. The transcriptome of individual sets (n=20) of amnion and chorion from the site of rupture and membranes distal from the site of rupture was profiled with Illumina HumanHT-12 microarrays. Selected differentially expressed genes were validated using qRT-PCR on a separate set of samples (n=10).

RESULTS: 1) 677 genes were differentially expressed in the chorion between the rupture and non-rupture sites (false discovery rate <0.1 and fold change >1.5); 2) qRT-PCR confirmed increased expression of IL-6 and PTGS2 and decreased expression of progestagen-associated endometrial protein (PAEP), granulysin (GNLY),CXCL12,CXCL14, IGFBP2,IGFBP4,cannabinoid receptor 1(CNR1) and ADAM metallopeptidase with thrombospondin type-1 motif-5(ADAMTS5) in the rupture site compared to the non-rupture site; 3) biological processes with enrichment included:anatomical structure development, cell adhesion, signal transduction and cell communication; 4) extracellular matrix-receptor interaction and complement and coagulation cascades were among the most impacted signaling pathways by the presence of rupture in the membranes and 5) there were no significant regional (rupture vs non-rupture) differences in the amnion transcriptome.

CONCLUSION: 1) The transcriptome of fetal membranes in SROM in term labor is characterized by region and tissue-specific differential expression of genes involved in signal transduction,cell communication, graft-versus-host disease and the complement and coagulation cascades; 2) these differences were detected in the chorion but not in the amnion, and confirmed by qRT-PCR.

0002-9378/$ – see front matter • doi:10.1016/j.ajog.2009.10.016

2 An international trial of vitamins C and E in the prevention of preeclampsia (INTAPP trial)

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OBJECTIVE: To investigate whether antioxidant supplementation (vitamins C and E) during pregnancy reduces the incidence of preeclampsia (PE) and its adverse conditions among patients at increased or low risk for PE.

STUDY DESIGN: A randomized, placebo-controlled trial was conducted in 17 centres in Canada and 10 centres in Mexico. Women between 12-18 weeks of gestation were stratified by the presence or absence of risk factors for PE (i.e. history of PE, chronic hypertension, multiple pregnancy, or diabetes) and then randomly assigned to daily treatment with both 1000 mg vitamin C and 400 IU vitamin E (RRR tocopherol) or placebo. Our primary composite outcome was gestational hypertension and at least one adverse condition. Analyses were conducted by intention to treat.

RESULTS: Of 2647 women randomized, a total of 2363 women and their 2536 infants were included in the final analysis. There was no significant difference in the rate of gestational hypertension and adverse conditions in the treatment group (118 of 1167, 10.11%) compared with the placebo group (122 of 1196, 10.20%; relative risk: [0.99 (0.78-1.26]). The rates of PE and gestational hypertension were similar in the two groups. There were no differences in mean gestational age at delivery or rates of perinatal mortality, preterm delivery, small for gestational age, and other neonatal adverse conditions (e.g. convulsions, respiratory distress requiring oxygen, assisted ventilation24 hours, etc.). The effect estimate did not vary according to country, stratum or specific risk factors.