297 PRECONCEPTIONAL FOLATE REDUCES PERINATAL MORTALITY AND MORBIDITY

RADEK BUKOWSKI[1], FERGAL D. MALONE[2], T. FLINT PORTER[3], DAVID A. NYBERG[4], CHRISTINE H. COMSTOCK[5], GARY, HANKINS[1], KEITH EDDLEMAN[6], SUSAN J. GROSS[7], LORRAINE DUGOFF[8], SABRINA CRAIGO[9], ILAN E. TIMOR-TRITSCH[10], STEPHEN R. CARR[11], HONOR M. WOLFE[12], MARY E. D'ALTON[13], [1]University of Texas Medical Branch, Obstetrics and Gynecology, Galveston, Texas, [2]Royal College of Surgeons in Ireland, Department of Obstetrics and Gynaecology, Dublin, Ireland, [3]The University of Utah / Intermountain Med. Center, Maternal-Fetal Medicine, Murray, Missouri, [4]The Fetal & Women's Center of Arizona, OB/GYN Ultrasound, Scottsdale, Arizona, [5]William Beaumont Medical Center, Division of Fetal Imaging, Royal Oak, Michigan, [6]Mount Sinai School of Medicine, Obstetrics and Gynecology, New York, New York, [7]Jacobi Medical Center, Obstetrics and Gynecology, Bronx, New York, [8]University of Colorado Health Sciences Center, Ob/Gyn, Denver, Colorado, [9]Tufts University, Obstetrics and Gynecology, Boston, Massachusetts, [10]NYU Medical Center, School of Medicine and Obstetrics & Gynecology, New York, New York, [11]Women and Infants Hospital, Department of Obstetrics and Gynecology, Providence, RI, [12]University of North Carolina at Chapel Hill, Department of Obstetrics and Gynecology, Chapel Hill, North Carolina, [13]Columbia University, Maternal Fetal Medicine, New York, NY

OBJECTIVE: To determine the effect of preconceptional folate supplementation on perinatal mortality and morbidity.

STUDY DESIGN: In a cohort of 38,033 singleton pregnancies preconceptional folate supplementation was prospectively recorded in the first trimester of pregnancy.Perinatal mortality was defined as stillbirth after 20 weeks or neonatal death within first 28 days of life, both in the absence of chromosomal or congenital abnormalities. Neonatal morbidity was self-reported. The association between folate supplementation and perinatal mortality and morbidity was adjusted for maternal characteristics (age, race/ethnicity, parity, BMI, and smoking) and complications of pregnancy (chronic hypertension, preeclampsia, pre and gestational diabetes, placenta previa and placental abruption).

RESULTS: Preconceptional folate supplementation for >= 1 year, but not less, was associated with a 40% reduction of perinatal mortality (RR, 95% CI = 0.63, 0.42-0.95; p=0.027). BMI negatively interacted with the effect of folate. Thus adjustement for interaction with BMI and other maternal characteristics showed stronger risk reduction of perinatal mortality (adjusted RR, 95% CI = 0.15, 0.03-0.73; p=0.019). Pulmonary complications were the only neonatal morbidity significantly associated with preconceptional folate supplementation (adjusted RR, 95% CI = 0.81, 0.68-0.97; p=0.022). Adjustment for complications of pregnancy did not have a material effect but adjustment for duration of pregnancy eliminated entirely the associations between folate supplementation and perinatal mortality and morbidity (p=0.3 and p=0.1, respectively).

CONCLUSION: Preconceptional folate supplementation is associated with 40-80% reduction in perinatal mortality and its effect increases with decreasing BMI. Folate supplementation reduces only the risk of neonatal pulmonary morbidity. Preconceptional folate supplementation decreases perinatal mortality and morbidity specifically by reducing risk of preterm birth rather than representing general good health and pregnancy outcome.

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298 VITAMIN C DOES NOT PREVENT ROS-MEDIATED SYNCYTIN EXPRESSION OR TROPHOBLAST DIFFERENTIATION

WADE SCHWENDEMANN[1], XIAONAN HOU[1], BRIAN BROST[1], SHI-WEN JIANG[2], [1]Mayo Clinic College of Medicine, Maternal Fetal Medicine Division, Rochester, Minnesota, [2]Mercer University School of Medicine, Obstetrics and Gynecology, Savannah, Georgia

OBJECTIVE: Reactive Oxygen Species (ROS) have been implicated in the development of preeclampsia. Syncytin is expressed in placental trophoblasts and mediates syncytiotrophoblast formation via cell fusion. ROS-mediated Syncytin overexpression causes rapid cell fusion, which may lead to depletion of the trophoblast pool and contribute to the development of preeclampsia. This study was designed to investigate if antioxidant Vitamin C blocks the ROS effect in trophoblasts.

STUDY DESIGN: Choriocarcinoma BeWo cells were treated with H202 or H202 and Vitamin C. A known antioxidant, NAC (N-acetylcysteine), served as the positive control. Following 48 hours of treatment, cells were harvested and syncytin mRNA measured by real-time PCR. Syncytin expression was compared to a GAPDH control. Syncytin protein levels were determined by Western blot analysis, and cell fusion effects were confirmed by two color imaging analysis.

RESULTS: Syncytin expression was significantly increased in cells treated with H202. Vitamin C did not inhibit the induction of syncytin expression (Table I). Syncytin mRNA was present in greater concentration in cells treated with Vitamin C and H202 than in cells treated with Vitamin C or H2O2 alone.

CONCLUSION: Vitamin C treatment did not block ROS-mediated upregulation of Syncitin or cell fusion.This data supports the clinical observation that Vitamin C does not decrease the risk of preeclampsia.

Syncytin mRNA expression 48 hours after treatment

Treatment	Ratio of Syncytin mRNA expression to GAPDH control (+/− SEM)
Control	3.21 (0.05)
H202	20.02 (1.09)
NAC	4.64 (0.14)
H202 + NAC	4.95 (0.19)
Vitamin C (40 ng/ml)	21.61 (1.20)
Vitamin C (40 ng/ml) + H202	130.81 (4.70)

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299 GESTATIONAL PREHYPERTENSION - AN ADDITIONAL CATEGORY OF HYPERTENSIVE DISORDER OF PREGNANCY?

LAUREN AVERBUCH[1], SUSHMA POTTI[1], STACEY JERONIS[1], ELIEZER J HOLTZMAN[2], ALEXANDRA L HANLON[3] OSSIE GEIFMAN-HOLTZMAN[1], [1]Temple University School of Medicine, Temple University, Obstetrics & Gynecology, Philadelphia, Pennsylvania, [2]Tel-Aviv University, Sheba Medical Center, Nephrology and Hypertension Institute, Israel, Israel, [3]Temple University, Department of Public Health, Philadelphia, Pennsylvania

OBJECTIVE: Adult prehypertension is defined as blood pressure of 120-139/80-89 that is associated with increased cardiovascular risks. Our hypothesis is that gestational prehypertension is a pregnancy condition associated with increased risk of pregnancy complications.

STUDY DESIGN: We enrolled 396 pregnant patients who presented for prenatal care to our low risk obstetrics clinic. The inclusion criteria were healthy patients who had blood pressure measurement of 120-139/80-89 in early pregnancy (<15 weeks) and for the control group patients with blood pressure measurement of < 120/80 at similar gestational age. Comparisons between the two groups were performed for demographic characteristics and outcome measures using the chi-square test statistic and two-sample t-tests for categorical and continuous variables, respectively.

RESULTS: The study and the control groups consisted of 74 and 322 patients, respectively. The following outcome measures were analyzed, with all resulting in poorer results being associated with the study group compared with control: 12% of the study group vs. 4% of the control group (p=.02) had preeclampsia; 15% of the study group vs. 3% of the control group (p<.0001) were diagnosed with gestational hypertension; 10% of the study group vs. 4% of the control group (p=.05) were admitted to the neonatal intensive care unit; 13% of the study group vs. 7% of the control group (p=.07) had preterm labor; and 41% of the study group vs. 34% of the control group (p=.26) had cesarean section. On admission mean systolic and diastolic blood pressures were significanly different between the groups.

CONCLUSION: "Gestational Pre-hypertension" is suggested as a real condition in pregnancy and as an additional category of hypertensive disorders of pregnancy. When gestational prehypertension is recognized physician attention, patient close monitoring during prenatal care and delivery and early intervention for patients at risk may all promote improved pregnancy outcome. A larger scale study is in progress to evaluate these findings in a larger pregnant population.

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300 IMPENDING MACROSOMIA: WILL INDUCTION OF LABOR MODIFY THE RISK OF CESAREAN DELIVERY?

YVONNE CHENG[1], TERESA SPARKS[1], AARON B. CAUGHEY[1], [1]University of California, San Francisco, San Francisco, California

OBJECTIVE: To estimate the association between induction of labor vs. expectant management and cesarean delivery by birthweight categories

STUDY DESIGN: This is a retrospective cohort study of all singleton births to low-risk nulliparas between 39-42 weeks in 2003 in the U.S. Women who had induction of labor (IOL)at 39 weeks with birthweight 4000gm ±125g was compared to those delivered at 40, 41, or 42 weeks (i.e., expectant management), assuming a intrauterine fetal weight gain of 200gm per week. Similarly, women who had IOL at 40 weeks with a birthweight of 4000gm±125gm were compared to those expectantly managed (delivered at 41 or 42 weeks) assuming similar fetal weight gain. Likewise those induced at 41 weeks were compared to 42 weeks.

RESULTS: Induction of labor in the setting of impending macrosomia is associated with a decreased rate of cesarean delivery (see Table).

4000gm	IOL CD	Expt Mgmt CD	p-value
39 weeks	35.2 %	40.9 %	p<0.0001
40 weeks	36.1 %	42.6 %	p<0.0001
41 weeks	38.0 %	41.8 %	p<0.0001

3750gm	IOL CD	Expect Mgmt CD	p-value
39 weeks	29.0 %	33.7 %	p<0.0001
40 weeks	30.0 %	35.0 %	p<0.0001
41 weeks	32.5 %	35.2 %	p=0.0001

CONCLUSION: In the setting of known birthweight, it appears that induction of labor may reduce the risk of cesarean delivery. Future research should concentrate on clinical and radiologic method to better estimate birthweight.

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