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ENDOTHELIAL DYSFUNCTION IN PREECLAMPSIA: A PILOT STUDY WITH NON-INVASIVE BLOOD PRESSURE WAVEFORM ANALYSIS Pian-Smith, M.C.[1,2] Ecker, J.[2] Hsu, K.[2] Leffert, L.[1] 1. Dept Anesthesia and Critical Care, Mass General Hospital; Harvard Medical School, Boston, MA; 2. Dept Obstetrics and Gynecology, Mass General Hospital; Harvard Medical School, Boston, MA This study was undertaken to better understand the role of endothelial dysfunction in the pathophysiology of preeclampsia by comparing non-invasive measurements of vasoactivity in patients with preeclampsia and uncomplicated pregnancies. We present preliminary data from the first 20 patients (5 preeclamptic and 15 normal), of a projected cohort of 30 patients. Exclusion criteria included preexisting hypertension, renal disease or diabetes antedating the pregnancy, or initiation of magnesium or antihypertensive medication. The vasoactivity of each patient was evaluated antenatally, and will be reevaluated at least 6 weeks postpartum. Each patient is her own historic control when comparing pregnant with non-pregnant states; patients with and without preeclampsia will be compared both during and after pregnancy. Vasoactivity was evaluated using a new device, HDI/Pulsewave CR-2000, that analyzes the radial pulse wave and diastolic decay pattern with a computer program (modified Windkissel model). It is more comfortable, less time-consuming and technically less difficult than performing ultrasound analysis after deflating an ischemia-producing occlusive arm cuff. Generated data includes blood pressure, cardiac output, stroke volume, large artery elasticity LAE(capacitive compliance), small artery elasticity SAE(oscillatory or reflective compliance), systemic vascular resistance SVR and total vascular impedence TVI. The device has detected vascular abnormalities in disease states including hypertension and diabetes, has correlated arterial elasticity with cardiac risk factors, and demonstrated differential effects of drug therapy including nitric oxide donors and antagonists. Preliminary antenatal data from 20 patients (5 preeclamptics vs 15 controls) includes [mean +/-(SD)]: body mass index 31.9 (1.7) vs 27.6 (4.4) p=0.007; systolic BP 145.8 (16.8) vs 116.5 (11.6) p=0.014; diastolic BP 83.8 (8.8) vs 67.4 (8.8) p=0.009; LAE 8.7 (1.3) vs 14.4 (4.9) p=0.001; SAE 4.4 (1.8) vs 6.4 (2.6) p=0.09; SVR 1503.0 (202.9) vs 1240.3 (221.7) p=0.042; TVI 164.0 (15.3) vs 111.0 (35.0) p=0.000. Preeclamptic patients have increased BMI and decreased arterial compliance when compared with normal pregnant patients of similar gestational age. This effect appears to be more prominent in large vs small arteries. If substantiated with further measurements, these findings may highlight important elements of arterial dysfunction in preeclampsia. Ultimately, such non-invasive measurements may play a role in predicting onset or evaluating progression of the disease. *Cohn, JN. Vascular wall function as a risk marker for cardiovascular disease. J. Hypertension 1999; 17: S41-S44.*

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A DOUBLE-BLIND PLACEBO-CONTROLLED TRIAL OF PROPHYLACTIC ACETAMINOPHEN TO PREVENT EPIDURAL-FEVER: PILOT STUDY DATA Goetzl, L.[2] Evans, T.[2] Rivers, J.[2] Lieberman, E.[1] 1. Harvard University, Boston, MA; 2. Baylor College of Medicine, Houston, TX Purpose: Epidural analgesia results in a 4-fold increase in maternal fever in randomized prospective trials(1-3), with the highest risk in nulliparas.(1) Because no evidence establishes an infectious etiology, fever prophylaxis has the potential to safely reduce excess neonatal sepsis evaluations. Methods: A randomized double-blind placebo-controlled study was performed. Subjects were full term nulliparas with a temperature of <99.5 F prior to epidural. After epidural placement, subjects received acetaminophen 650mg or placebo per rectum every 4 hours. Tympanic membrane temperatures were measured every hour. Surveillance blood cultures were performed on all neonates. Chi-square, student's t or Mann-Whitney U tests were utilized as appropriate. Results: 21 subjects were randomized to each arm. The rate of fever (> 100.4 F) was identical in the acetaminophen and placebo group (23.8%,p=1.0). Epidural duration was significantly longer in subjects with fever (9.7 hrs vs. 5.0 hrs, p=.0004), but length of labor was not different (15.0 hrs vs. 16.9 hrs, p=.35). Neonates of febrile mothers had a higher rate of sepsis evaluations (70.0% vs. 12.5%, p=.001) and a longer length of stay (3 vs. 2 days, p= .01). Blood cultures were negative in all neonates. Conclusions: Epidural-related fever is more closely related to length of epidural than length of labor, consistent with a non-infectious etiology. Fever results in excess neonatal sepsis evaluations and length of stay without documented sepsis. Acetaminophen did not decrease the rate of fever in our study, decreasing the likelihood that epidural fever is centrally mediated. *1. Philip J, Alexander JM, Sharma SK, Leveno KJ, McIntire DD, Wiley J. Epidural analgesia during labor and maternal fever. Anesthesiology 1999;90:1271-75. 2. Sharma SK, Sidawi JE, Ramin SM, Lucas MJ, Leveno KJ, Cunningham FG. Cesarean delivery: a randomized trial of epidural versus patient-controlled meperidine analgesia during labor. Anesthesiology 1997;87:487-494. 3. Ramin SM, Gambling DR, Lucas MJ, Sharma SK, Sidawi JE, Leveno KJ. Randomized trial of epidural versus intravenous analgesia during labor. Obstet Gynecol 1995;86:783-789.*