

Selected Abstracts of the 20th National Congress of the Italian Society of Perinatal Medicine (*Società Italiana di Medicina Perinatale, SIMP*) • Session “New Frontiers in Perinatal Medicine”

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has not been possible to obtain the fetal weight from the FTV.

CONCLUSIONS

The precision of fetal weight estimation, before the 30th week, can be improved by adding the FTV and it could be considered a parameter in the algorithm weight to improve its diagnostic accuracy. These data may be helpful to assess fetal growth and to diagnose deviation from the normal growth.

ABS 8

IMPACT OF BLADDER FILLING ON UTERINE ARTERY BLOOD FLOW INDICES IN THE FIRST TRIMESTER OF PREGNANCY

E. Magro Malosso, V. Seravalli, C. Morelli, L. Pasquini, G. Masini, M. Di Tommaso, F. Petraglia

Obstetric and Gynecology Department, Careggi University Hospital, Florence, Italy

INTRODUCTION

First-trimester uterine artery Doppler is a non-invasive technique to investigate placental vascular adaptation to pregnancy. It is currently used in combination with maternal history, blood pressure and serum biomarkers in the first trimester to assess the risk of developing preeclampsia. The appropriate technique for uterine artery blood flow measurement is standardized. However, the impact of bladder filling on placental resistance indices in the first trimester of pregnancy has not been previously studied. The objective of this study was to verify if bladder distension modifies uterine artery (UtA) pulsatility index (PI) and peak systolic velocity (PSV) measured in the first trimester of pregnancy.

METHODS

A prospective study was conducted on pregnant women presenting to Careggi University Hospital in Florence for first-trimester screening for preeclampsia. After informed consent was collected, right- and left-UtA blood flow was first measured transabdominally with the woman having a full bladder. After the patient voided her bladder, a repeat measurement of UtA blood flow was performed, with a short interval from the first assessment. The UtA PI and PSV for each side were recorded. A paired t-test was used to detect the significance of the difference of these parameters before and after bladder voiding. Correlation coefficient was calculated to determine the strength of association between measurements.

RESULTS

Thirty-six patients were enrolled. Mean gestational age at exam was 12.2 weeks. When women were studied with full bladder, the UtA-PI was 1.82 ± 0.57 (mean \pm SD) on the right and 1.76 ± 0.52 on the left side. After the patient emptied the bladder, values were 1.85 ± 0.54 on the right and 1.79 ± 0.57 on the left side. The difference was not statistically significant ($p = 0.68$ for each side). Similarly, no difference was found in the mean UtA-PSV on either side ($p = 0.14$ and 0.28). Correlation coefficient between UtA-PI measurements before and after bladder emptying was 0.7, thus indicating a strong correlation.

CONCLUSIONS

In the first-trimester of pregnancy, bladder filling status does not seem to significantly modify uterine artery blood flow indices, and therefore it probably does not have any impact on preeclampsia risk assessment.

ABS 9

17-BETA ESTRADIOL IN OBESE PREGNANCIES

G.M. Anelli¹, M.I. Mazzocco², T. Letizia³, C. Novielli¹, T. Vago³, C. Mandò¹, I. Cetin²

¹Department of Biomedical and Clinical Sciences, "Luigi Sacco" Hospital, University of Milan, Milan, Italy

²Obstetrics and Gynecology Unit, Department of Biomedical and Clinical Sciences, "Luigi Sacco" Hospital, University of Milan, Milan, Italy

³Laboratory of Endocrinology, "Luigi Sacco" Hospital, Milan, Italy

INTRODUCTION

Maternal obesity (MO) impacts on pregnancy and fetal outcomes, possibly altering intrauterine programming leading to adulthood diseases. Its energetic imbalance results in increased circulating fatty acids and consequent inflammation and oxidative stress. MO has been associated to both systemic and hormonal changes, but the metabolic impact of excessive fatty acids on pregnancy is not fully understood. Estrogens physiologically regulating pregnancy-related insulin resistance may also exacerbate obesity-related inflammation. During pregnancy the fetal-placental unit becomes a primary source of estrogens, particularly of 17-Beta Estradiol (E2). An obesity-related impairment of placental steroidogenesis has been reported. We measured maternal plasma E2 in relation to pregestational BMI and gestational diabetes mellitus (GDM).

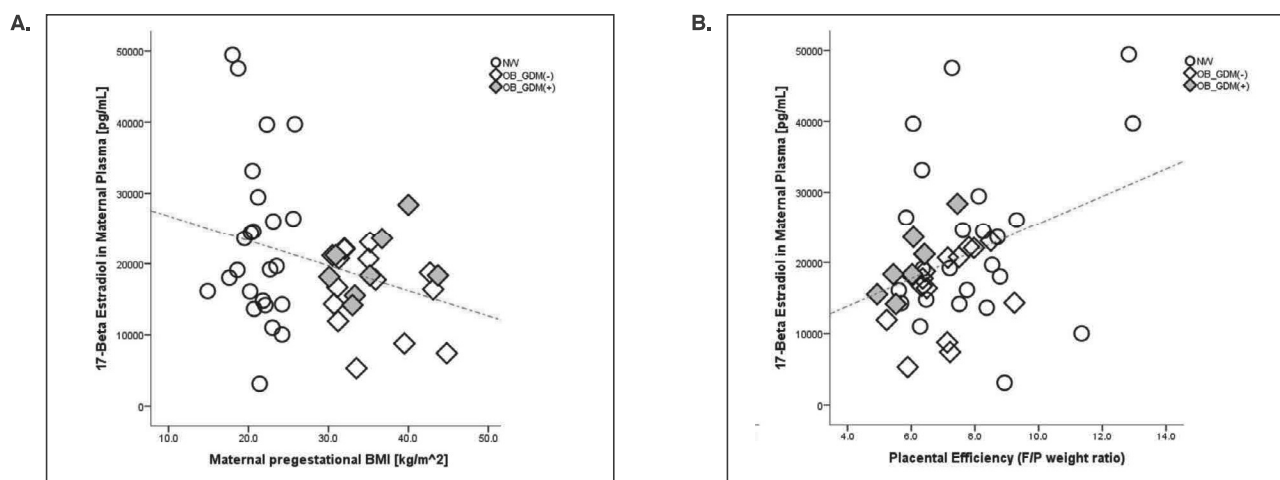


Figure 1 (ABS 9). 17-Beta Estradiol (E2) levels correlated negatively with maternal BMI (A) and positively with placental efficiency (B).

METHODS

Venous blood was collected at elective cesarean section from 24 normal-weight (NW) and 23 obese (OB) women, 8 with GDM [OB/GDM(+)] (75 gr-OGTT; FIGO guidelines). EDTA samples were centrifuged at 1,500 rpm x 15 min and plasma selected excluding hemolyzed, icteric and lipemic. Samples were diluted 1:10 and run in duplicate on Cobas e411 to measure E2 concentration by an electrochemiluminescence immunoassay. Clinical and molecular data were analyzed with t-test and Pearson correlation.

RESULTS

When comparing to NW, maternal BMI was significantly different in OB ($p \leq 0.001$), while basal glycaemia only in OB/GDM(+) ($p \leq 0.001$) following inclusion criteria. Placental weight and thickness were significantly higher in both OB groups vs NW ($p < 0.01$), while efficiency (fetal/placental weight) was decreased in OB [6.68 ± 1.07] ($p < 0.01$) vs NW [8.01 ± 2.03]. E2 concentration [pg/mL] resulted significantly lower in OB [$17,593.2 \pm 5,493.6$] vs NW [$23,049.8 \pm 11,810.1$] ($p \leq 0.05$). When considering the presence of GDM, OB/GDM(+) [$19,701.9 \pm 4,583.9$] showed no differences compared to either OB/GDM(-) or NW, while OB/GDM(-) [$16,468.5 \pm 5,746.6$] confirmed significantly lower E2 plasma concentration vs NW ($p < 0.05$). E2 levels correlated negatively with maternal BMI ($p = 0.04$, $r = -0.30$) and positively with placental efficiency ($p = 0.01$, $r = +0.36$) (Fig. 1).

CONCLUSIONS

Our preliminary analyses support evidences linking excessive BMI to decreased plasma E2, possibly impacting pregnancy outcomes. Indeed, E2 exerts a protective role against oxidative-stress, and obese

lipotoxic environment can lead to decreased placental efficiency. GDM metabolic impairments related to insulin-resistance might represent an additional-opposing factor to the obese context, leading to increased E2 levels. Experiments on placental Estrogen Receptors (ER) will investigate a causal link to plasma E2 variation. Exploring the obesity-related effect on placental estrogen pathways could open future therapeutic features.

ABS 10

EARLY LABOR CEREBROPLACENTAL RATIO ASSESSMENT IN UNCOMPLICATED TERM PREGNANCIES AND PREDICTION OF ADVERSE PERINATAL OUTCOMES: A MULTICENTRE STUDY

A. Dall'Asta¹, T. Ghi¹, G. Rizzo², A. Cancemi^{1,3}, F. Aloisio², D. Arduini⁴, G. Pedrazzi⁵, F. Figueras³, T. Frusca¹

¹Obstetrics and Gynecology Unit, University of Parma, Parma, Italy

²Division of Maternal and Fetal Medicine, Ospedale Cristo Re, University of Rome Tor Vergata, Rome, Italy

³Fetal i+D Fetal Medicine Research Center, BCNatal – Barcelona Center for Maternal-Fetal and Neonatal Medicine (Hospital Clínic and Hospital Sant Joan de Deu), IDIBAPS, University of Barcelona, Barcelona, Spain

⁴Department of Obstetrics and Gynecology, Casa di Cura Santa Famiglia, University of Rome Tor Vergata, Rome, Italy

⁵Department of Neurosciences, University of Parma, Parma, Italy

INTRODUCTION

It has been recently suggested that the use of Doppler ultrasound among normal sized fetuses at term is able to identify those with subclinical placental