Abstracts

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"

CATANIA (ITALY) · MARCH 22ND-24TH, 2018

SIMP PRESIDENT

Irene Cetin

CONGRESS PRESIDENTS

Nicola Chianchiano, Angela Motta

SCIENTIFIC COMMITTEE

Mariarosaria Di Tommaso, Gianpaolo Donzelli, Luca Ramenghi

Guest Editors: Irene Cetin, Nicola Chianchiano, Angela Motta

Organizing secretariat

HOW TO CITE

ABS 1

CLINICAL AND METABOLIC OUTCOMES IN PREGNANT WOMEN AT RISK FOR GDM SUPPLEMENTED WITH MYO-INOSITOL. A SECONDARY ANALYSIS FROM 3 RCTS

A. Santamaria, A. Alibrandi, A. di Benedetto, B. Pintaudi, F. Corrado, F. Facchinetti, R. d'Anna

Department of Gynecology and Obstetrics, Policlinico Universitario G. Martino di Messina, Messina, Italy

OBJECTIVE

To evaluate clinical and metabolic outcomes in women at risk for gestational diabetes mellitus (GDM) supplemented with myo-inositol since first trimester.

METHODS

A secondary analysis of databases from 3 randomized, controlled trials (595 women enrolled), in which women at risk for GDM (a parent with type 2 diabetes, obese or overweight) were supplemented with myo-inositol (4 g/day) throughout pregnancy. Main measures were the rate of adverse clinical outcomes: macrosomia, large for gestational age (LGA) babies, fetal growth restriction (FGR), pre-term birth, gestational hypertension and GDM.

RESULTS

A significant reduction was observed for pre-term birth (3.4% vs 7.6%, p = 0.03), macrosomia (2.1% vs 5.3%, p = 0.04), LGA babies (4.8% vs 8.9 %, p = 0.04) with only a trend to significance for gestational hypertension (1.4% vs 3.9%, p = 0.07). GDM onset was also decreased when compared to control group (11.0% vs 25.3%, p < 0.001). At univariate logistic regression analysis myo-inositol treatment reduced the risk for pre-term birth (OR 0.44, CI 0.20-0.93), macrosomia (OR 0.38, CI 0.14-0.98) and GDM onset (OR 0.36, CI 0.23-0.57).

CONCLUSIONS

Once administered early in pregnancy, myo-inositol prevents preterm birth and macrosomia in women at risk for GDM.

ABS 2

PRE AND POST-NATAL CEREBRAL HEMO-DYNAMICS: CORRELATION WITH BIRTH WEIGHT, BASE ACID BALANCE AND NEONATAL OUTCOME

D. Buca[1], F. D'Antonio[2,3], F. Fanfani[1], S. Gustapane[1], M. Leombroni[1], L. Di Tizio[1], A. Ricciardulli[1], M. Liberati[1]

[1]*Department of Obstetrics and Gynecology, University of Chieti, Chieti, Italy*

[2]*Women's Health and Perinatology Research Group, Department of Clinical Medicine, Faculty of Health Sciences, UiT – The Arctic University of Norway, Tromsø, Norway*

[3]*Department of Obstetrics and Gynecology, University Hospital of Northern Norway, Tromsø, Norway*

INTRODUCTION

Recent studies suggest that the presence of an altered middle cerebral artery (MCA) and/or an altered cerebral-placental ratio (CPR) may be associated with a neonatal adverse outcome regardless of birth weight. The primary outcome of this study is to evaluate the correlation between pre- and post-natal cerebral hemodynamics and: birth weight, base acid balance and neonatal outcome and to report its predictive value.

METHODS

Prospective observational study conducted at the University Obstetrical Clinic of Chieti. The umbilical artery Doppler (AO), MCA, CPR and uterine (AU) were evaluated between 35 and 38 weeks of gestational age. At birth, the newborn's MCA was sampled and correlated with pH, birth weight and neonatal outcome.

RESULTS

600 pregnancies were included. MCA and CPR presented a significant correlation with pH (r = 0.095 and 0.93) and birth weight (r = 0.96 and 0.95). Furthermore, in small for gestational age (SGA) fetuses there was a significant correlation between fetal and neonatal MCA (r = 0.98) while this correlation did not occur in non-SGA fetuses. A CPR < 0.90 and the presence of an MCA < 10 pc are both associated (p < 0.001) with abnormal base acid balance and an adverse neonatal outcome in SGA fetuses with a sensitivity of 93% and a specificity of 92%. However, once the SGA fetuses were excluded, this correlation was lost.

CONCLUSIONS

This is the first study comparing Doppler in pre- and post-natal times. In SGA fetuses, the presence

of an MCA and/or an abnormal CPR is associated and predictive of neonatal impairment, while this association is lost in AGA fetuses. SGA fetuses with altered MCA identify a proportion of newborns with a higher risk of prolonged redistribution of the neonatal cerebral circulation and adverse outcome.

ABS 3

ROLE OF GLYCEMIC CONTROL IN THE DEVELOPMENT OF PREECLAMPSIA IN DIABETIC WOMEN

S. Ottanelli, C. Serena, S. Simeone, M.P. Rambaldi, F. Mecacci

Prenatal Medicine and High Risk Pregnancy Unit, Newborn's and Women's Health Department, Careggi University Hospital, Florence, Italy

OBJECTIVE
To investigate the role of maternal glycemic control at different times of day and in relation to meals and by trimester in the development of preeclampsia in type 1 diabetic women and then to correlate these with Doppler indices of the utero-placental vascular resistances.
METHODS
244 singleton pregnancies in type 1 diabetic women were studied. hba1c, average daily glucose value, fasting, pre-prandial, 1-hour and 2-hour postprandial glucose levels during the 1st, 2nd and 3rd trimester were evaluated. Uterine artery velocimetry indices were obtained at 16, 20 and 24 weeks. Data analysis included correlation between parameters of glycemic control, uterine artery Doppler and development of preeclampsia.
RESULTS
Preeclampsia developed in 32 (13.1%) of the women. hba1c at entry, mean daily glucose levels in the 1st and 2nd trimester, daily 3 meal post prandial glucose areas in the 1st and 2nd trimester and the mean resistance index of uterine arteries at 24 weeks were associated with development of preeclampsia, while there is no correlation between the daily glucose levels at 16, 20, 24 weeks and uterine arteries resistance indices results; there is a positive correlation between post prandial glycemic areas and the impedance to flow in uterine arteries.
CONCLUSIONS
Our results suggest that by improving glycemic control it is possible to reduce the recognized higher risk of developing preeclampsia in type 1 diabetic pregnancies; in addition, the crucial time period for the correlation between hyperglycemia and the development of preeclampsia seems to be the early period of pregnancy, the period when placentation is underway and lasting damage to the placental bed may be caused. This is the first time that a correlation between maternal glycemic state and uterine impedance to flow has been found.

ABS 4

MATERNAL NUTRITION AND LIFESTYLE AS PREDICTORS OF PLACENTAL FUNCTION IN THE FIRST TRIMESTER OF PREGNANCY

I. di Bartolo, F. Parisi, C. Melinte, I. Cetin

Department of Obstetrics and Gynecology, Centre for Fetal Research Giorgio Pardi, Luigi Sacco Hospital, Università degli Studi di Milano, Milan, Italy

INTRODUCTION
Maternal nutrition is known to affect fetal growth and development, as well as future health of the offspring. We aim to evaluate associations between periconceptional maternal nutrition and lifestyle and biochemical and ultrasound markers of placental function during the first trimester of pregnancy.
METHODS
107 singleton pregnancies were enrolled at the combined first trimester screening (11^{+5}-13^{+6} weeks) between February and June 2017. Nutritional questionnaires were collected at enrollment and analyzed for nutritional score assessment (range 0-10). Transabdominal ultrasound scans were performed to obtain crown-rump length (CRL), uterine artery pulsatility index (PI) and placental volume by using the VOCAL technique. Maternal blood samples for free βhCG, PAPP-A, 17β-E2 and progesterone determination were collected. Linear regression models adjusted for gestational age, smoking and BMI were performed to investigate associations between maternal nutritional scores and ultrasound and biochemical markers of placental function.
RESULTS
Maternal nutritional score was positively associated with PAPP-A (β = 0.10), 17β-E2 (β = 0.30) and progesterone concentrations (β = 0.20), with models explaining 30%, 43% and 82% of the biomarker variance respectively. Significant negative associations were detected for free βhCG (β = -0.07) and uterine PI (β = -0.06). Interestingly, the nutritional score showed a significant negative association with placental volume (β = -0.13), but

Table 1 (ABS 4). Linear regression model adjusted for gestational age, smoking and pregestational BMI.

Placental marker	Explained variance (%)	β nutritional score	p
17β-E2	42.9	0.30	< 0.05
PGT	82.2	0.20	< 0.001
PAPP-A	30	0.10	< 0.001
βhCG	9.4	-0.07	< 0.05
UA-PI	13.9	-0.06	< 0.01
Placental volume	42.6	-0.13	< 0.001
CRL/placental volume	22.9	0.08	< 0.01

a positive association with CRL/placental volume ratio ($\beta = 0.08$, $p < 0.01$). Results are presented in **Tab. 1**.

CONCLUSIONS

Periconceptional maternal nutritional status affects markers of placental function as early as the first trimester of pregnancy. Further research is needed to evaluate impacts on pregnancy outcome. Early intervention to improve maternal nutrition should be the goal to improve intrauterine development.

ABS 5

ADHERENCE TO MEDITERRANEAN DIET, WEIGHT GAIN AND THICKNESS SKINFOLD IN NORMAL WEIGHT PREGNANT WOMEN WITH OR WITHOUT GESTATIONAL DIABETES MELLITUS

A. Spadafranca[1], S. Digiacomo[1], A. Battezzati[1], S. Bertoli[1], I. Cetin[2], E. Ferrazzi[2,3]

[1]*ICANS – International Center For The Assessment of Nutritional Status, University of Milan, Milan, Italy*

[2]*Children's Hospital V. Buzzi, University of Milan, Milan, Italy*

[3]*Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Mangiagalli Center, University of Milan, Milan, Italy*

INTRODUCTION

Gestational Diabetes Mellitus (GDM) is associated to non-modifiable risk factors such as age, ethnicity and familiarity for diabetes and to modifiable risk factors such as overweight/obesity, excessive pregnant weight gain, body composition and quality of the diet. Mediterranean Diet (Med Diet) is reported to be protective versus diabetes in general population, however few studies investigated adherence to Med Diet in relation to incidence of GDM.

METHODS

We investigated the adherence to Med Diet and the features of body composition in 23 normal weight pregnant women with GDM (GDM+) and we compared data with 31 normal weight pregnant women without GDM (GDM-). The study was carried at Children's Hospital V. Buzzi of Milan. Adherence to Med Diet was measured by 14-point Mediterranean Scale (range of scores, 0 to 13, with higher scores indicating greater adherence) derived from a validated food frequency questionnaire modified for pregnancy. Weight gain and skinfold thickness were evaluated. All measurement were made after the 26 gestational week.

RESULTS

GDM+ and GDM- women were similarly old (34 ± 4 years vs 37 ± 6 years, $p = 0.1$). No difference was observed in title study ($p = 0.7$). Mediterranean Score in GDM+ and GDM-women was similar (7 ± 2 vs 7 ± 1, $p = 0.5$), however we observed a significant difference in the habit to daily consumption of butter, cream or margarine (19% GDM+ vs 0% GDM-, $p = 0.01$). No difference was observed in gestational weight gain, but we found significant differences in the skinfold thickness, greater in GDM+ women ($p = 0.03$). Moreover in GDM+ women we observed a greater percentage of familiarity for diabetes than GDM- (48% vs 23%, $p = 0.05$).

CONCLUSIONS

No difference was found between GDM+ and GDM- about adherence to Med Diet, however our results suggest a probable difference in fat and energy intake that should be better investigated through seven days food diary. Although both groups were normal weight, fat mass in GDM+ was greater than GDM-. In conclusion this study suggests that body composition and dietary habits should be yet supervised in preconception period regardless of BMI especially in women with familiarity for diabetes.

ABS 6

THE ROLE OF ULTRASONOGRAPHY IN PRENATAL DIAGNOSIS OF CONGENITAL VASCULAR ANOMALIES

T. Izzo[1], S. Faiola[1], M. Lanna[1], L. Spaccini[2], E. Cattaneo[2], V. Baraldini[3], A. Turri[1], M.A. Rustico[1]

[1]*Fetal therapy Unit "U. Nicolini", Vittore Buzzi Children's Hospital, University of Milan, Milan, Italy*

[2]*Clinical Genetic Unit, V. Buzzi Children's Hospital, University of Milan, Milan, Italy*

[3]*Angioma Center and Vascular Malformations, UOC of Pediatric Surgery, "V. Buzzi" Hospital, ASST Fatebenefratelli-Sacco, Milan, Italy*

INTRODUCTION
Congenital vascular anomalies are extremely rare malformations, and can be isolated or associated to other anomalies. They can be detected during intrauterine life with different perinatal outcomes. There are few reports of prenatal identification of this lesions. The International Society for the study of vascular anomalies (ISSVA) has described a new classification since 2014.

METHODS
This is a retrospective study of all cases referred at our Unit from 2007 to 2017. Each case was studied with gray scale ultrasound and Color-Doppler, and the diagnosis of the type of malformation and location was made. Signs of anemia and evaluation of heart function were recorded in each fetus. All cases underwent prenatal MRI. Amniocentesis was proposed in all cases to analyse fetal karyotype, array CGH. Cases where termination of pregnancy was chosen underwent autopsy, histological examination of the lesion and genetic exams. Perinatal outcome was collected for each case.

RESULTS
On the 5,180 singleton pregnancies referred in our Unit during study period, there were 19 cases of prenatal identification of vascular anomalies. In 15 cases prenatal description of the lesion was concordant with postnatal findings: fourteen lymphatic and one arteriovenous malformations. In another case the suspicion for a vascular tumor of the neck was confirmed after birth. Two cases were associated with signs suggestive for overgrowth syndrome that lead to genetic investigation with identification of *PROS-A* gene mutation. Two cases with the anomaly located near the airways, were better studied with MRI in order to evaluate the needing for Ex Utero Intrapartum Treatment (EXIT) during caesarean section. One case decided for termination of pregnancy (*PROS-A* positive).

CONCLUSIONS
Accurate prenatal diagnosis provides an opportunity for planning deliveries, for appropriate parental multidisciplinary counselling and optimization of postnatal care. Prognosis of these lesions is more frequently good, either in cases with expectant management or with medical and surgical treatment.

ABS 7

THREE-DIMENSIONAL AUTOMATED MEASURE OF THE FETAL THIGH IN HIGH-RISK PREGNANCIES TO PREDICT FETAL WEIGHT

T. Izzo[1], E. Ferrazzi[1], A. Farina[2], S. Rigano[1], V. Signorelli[1], M. Elisabetta[1], F. Fusè[1], D. Di Martino[1]

[1]*Department of Woman, Mother and Neonate, Buzzi Children's Hospital, Biological and Clinical Sciences, University of Milan, Milan, Italy*

[2]*Division of Obstetrics and Prenatal Medicine, Department of Medicine and Surgery (DIMEC) Sant'Orsola-Malpighi Hospital, University of Bologna, Bologna, Italy*

INTRODUCTION
The present study was conducted to compare fetal thigh volume (FTV), by the three-dimensional (3D) automated measure (Tvol), with two-dimensional (2D) fetal biometry in order to predict birth weight in fetal intrauterine growth restriction (IUGR) and in high-risk pregnancy for preeclampsia (PE) and/or IUGR.

METHODS
A prospective cross-sectional study of 112 pregnant women, 34 IUGR and 78 high-risk for PE and/or IUGR, was performed using ultrasound between the 20th and 40th weeks of gestation. IUGR refers to a condition in which the fetus has abdominal circumference (AC) at or below the 10th percentile for growth. Two-dimensional and 3D sonographic examinations were performed for fetal biometry and FTV. The data has been analyzed through generalized linear regression and through bootstrap on 1,000 samples. All models of regression returned a 100% power and a type I error of 5%.

RESULTS
A fetal weight estimation model, based on 3D acquisition of the FTV is comparable to conventional 2D sonographic measurements during the second and third trimesters of pregnancy ($p < 0.001$). We obtained a better accuracy of fetal weight estimation before the 30th week of gestation ($r^2 = 0.97$ vs $r^2 = 0.73$; F value = 497 vs F value = 44) in IUGR and in high-risk pregnancy for PE and/or IUGR ($r^2 = 0.97$ vs $r^2 = 0.94$; F value = 1,170 vs F value = 307). Bootstrap resampling analysis of the relationship between the tests confirmed their level of statistical significance. Only in 4.5% of the cases (5/112) it

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 ± 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. Anelli[1], M.I. Mazzocco[2], T. Letizia[3], C. Novielli[1], T. Vago[3], C. Mandò[1], I. Cetin[2]

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

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

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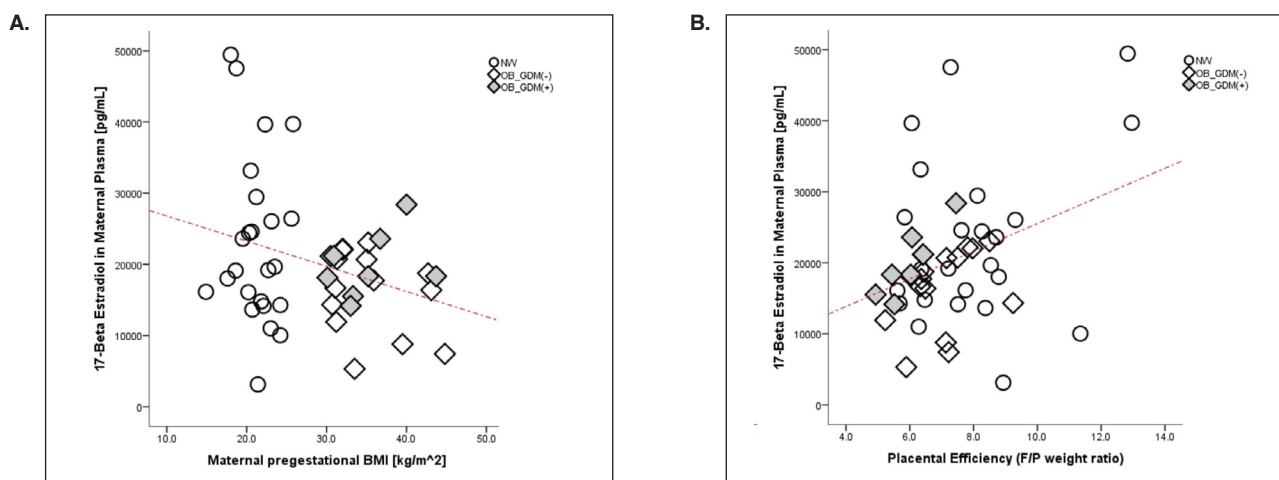
Figure 1 (ABS 9). 17-Beta Estradiol (E2) levels correlated negatively with maternal BMI (**A**) and positively with placental efficiency (**B**).

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 ± 5,493.6] vs NW [23,049.8 ± 11,810.1] ($p \leq 0.05$). When considering the presence of GDM, OB/GDM(+) [19,701.9 ± 4,583.9] showed no differences compared to either OB/GDM(-) or NW, while OB/GDM(-) [16,468.5 ± 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'Asta[1], T. Ghi[1], G. Rizzo[2], A. Cancemi[1,3], F. Aloisio[2], D. Arduini[4], G. Pedrazzi[5], F. Figueras[3], T. Frusca[1]

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

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

[3]Fetal 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

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

[5]Department 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

Table 1 (ABS 10). Maternal demographics and intrapartum and perinatal outcomes according to cerebroplacental ratio.

	Reduced CPR MoM [a] (n = 54)	Normal CPR MoM [a] (n = 508)	p
Parity			
Nulliparae	28 (51.9%)	290 (57.1%)	0.46
Age (years)	30.3 ± 5.4	30.5 ± 5.6	0.72
Prepregnancy BMI (kg/m^2)	25.3 ± 4.4	24.5 ± 4.3	0.24
Term pregnancy BMI (kg/m^2)	29.1 ± 5.3	28.9 ± 4.5	0.78
Ethnicity			
White (Caucasian, Arabic)	43 (79.6%)	437 (86.0%)	
African	3 (5.6%)	20 (4.0%)	0.48
Asian	5 (9.2%)	24 (4.7%)	
Other (Caribbean, South American, Mixed)	3 (5.6%)	27 (5.3%)	
Gestation at delivery (weeks^{+days})	39^{+1} ± 0^{+6}	39^{+6} ± 1^{+1}	< 0.01
Mode of delivery			
SVD	41 (75.9%)	405 (79.7%)	0.51
OI	13 (24.1%)	103 (20.3%)	
Mode of delivery			
SVD	41 (75.9%)	405 (79.7%)	
OI dystocia	4 (7.4%)	75 (14.8%)	0.004
OI distress	9 (16.7%)	28 (5.5%)	
Mode of delivery (excluding OI due to fetal distress)			
SVD	41 (91.1%)	405 (84.4%)	0.22
OI dystocia	4 (8.9%)	75 (15.6%)	
Mode of delivery (excluding OI for dystocia)			
SVD	41 (82.0%)	405 (93.5%)	0.001
OI distress	9 (18.0%)	28 (6.5%)	
Labor length (minutes)	367 ± 179	410 ± 206	0.39
Birthweight (grams)	3,241 ± 389	3,378 ± 445	0.03
Birthweight percentile	45.9 ± 28.3	49.9 ± 29.2	0.34
Birthweight < 10th centile for gestation	6 (11.1%)	39 (7.7%)	0.42
APGAR < 7 at 1 min	3 (5.6%)	13 (2.6%)	< 0.01
APGAR < 7 at 5 min	-	-	-
Cord arterial pH < 7.20	16 (29.6%)	109 (21.5%)	0.17
Cord arterial pH < 7.10	5 (9.2%)	12 (2.4%)	< 0.01
Cord arterial pH < 7.00	1 (1.9%)	2 (0.4%)	0.17
Cord arterial base excess > 8	7 (13.0%)	60 (11.8%)	0.80
Cord arterial base excess > 8 and ≤ 12	5 (9.3%)	49 (9.6%)	0.93
Cord arterial base excess > 12	2 (3.7%)	11 (2.2%)	0.47
NICU admission or need for resuscitation	1	6	0.67
Neonatal encephalopathy	-	-	-
Any adverse perinatal outcome [b]	18 (33.3%)	142 (28.0%)	0.046
Composite adverse perinatal outcome [c]	6 (11.1%)	19 (3.7%)	0.012
Composite neonatal outcome score [d]	0.70 ± 1.34	0.43 ± 0.85	0.04

Data are presented as n (%).
CPR: cerebroplacental ratio; OI: obstetric intervention.
[a] Reduced CPR defined by CPR MoM within the lowest decile. [b] Any adverse perinatal outcome defined by score ≥ 1. [c] Composite adverse perinatal outcome defined by score ≥ 3. [d] Composite neonatal outcome scored as follows: Apgar ≥ 7 at 1 min = 0, < 7 at 1 min = 1, < 7 at 5 min = 2; cord arterial pH ≥ 7.20 = 0, < 7.20 = 1, < 7.10 = 2, < 7.00 = 3; base excess ≤ 8 = 0, > 8 and ≤ 12 = 1, > 12 = 2; NICU admission or need for resuscitation No = 0, Yes = 1.

impairment. The objective of this study was to evaluate the relationship between cerebroplacental ratio (CPR) measured in early labor and perinatal and delivery outcomes in a cohort of uncomplicated singleton term pregnancies.

METHODS

This was a multicenter, prospective, observational study involving three Tertiary Centers. Low risk term pregnancies, as defined by the absence of any maternal morbidity and pregnancy complication and normal ultrasound and clinical screening of the fetal growth in the third trimester, with spontaneous onset of labor were included. Cases were submitted to Doppler measurement of the umbilical artery (UA) and middle cerebral artery (MCA) on admission for early labor. All measurements were performed in between uterine contractions and according to international standards. CPR was computed by dividing MCA and UA pulsatility index and converted into MoMs in order to adjust for gestation. Cases with reduced CPR MoM, as defined by CPR MoM within the lowest decile of the study population, were compared to those with normal CPR MoM. Data regarding mode of delivery and perinatal outcomes were collected and correlated to the Doppler evaluation. Doctors and midwives involved in the clinical management of the patients were blinded to the results of the Doppler evaluation.

RESULTS

Overall, 562 patients were included. The rate of obstetric intervention for suspected fetal distress in labor was over three times higher among cases with reduced CPR MoM (9/54, 16.7%, vs 28/508, 5.5%, p 0.004). Furthermore, a significantly higher rate of composite adverse perinatal outcome was found in fetuses showing CPR MoM < 10th percentile (6/54, 11.1%, vs 19/508, 3.7%, p 0.012). Results are shown in **Tab. 1**.

CONCLUSIONS

Data on a wide cohort of low risk term pregnancies in early labor have shown that a reduced CPR is associated with a higher risk of obstetric intervention due to fetal distress and adverse perinatal outcomes.

ABS 11

UMBILICAL CORD MANAGEMENT IN INFANTS BORN THROUGH ELECTIVE CESAREAN SEC-TION: COMPARISON OF THREE DIFFERENT METHODS

B. Galeazzo, S. Madella, B. Zanin, S. Visentin, D. Trevisanuto

Department of Woman's and Child's Health, Azienda Ospedaliera di Padova, University of Padua, Padua. Italy

INTRODUCTION

Placental transfusion supports an important blood transfer to the neonate, promoting a more stable and smooth transition from fetal to extra-uterine life. Cesarean section, especially elective cesarean section, reduces the placental transfusion, mainly because of uterine atony. Therefore, during a cesarean section, umbilical cord management may play a relevant role on blood passage to the neonate and, as consequence, it may affect neonatal hematological values and cardiovascular parameters. The aim of this study is to evaluate the effect of three different methods of umbilical cord management (Early Cord Clamping – ECC vs. Delayed Cord Clamping – DCC vs. Intact-Umbilical Cord Milking – I-UCM) on the hematocrit on the second day of life; in addition, we assessed the effect on perinatal and postnatal cardiovascular parameters.

METHODS

The study took place at the Obstetric Operation Rooms and at the Nursery of Padua Hospital (Azienda Ospedaliera-Università di Padova), from 01/06/2017 to 15/09/2017. Inclusion criteria were: elective cesarean section, gestational age > 37 weeks, singleton pregnancies and parental informed consent. Primary outcome was the hematocrit at day two of life. Secondary outcomes were pre-ductal oxygen saturation (SaO_2) and heart rate (HR) during the first ten minutes after delivery, mean arterial pressure at the birth's day (MAP0) and total transcutaneous bilirubin (BT) at three postnatal days.

RESULTS

Totally, 78 neonates were enrolled: 28 in ECC, 25 in DCC and 25 in I-UCM group, respectively. 35 newborns were male. Birth weight was $3,326 \pm 492.4$ g. Gestational age was 39 ± 1.06 weeks. Hematocrit at day 2 of life was significantly different between the three groups (p = 0.004): Htc was lower in ECC group than in the DCC group ($50 \pm 4\%$ vs. $55 \pm 6\%$; p = 0.01) and UCM group ($50 \pm 4\%$ vs $55 \pm 5\%$; p = 0.003); no differences were found between DCC and UCM groups (p = 0.97). During the first ten minutes of life, HR was significantly lower in ECC group than in DCC (p = 0.03) and UCM (p = 0.04) groups; SaO_2, MAP0 and BT were similar among the three groups.

CONCLUSIONS

During an elective cesarean section, DCC and UCM contribute to increase hematocrit value at day 2 of life compared to ECC and increase postnatal HR.

Despite uterine atony, DCC seems to support an effective placental transfusion; however, UCM could be convenient, mainly because of shorter operative times. More studies are indicated to evaluate long-term effects of DCC and UCM in neonates born through elective cesarean section. Moreover, studies comparing the effectiveness and the safety between the two UCM techniques (I-UCM and C-UCM) are needed.

ABS 12

MATERNAL AND EMBRYO'S MTHFR GENO-TYPES INFLUENCE THE RISK OF SPON-TANEOUS ABORTION

R. Capucci[1], O. Brasile[1], A. Graziano[1], A. Poggi[1], R. Bassi Andreasi[2], V. Aleotti[2], A. Ravaei[2], M. Faisal Khan[2], V. Aiello[2], G. Astolfi[2], M. Rubini[2]

[1]Unit of Obstetrics and Gynecology, Department of Reproduction and Development, Sant'Anna University, Ferrara, Italy

[2]Medical Genetics Unit, Department of Biomedical and Specialty Surgical Sciences, University of Ferrara, Ferrara, Italy

INTRODUCTION
Some studies suggest that polymorphisms in the methylenetetrahydrofolate reductase (MTHFR) gene in women associate with subfertility and increased risk of recurrent spontaneous abortion (RSA), and MTHFR genotypes seem to influence the implantation capacity. However, so far no studies have addressed the potential role of embryo genotype, nor investigated the interplay between maternal and embryo's MTHFR genotype in RSA cases.

METHODS
We therefore investigated the role of both embryo and maternal MTHFR c.677C>T(rs1801133) and c.1298A>C(rs1801131) genotypes in a group of Italian RSA cases. We enrolled 78 RSA cases and a control group of 88 cases with voluntary pregnancy termination (VPT). Genomic DNA was obtained from both maternal peripheral blood samples and from abortion tissue specimens, and MTHFR genotyping was carried out by 5' nuclease real-time PCR assay using allele-specific TaqMan probes.

RESULTS
Our results indicated that rs1801133 T-allele in mothers is associated with significant increased risk of RSA (OR = 1.84 p = 0.008) following a co-dominant model, with an almost 3-fold increased risk in T/T homozygote women (OR = 2.84, p =

0.020), and a slight increase in heterozygotes (OR = 1.64, p = 0.156). Moreover, we observed that the risk of RSA in T/T women was particularly high when embryo had a male karyotype (OR = 5.78, p = 0.012), compared to female (OR = 1.58, p = 0.600), although the effect of sex was not significant (p = 0.239), probably due to the small size of groups. As regards to embryo's T-allele, we observed a trend towards association between rs1801133 T-allele and RSA (OR = 1.57 p = 0.076), with different trends according to embryo's sex. Mother-embryo rs1801133 genotype interaction analysis turned out into the evidence that dyads including at least one T/T homozygote were at increased risk of RSA (OR = 2.39, p = 0.035).

CONCLUSIONS
This preliminary study indicate that risk of RSA is influenced by both maternal and embryo's MTHFR c.677C>T genotypes, suggesting a possible interaction between embryo's sex and MTHFR genotypes.

ABS 13

PREGESTATIONAL DIABETES IMPAIRS FETAL HEART RATE IN THE FIRST TRIMESTER OF PREGNANCY

A. Sirico, L. Sarno, M. Di Cresce, P. Martinelli, F. Zullo, G.M. Maruotti

Department of Neurosciences, Reproductive Medicine and Dentistry, University of Naples Federico II, Naples, Italy

INTRODUCTION
The aim of our study is to evaluate whether pregestational diabetes impairs the fetal heart rate (FHR) at 11-14 weeks of pregnancy.

METHODS
For each patient, we recorded age, body mass index (BMI), presence of pregestational diabetes, nuchal translucency (NT), FHR, crown-rump length (CRL), biparietal diameter (BPD) and gestational age. Pregnancies were grouped according to the presence or absence of pregestational diabetes and maternal and fetal variables were compared. Ordinal regression analysis was performed to assess the influence of maternal and fetal variables on the FHR.

RESULTS
We included 994 pregnancies from 2009 to 2016. Kruskal-Wallis test showed that median FHR was higher in women with pregestational diabetes than

Table 1 (ABS 13). Ordinal logistic regression analysis of factors associated with fetal heart rate (FHR) in first trimester pregnancies.

	Estimate	SE	Wald test	p	95% confidence interval	
BMI	-0.002	0.016	0.022	0.882	-0.034	0.030
Maternal age	0.009	0.015	0.387	0.534	-0.020	0.038
Gestational age	-0.271	0.241	1.265	0.261	-0.742	0.201
CRL	-0.037	0.018	4.135	0.042	-0.072	-0.001
BPD	-0.051	0.038	1.818	0.178	-0.125	0.023
NT	-0.079	0.275	0.082	0.775	-0.618	0.461
[Diabetes = no]	-1.020	0.375	7.384	0.007	-1.755	-0.284
[Diabetes = yes]	0					

SE: standard error; BMI: body mass index; CRL: crown-rump length; BPD: biparietal diameter; NT: nuchal translucency.

in controls (161; IQR 11 vs. 158; IQR 10, χ^2 = 5.13, p = 0.02). Ordinal regression analysis showed that differences in FHR were significantly correlated with the presence of pregestational diabetes (p = 0.007) and the CRL (p = 0.042) but not with the maternal BMI, maternal age, gestational age, BPD and NT (**Tab. 1**).

CONCLUSIONS

First trimester FHR is higher in diabetic pregnancies than in non-diabetic pregnancies. Therefore, these pregnancies may benefit from a correction of FHR for a better estimation of the risk of chromosomal abnormalities.

ABS 14

THE USE OF COMPUTERIZED CARDIO-TOCOGRAPHY IN THE MANAGEMENT OF LATE INTRAUTERINE GROWTH RESTRICTED AND SMALL FOR GESTATIONAL AGE FETUSES

E. Riviello[1], S. Visentin[1], A. Londero[2], M. Andolfatto[1], M. Giannone[1], M. Camerin[1], E. Cosmi[1]

[1]Department of Women's and Children's Health, University of Padua, Padua, Italy

[2]Unit of Obstetrics and Gynecology, S. Polo Hospital, Monfalcone (GO), Italy

INTRODUCTION

Intrauterine growth restriction (IUGR) and small for gestational age (SGA) are terms often used as synonyms. Whether the recent guidelines give quite precise indications about the management and timing of delivery of early IUGR fetuses, it is not so clear about late IUGR and SGA fetuses.

Nowadays, the monitoring of fetal well-being depends on the use of Doppler analysis, biophysical profile score and cardiotocography, in particular of the short term variability (STV). The association of fetal Doppler with STV in the monitoring of late IUGR and SGA is still debated. The main aim of this study was to verify if STV may be considered as a predictive parameter for neonatal outcomes in both late IUGR and SGA fetuses. Secondary outcomes were: to study any STV modifications throughout gestational ages in both groups; and to verify the role of STV in late IUGR and SGA in determining the timing of delivery.

METHODS

This retrospective study considered singleton pregnancies affected by IUGR or SGA fetuses and AGA controls, enrolled from 2007 until 2017 at the Maternal and Fetal Medicine Unit of Padua. IUGR fetuses were defined by an estimated fetal weight (EFW) and/or an abdominal circumference (CA) below the 3rd percentile or below the 10th percentile for gestational age with fetal and maternal Doppler abnormalities (pulsatility index [PI] of umbilical artery [UA] > 2 SD and uterine arteries PI > 95th percentile for gestational age). SGA fetuses were defined by an EFW and/or an AC between the 3rd and 10th percentile for gestational age without fetal and maternal Doppler abnormalities. Multiple pregnancies were excluded, as all fetuses affected by birth defects, chromosome abnormalities and infection. STV was tested starting from 36 weeks of gestation in late IUGR and SGA and in controls in case of urgent outpatient visits for threatened labor.

RESULTS

The population included 335 patients: 224 IUGR, 108 SGA and 111 AGA. IUGR mean gestational age at delivery was lower (38.26 ± 1.54) than SGA (38.66 ± 2.06, p = NS) and AGA (38.91 ± 1.20, p < 0.05). No significant differences were found in STV values between the three groups. Caesarean section (CS) before labour was the prevalent mode of delivery in late IUGR more than in SGA; however, the SGA group registered a higher CS rate during

labour because of cardiotocographic anomalies. No significant correlation was found between STV, Apgar score and cordonal acid-base score (including pH, pCO_2, pO_2, HCO_3 and Base Excess) in all of the 3 groups. Only in one case of late IUGR a pathologic STV was found to influence the timing of delivery.

CONCLUSIONS

STV alone seems inadequate in distinguishing between SGA and IUGR or controls; this may be related to the fact that late IUGR have biophysical wellbeing features similar to SGA or AGA. Moreover, actual management seems to be correct, since the neonatal outcome of IUGR and SGA is in line with the physiologic pregnancies outcomes.

ABS 15

POSTPARTUM UNCONSCIOUS DYNAMICS EMERGING FROM THE LÜSCHER COLOR TEST IN MIGRANT WOMEN

L. Giliberti, G. Soldera, F. Volpe, C. Gentile, L. Severino, G. Straface, V. Zanardo

Division of Perinatal Medicine, Policlinico Abano Terme, Abano Terme, Italy

INTRODUCTION

Pregnancy, delivery, and the puerperal stage undoubtedly represent sensitive, emotional periods in a woman's life span. They also coincide with important transformations in the psychological spheres as well as in new mothers' social-family role. In the absence of a readily understandable universal language and validated tests for disadvantaged migrant women, we explored the feasibility of the Lüscher color test. The test is a psychological instrument based on the theory that colors are selected in an unconscious manner and that the sensory perception of color is objective and universal.

METHODS

This study was performed at Department of Perinatal Medicine of Policlinico Abano Terme, between June 2015 and December 2017. All of the 126 women in this study were migrant and in Italy for less than five years. The inclusion criteria were: occurrence of single vaginally delivery, absence of severe physical or psychiatric problems, healthy at term neonates. A trained interviewer performed the Lüscher Color Test in the morning before discharge, when the newborns were 36 h old. The Lüscher Color Test is a "deep psychological test", which is based on colors selected in an unconscious manner. We used the short test.

RESULTS

According to the Lüscher Color Test general interpretation, the "function" resulting from four color couples in order of preference or rejection describes the following unconscious dynamics.

"Desired Objectives" – Position I: nearly 50% of mothers choose violet (meaning transformation and sensitivity) as their favorite color, indicating that the women idealize their "new mother status" and want to enjoy this magic and extraordinary time. Position II: most women (29.37%) choose red (activity and excitement) in second position, indicating challenge, desire for success.

"Rejected Characteristics" – Position VII: most of the mothers reject black (39.68%, coercion and stasis): indicating that the subject is forced to make some temporary concessions and resign her certainty. Position VIII: the majority of mothers reject brown (30.95%, well-being and relaxation), indicating that they want to live intensely every experience, feel they could respond to any request, be respected and appreciated, even in stress situations.

CONCLUSION

The psychological distress analyzed in this study reflects what would be present in first days post discharge, when mother-infant contact is almost exclusive. The Lüscher Color Test appeared to be a test with good characteristics: it is very easy, because it simply asks to choose or refuse colors based on preference. The administration takes about 2 min; for that reason it results a test comfortable and not stressful or boring. It is universally valid (for every race, language, social class, level of culture) and it brings out emotions through simple questions. The test delineates a person as she really is, and not as she perceives herself or would like to be, which often many questionnaires ask.

ABS 16

RANDOMISED ITALIAN SONOGRAPHY FOR OCCIPUT POSITION TRIAL ANTE VACUUM (R.I.S.POS.T.A.)

T. Ghi[1], A. Dall'Asta[1], B. Masturzo[2], B. Tassis[3], M. Martinelli[4], N. Volpe[1], F. Prefumo[5], G. Rizzo[6], G. Pilu[7], L. Cariello[7], L. Sabbioni[1], A. Morselli-Labate[7], T. Todros[2], T. Frusca[1]

[1]*Department of Obstetrics and Gynecology, University of Parma, Parma, Italy*

[2]*Department of Obstetrics and Gynecology, St. Anna Hospital, University of Turin, Turin, Italy*

[3]*Department of Obstetrics and Gynecology, Mangiagalli University Hospital, Milan, Italy*

[4]*Department of Obstetrics and Gynecology, Fatebenefratelli San Peter Hospital, Rome, Italy*

[5]*Department of Obstetrics and Gynecology, University of Brescia, Brescia, Italy*

[6]*Department of Obstetrics and Gynecology, University of Rome Tor Vergata, Rome, Italy*

[7]*Department of Obstetrics and Gynecology, University of Bologna, Bologna, Italy*

INTRODUCTION

Fetal head malpositions, mainly represented by occiput transverse (OT) and occiput posterior (OP) positions, are among the main determinant of failed fetal extraction using vacuum. The objective of this study was to assess whether the ultrasound diagnosis of fetal head position reduces the risk of failed vacuum delivery and improves labor outcomes.

METHODS

Randomised Italian Sonography for Occiput POSition Trial Ante Vacuum (R.I.S.POS.T.A.) was a randomised controlled trial conducted from April 2014 to June 2017 and involving 13 Italian Maternity Units. Singleton term pregnancies with cephalic presentation where a decision for instrumental delivery by vacuum extractor was made were included. Patients were randomized to either vaginal examination (VE) only (Group A) or VE plus ultrasound (US) evaluation (Group B) to determine fetal head position before attempted instrumental delivery. The primary outcome of the study was the emergency Caesarean section rate due to failed vacuum delivery. A sample size of 653 per group (n = 1,306) was planned to compare the primary outcome between the two groups. The sample size estimation was based on the hypothesis that the risk of failed vacuum delivery in the VE group would be 5% and that US assessment of fetal position prior to vacuum would decrease this risk to 2%.

RESULTS

Overall, 222 women were randomized and 221 were included in data analysis, of whom 132 (59.7%) were randomized to VE and 89 (40.3%) to VE plus US evaluation prior to vacuum delivery (**Tab. 1**). No significant differences in the occurrence of emergency Caesarean section due to failed instrumental delivery and in other maternal and fetal outcomes were noted between the two groups. At interim analysis (n = 221), the trial was stopped for futility. Women randomized to VE plus US showed higher rates of episiotomy and non-occiput anterior (OA) position at randomization and at delivery, and a lower incidence in incorrect diagnosis of non-OA position.

CONCLUSIONS

Our prematurely stopped randomised trial did not demonstrate any reduction in failed instrumental delivery and maternal and fetal morbidity in women submitted to sonographic assessment of fetal position prior to vacuum delivery.

Table 1 (ABS 16). Labor and perinatal outcomes according to randomization group.

	All (n = 221)	VE only (n = 132)	VE + US (n = 89)	p [a]
Number of cup detachments	0 (0-3)	0 (0-3)	(0-2)	0.16
Time between cup application and delivery (minutes)	0 (0-17)	3 (1-17)	3 (0-10)	0.75
Mode of delivery				
Vacuum	219 (99.0%)	130 (99.2%)	89 (100%)	0.24
Caesarean section	2 (1.0%)	2 (0.8%)	0 (0%)	
Episiotomy	171 (77.4%)	94 (71.2%)	77 (86.5%)	0.009
III-IV degree perineal tear	12 (5.4%)	7 (5.3%)	5 (5.6%)	1.00
Postpartum haemorrhage	31 (14.0%)	18 (13.5%)	13 (14.6%)	0.85
Arterial pH	7.24 (6.70-7.40)	7.23 (6.70-7.40)	7.25 (7.05-7.40)	0.74
Arterial pH < 7.00	3 (1.4%)	2 (1.5%)	1 (1.1%)	0.81
Arterial base excess > -12	23 (10.4%)	15 (11.4%)	8 (9.0%)	0.57
Cephalohematoma	7 (3.2%)	5 (3.8%)	2 (2.2%)	0.70
Shoulder dystocia	6 (2.7%)	2 (1.5%)	4 (4.5%)	0.22
Distance between the flexion point and the chignon (cm)	1.61 ± 1.35	1.64 ± 1.55	1.57 ± 0.99	0.72

VE: vaginal examination; US: ultrasound.
[a] VE only vs VE + US.

ABS 17

RISK FACTORS VERSUS CLINICAL OUTCOMES IN GDM PREGNANCIES

F. Basile, A. Alibrandi, L. Rizzo, G. Graffeo, L. Giunta, F. Corrado, A. Di Benedetto, R. D'Anna

Department of Human Pathology, University of Messina, and Department of Clinical and Experimental Medicine, University of Messina, Messina, Italy

INTRODUCTION

Gestational diabetes mellitus (GDM) is a carbohydrate intolerance that begins or it is recognized during pregnancy for the first time, and it is characterized by a pathological increase of insulin resistance. Adverse maternal complications of GDM include hypertension, preeclampsia, pre-term birth, urinary tract infection, increased operative intervention and future type 2 DM. Furthermore, GDM is associated with large for gestational age (LGA) fetus, birth injuries for shoulder dystocia, congenital anomalies, respiratory distress syndrome and subsequent childhood obesity. In this study, among women affected by GDM, we evaluated which of the most frequent risk factors may influence significantly GDM related complications.

METHODS

We considered 550 women with GDM, with at least one risk factor, diagnosed after a 75 g oral glucose tolerance test (OGTT) (**Tab. 1**). The adverse pregnancy outcomes considered were: LGA fetus, gestational hypertension, preterm delivery, caesarean section (CS) in emergency.

RESULTS

The most frequent risk factors (**Tab. 2**) were maternal age ≥ 35 years (50.9%); BMI ≥ 25 (53.6%), including obese women and family history for type 2 diabetes (47.8%). Furthermore, some of these were coupled like family history + overweight (12.4%), family history + obesity (11.5%) and family history + maternal age ≥ 35 years (6.0%). About the outcome (**Tab. 3**), the percentage of pre-term birth, gestational hypertension and LGA fetuses is more than double with respect to the total population of pregnant women. When we considered all risk factors and all the outcomes, we obtained a significant correlation (p = 0.025) between these 2 groups, with an OR of 1.32 (1.03-1.69). But, if all risk factors considered were related to each outcome measure, only with gestational hypertension a significant correlation (p = 0.016) was highlighted, with an OR of 1.53 (1.08-2.18). A multivariate logistic regression model was performed in order to individuate which risk factor might be individually predictive for all the outcomes (**Tab. 4**). The most significant were obesity (p = 0.007), with an OR of 2.44 (1.27-4.67) and ethnicity (p = 0.01), with an OR of 2.19 (1.18-4.06). Only obesity was the risk factor that independently and significantly influenced gestational hypertension either alone (p < 0.001), with an OR of 8.78 (2.93-26.34). No risk factor showed to be predictive for LGA fetuses and pre-term birth.

CONCLUSIONS

This is one of the few studies that aims to correlate the most frequent risk factors for GDM with some GDM related events, suggesting that obesity is the most predictive one; ethnicity and family history were confirmed as risk factors that may influence all the adverse outcomes, whereas overweight and maternal age failed to correlate with the adverse outcomes considered. Probably, maternal age ≥ 40 years and not ≥ 35 years should be included as risk factor.

Table 1 (ABS 17). General and clinical characteristics of women with gestational diabetes mellitus (GDM) (n = 550).

Maternal age (years)	33.6 ± 5.3
Pre-pregnancy BMI (kg/m²)	26.5 ± 5.9
Nulliparous women	289 (52.5%)
Gestational age at delivery (days)	269.5 ± 10.7
Weight gain during pregnancy (kg)	11.0 ± 6.2
Insulin therapy	153 (27.8%)

Table 2 (ABS 17). Risk factors from Italian guidelines considered in the study (550 diabetic women [a]).

Risk factors	n (%)
Maternal age ≥ 35 years	280 (50.9%)
Maternal age ≥ 40 years	67 (12.2%)
Family history for type 2 diabetes	263 (47.8%)
Pre-gestational BMI (kg/m²) ≥ 25 and < 30	164 (29.8%)
Pre-gestational BMI (kg/m²) ≥ 30	131 (23.8%)
Ethnic group at risk for GDM	51 (9.3%)

GDM: gestational diabetes mellitus.
[a] There are reported only the significant ones.

Table 3 (ABS 17). Adverse pregnancy outcomes (n = 550).

Outcomes	n (%)
Cesarean section in emergency	80 (14.5%)
Hypertensive disorders	56 (10.2%)
Pre-term birth	57 (10.4%)
LGA fetus	45 (8.2%)

LGA: large for gestational age.

Table 4 (ABS 17). Multivariate logistic regression analysis for adverse outcomes (n = 550 [a]).

	P	OR	CI
All adverse outcomes			
Maternal age ≥ 40 years	0.04	2.22	1.00-4.9
Obesity	0.007	2.44	1.27-4.67
Ethnic groups at risk	0.01	2.19	1.18-4.06
Gestational hypertension			
Obesity	< 0.001	8.78	2.93-26.34
Family history	0.03	3.39	1.12-10.31
Family history + obesity	0.04	4.01	1.02-15.72
CS in emergency			
Obesity	0.03	2.37	1.07-5.27

[a] There are reported only the significant ones.

ABS 18

MODERATELY PROTEIN-RESTRICTED, PLANT-BASED SUPPLEMENTED DIETS IN PREGNANT CHRONIC KIDNEY DISEASE (CKD) PATIENTS: EFFECT ON UTERO-PLACENTAL DOPPLER FLOWS AND FETAL GROWTH

B. Montersino[1], F. Minelli[1], F. Fassio[1], F. Leone[1], L. Colla[2], M.M. Rossetti[2], G.B. Piccoli[3], R. Attini[1], T. Todros[1]

[1]Maternal-foetal Unit, University of Turin, Turin, Italy

[2]Nephrology Unit, University of Turin, Turin, Italy

[3]Nephrology Unit, Centre Hospitalier Le Mans, Le Mans, France

INTRODUCTION

Pregnancy is increasingly common in patients with advanced or intensely proteinuric chronic kidney disease (CKD). Previous experiences with plant based diets showed better stabilisation of kidney function and proteinuria and equal or better foetal weight at delivery as compared with CKD patients on unrestricted diet. No data were so far available on foetal growth during pregnancy. Aim of the study was to analyse foetal growth and Doppler indexes (uterine and umbilical arteries) in CKD patients followed-up during pregnancy in the same settings, following the diet or not.

METHODS

From the database of the "kidney and pregnancy" Unit, prospectively updated since 2000, we selected all patients with at least one Doppler control in our Center (after 24 weeks; in case of more findings we considered the last one) and with CKD stage 3 and/or with proteinuria above 1 g at start of pregnancy or nephrotic syndrome at any time. The patients were stratified according to the diet followed: plant-based supplemented moderately protein-restricted diets (the cases); CKD unrestricted diets (due to later referral, personal choice, milder disease) (the controls). Analysis with SPSS®.

RESULTS

Overall, 41 patients followed the diet in pregnancy; 34 were selected for the study (3 twin pregnancies, 2 patients without echographic data, 1 miscarriage and 1 voluntary termination were excluded); the control group consisted of 20 patients (5 miscarriages were excluded). The two groups were similar for age and BMI; proteinuria was non-significantly higher in on-diet patients, CKD stage and creatinine were non-significantly higher in the control group. No difference was found as for neonatal weight, gestational age at referral, caesarean section, birth weight centile. Prevalence of uterine Doppler flow impairment was non-significantly higher in control patients (15.8% in

Table 1 (ABS 18). Baseline data and pregnancy outcomes.

	Cases (n = 34)	Controls (n = 20)	p
Proteinuria, g/day [a]	2.75 (0.2-17.3)	1.6 (0.3-7)	0.056
Serum creatinine, mg/dL [a]	1.00 (0.56-4.98)	1.27 (0.59-4.68)	0.235
CKD stage [a]	2 (1-4)	3 (1-4)	0.158
Cesarean section (%)	51.6%	55.0%	1.000
INeS growth centile [a]	30.5 (3-93)	21.5 (1-91)	0.200
Gestational weeks at delivery [a]	35 (28-38)	36 (28-38)	0.330
Pathological uterine Doppler flow (%)	9.4%	15.8%	0.659
Pathological umbilical Doppler flow (%)	3.0%	30.0%	**0.009**
FGR (%)	5.9%	25.0%	0.057

CKD: chronic kidney disease; FGR: foetal growth restriction.
[a] Median (min-max).

controls, 9.4% in cases), while the difference in umbilical Doppler flow, better preserved in on-diet patients (3.0% in cases, 30% in controls), was highly significant (p = 0.009). The incidence of foetal growth restriction (FGR) was lower in on-diet patients (5.9%) than in control group (25%), but statistical significance was not reached (p = 0.057). Results are presented in **Tab. 1**.

CONCLUSIONS

Protein-restricted diet, plant-based, supplemented diet in pregnant women with CKD and/or proteinuria may help preserving foetal growth in pregnancy, by favouring preservation of utero-placental flows. While these results suggest an anti-oxidant, vaso-protective effect at the placental level, further multicentre studies are needed to validate this hypothesis and confirm these results.

ABS 19

WNT ANTAGONIST SCLEROSTIN AND DICKKOPF-1 IN GESTATIONAL DIABETES

A. Catalano, B. Pintaudi, N. Morabito, L. Giunta, S. Loddo, F. Corrado, R. D'Anna, A. Lasco, A. Di Benedetto

Department of Clinical and Experimental Medicine, University Hospital of Messina, Messina, Italy

SSD Diabetology, Ca' Granda Niguarda Hospital, Milan, Italy

Department of Pediatric, Gynecological, Microbiological and Biomedical Sciences, Messina, Italy

INTRODUCTION

In animal models, the Wnt/-catenin signalling pathway has been shown to contribute to modulation of insulin secretion, cell function and insulin signalling probably through regulation of adipocyte function. The Wnt/-catenin canonical pathway is modulated by a number of factors, including secreted proteins such as Dickkopf-1 (Dkk-1) and sclerostin. Human studies have reported significantly higher serum sclerostin levels in T2DM patients than in controls. Few data have been reported for the levels and associations of sclerostin in women diagnosed with GDM. Our present study investigated both sclerostin and Dkk-1 serum levels in women with GDM.

MATERIALS AND METHODS

This was a case-control study involving pregnant women attending the Diabetes Outpatient Unit of the Department of Internal Medicine at the G. Martino University Hospital in Messina, Italy.

Pregnant women with established risk factors for GDM at gestational weeks 24-28 underwent a 75-g OGTT, with cut-off values of 5.1 mmol/L for fasting glucose, and 10.0 mmol/L and 8.5 mmol/L for 1-h and 2-h post-load glucose levels, respectively, and were considered eligible according to International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria. Over a period of 6 months, 35 consecutive women with GDM were recruited, while a group of pregnant women negative on the screening test were randomly selected, using a computer-generated randomization table, to serve as the control group.

RESULTS

Overall, 71 women were included in our study. No between-group differences were detected, neither for pregnancy outcomes. No significant differences were found in maternal serum levels of both sclerostin and Dkk-1 in both groups of women; moreover, correlation analyses showed that sclerostin correlated only with pregestational BMI.

CONCLUSIONS

In our cohort of pregnant women, sclerostin and Dkk-1 were not associated with any adverse metabolic profile, and possibly do not play a relevant role in the pathophysiology of GDM.

ABS 20

RISK FACTORS FOR ABNORMALLY INVASIVE PLACENTA: A SYSTEMATIC REVIEW AND META-ANALYSIS

D. Buca[1], M. Leombroni[1], A. Iacovelli[1], M. Liberati[1], M. Milani[1], M.E. Flacco[2], L. Manzoli[3], F. Fanfani[1], G. Calì[4], A. Familiari[5], G. Scambia[5], F. D'Antonio[6,7]

[1]*Department of Obstetrics and Gynecology, University of Chieti, Chieti, Italy*

[2]*Local Health Unit of Pescara, Pescara, Italy*

[3]*Department of Medical Sciences, University of Ferrara, Ferrara, Italy*

[4]*Department of Obstetrics and Gynecology, Arnas Civico Hospital, Palermo, Italy*

[5]*Department of Obstetrics and Gynecology, Catholic University of The Sacred Heart University Hospital, Rome, Italy*

[6]*Women's Health and Perinatology Research Group, Department of Clinical Medicine, Faculty of Health Sciences, UiT – The Arctic University of Norway, Tromsø, Norway*

[7]*Department of Obstetrics and Gynecology, University Hospital of Northern Norway, Tromsø, Norway*

INTRODUCTION

Abnormally Invasive Placenta (AIP) encompasses a heterogeneous group of anomalies characterized by different degrees of invasion of chorionic villi

through the myometrium and uterine serosa. The aim of this systematic review was to explore the strength of association between different maternal and pregnancy characteristics and the occurrence of AIP. Recent studies suggested that prenatal diagnosis of AIP may improve when combining imaging signs with maternal or pregnancy characteristics, such as parity, age or number of prior cesarean section (CS). Placenta previa and a prior CS are commonly recognized as the classical risk factors for AIP. However, a multitude of different maternal and pregnancy parameters has been proposed to be associated with AIP and it has still to be ascertain their actual strength of association with these disorders. This is fundamental because it would allow building accurate predictive models for AIP combining imaging signs and maternal characteristics.

METHODS

Pubmed, Embase, CINAHL databases were searched. The risk factors for AIP explored were: obesity, age > 35 years, smoking before or during pregnancy, placenta previa, prior cesarean section (CS), placenta previa and prior CS, prior uterine surgery, abortion and uterine curettage, *in vitro* fertilization (IVF) pregnancy and interval between a previous CS and a subsequent pregnancy. Random-effect head-to-head meta-analyses were used to analyze the data.

RESULTS

Forty-six were included in the systematic review. Maternal obesity (Odds ratio [OR]: 1.4, 95% CI 1.0-1.8), advanced maternal age (OR: 3.1, 95% CI 1.4-7.0) and parity (OR: 2.5, 95% CI 1.7-3.6), but not smoking were associated with a higher risk of AIP. The presence of placenta previa in women with at least a prior CS was associated with a higher risk of AIP compared to controls (with an OR of 12.0, 95% CI 1.6-88.0). Furthermore, the risk of AIP increased with the number of prior CS (OR of 2.6, 95% CI 1.6-4.4 and 5.4, 95% CI 1.7-17.4 for 2 and 3 prior CS respectively). Finally, IVF pregnancies were associated with a high risk of AIP, with an OR of 2.8 (95% CI 1.2-6.8).

CONCLUSIONS

The findings from this systematic review showed that advanced maternal age, obesity, parity, prior CS, placenta previa and IVF are associated with a significant high risk of AIP. A prior CS and placenta previa are among the strongest risk factors for the occurrence of AIP, with such risk increasing with the number of prior CS or when placenta previa and CS co-exist.

ABS 21

AN UNUSUAL CARDIAC COURSE OF RECIPIENT TWIN IN TWIN-TO-TWIN TRANSFUSION SYNDROME

M. Lucente, V. Comito, M. Salvia, G. Nigro, E. Bonanno, G. Scarpelli

UTIN and Neonatology, Annunziata Hospital, AO Cosenza, Cosenza, Italy

INTRODUCTION

Monochorionic diamniotic twin pregnancies have a 9-15% risk of developing twin-to-twin transfusion syndrome (TTTS). The presence of arteriovenous anastomoses creates an imbalanced fluid flow from one twin (donor) to the other (recipient) resulting in significant hemodynamic changes, especially in the recipient twin. The disease is staged based on the Quintero system.

METHODS

We present the case of a monochorionic diamniotic twin pair, who were diagnosed as suffering from TTTS at 17 weeks of gestational age (GA). At that time, the recipient twin already had severe myocardial hypertrophy (C/T circumference ratio 0.66), severe tricuspid and pulmonary regurgitation with right ventricle failure (shortening fraction of 10%). Along with the presence of ascites and hydrops, this led to the diagnosis of stage IV TTTS. Selective fetoscopic laser photocoagulation (SFLP) of placental vascular anastomoses was performed at 17^{+5} weeks of GA. After laser, right and left ventricular hypertrophy did not improve, contrary to what expected based on literature. After birth (at 32 weeks), the recipient twin continued to have an abnormal cardiac function, characterized by the echo findings of left ventricular hypertrophy and of subvalvular pulmonary stenosis (gradient of 30 mmHg) with hypoplasia of the valve annulus. During follow-up, the pulmonary stenosis became severe (gradient of 70 mmHg) and the baby had to undergo a balloon valvuloplasty at 8 months of age.

RESULTS

Most of recipient fetuses of TTTS show echocardiographic signs of cardiac compromise. Myocardial hypertrophy is one of the typical features and is related both to preload changes in the venous compartment (volume overload theory) and to afterload alterations in the peripheral vascular system (activation of Renin-Angiotensin II-Aldosterone system). Together with cardiac hypertrophy, there are usually ventricular

dysfunction signs (e.g., monophasic filling patterns, reduction of shortening fraction) and atrioventricular valve regurgitation, typically tricuspid. SFLP disrupts this pathophysiology and results in rapid improvement of the cardiac function. By the age of 2, both donors and recipient twins show normal cardiac function, even if pulmonary stenosis in recipient twins is represented 3-fold more than in uncomplicated monochorionic twins. In our case, both severe myocardial hypertrophy and tricuspid regurgitation occurred in the recipient fetus but, significantly, they tended to progress over time, despite SFLP, and even after birth, showing the persistence of the left ventricular hypertrophy and the worsening of the pulmonary stenosis.

CONCLUSIONS

This case shows an atypical clinical course in TTTS recipient twin. After SFLP, in fact, most TTTS twins show normal cardiac function, already in fetal life. In our baby, not only the cardiac abnormalities persisted, but continued to worsen after birth leading to severe pulmonary stenosis and to the necessity of balloon valvuloplasty.

ABS 22

INFLUENCE OF PRENATAL DIAGNOSIS OF ABNORMALLY INVASIVE PLACENTA ON MATERNAL OUTCOME: A SYSTEMATIC REVIEW AND META-ANALYSIS

D. Buca[1], M. Liberati[1], G. Calì[2], F. Forlani[2], C. Caisutti[3], G. Pavone[1], M.E. Flacco[4], L. Manzoli[5], A. Familiari[6], G. Scambia[6], F. D'Antonio[7,8]

[1]Department of Obstetrics and Gynecology, University of Chieti, Chieti, Italy

[2]Department of Obstetrics and Gynecology, Arnas Civico Hospital, Palermo, Italy

[3]Department of Experimental Clinical and Medical Science, DISM, Clinic of Obstetrics and Gynecology, University of Udine, Udine, Italy

[4]Department of Medicine, University of Chieti, Chieti, Italy

[5]Department of Medical Sciences, University of Ferrara, Ferrara, Italy

[6]Department of Obstetrics and Gynecology, Catholic University of The Sacred Heart University Hospital, Rome, Italy

[7]Women's Health and Perinatology Research Group, Department of Clinical Medicine, Faculty of Health Sciences, UiT – The Arctic University of Norway, Tromsø, Norway

[8]Department of Obstetrics and Gynecology, University Hospital of Northern Norway, Tromsø, Norway

INTRODUCTION

The rise of caesarean section (CS) rate observed in the last two decades has led to an increased incidence of abnormally invasive placenta (AIP). AIP is associated with a high burden of maternal morbidities, such as severe life-threatening hemorrhage, need for blood transfusion, re-operation and damage to adjacent organs. Prenatal diagnosis of AIP is fundamental and it has been reported to improve the outcome of such women by allowing a pre-planned treatment of these conditions in centers with a high level of surgical expertise The aim of this systematic review was to ascertain the impact of prenatal diagnosis on surgical outcome of women affected by AIP.

METHODS

Medline, Embase, CINAHL and *Cochrane* databases were searched. The outcomes observed were: amount of blood loss, units of red blood cells (RBC), platelets (PLT) and fresh frozen plasma (FFP) transfused, length of stay in hospital and in intensive care unit, urinary tract injuries and infection. Only case-control studies reporting the occurrence of any of the explored outcomes in women with a prenatal compared to intra-partum diagnosis of AIP were considered eligible for the inclusion. Random-effect head-to-head meta-analyses were used to analyze the data.

RESULTS

Thirteen studies were included. Women with a prenatal diagnosis of AIP had a lower amount of blood loss during surgery (mean difference, MD: -0.87; 95% CI -1.5, -0.23), units of RBC (MD: -1.45; 95% CI -2.9, -0.04) and FFP (MD: -1.73; 95% CI -3.3, -0.2) transfused compared to those with intra-partum diagnosis. The risk of admission to ICU, length of in hospital and in ICU stay were not different. Prenatal diagnosis of AIP was associated with a higher risk of urinary tract injuries (odds ratio, OR: 2.5; 95% CI 1.3-4.6), mainly due to the higher prevalence of placenta percreta in the group of AIP diagnosed prenatally.

CONCLUSIONS

The findings from this systematic review showed that prenatal diagnosis of AIP is associated with a better maternal outcome compared to cases in which it is detected at birth. Women with a prenatal diagnosis of AIP had lower mean blood loss and units of RBC and FFP transfused compared to controls suggesting an actual beneficial effect of prenatal imaging on maternal outcome in cases affected by AIP.

ABS 23

VEGAN-VEGETARIAN DIET ROLE IN IM-PROVING FOETAL GROWTH AND AVOIDING

DIALYSIS IN PREGNANT CHRONIC KIDNEY DISEASE (CKD) PATIENTS: A CASE REPORT

B. Montersino[1], F. Minelli[1], F. Leone[1], F. Fassio[1], M.M. Rossetti[2], L. Colla[2], G.B. Piccoli[3], R. Attini[1], T. Todros[1]

[1]*Materno-Foetal Unit, University of Turin, Turin, Italy*

[2]*Nephrology Unit, University of Turin, Turin, Italy*

[3]*Nephrology Unit, Centre Hospitalier Le Mans, Le Mans, France*

INTRODUCTION

Pregnancy is increasingly encountered in patients with advanced chronic kidney disease (CKD) as en effect of improvement in maternal-foetal care and of deep changes in counselling. Though the indications for dialysis start in pregnancy are neither clear nor shared, a low-protein diet may help stabilizing the kidney function; according to previous experiences from ours and other groups, moderately protein-restricted plant-based diets, supplemented with amino acids and keto acids, may have an additive effect in promoting fetal growth and stabilizing kidney function and proteinuria. We would like to report here on a patient who did not tolerate supplements and in which switching to a vegan-vegetarian non-supplemented diet probably helped to avoid dialysis in pregnancy.

CASE REPORT

A 28-year-old woman with stage 4 CKD known since infancy, relatively stable for at least 3 years, without relevant proteinuria and normotensive, was first seen at the 6th gestational week of her first pregnancy; pre-pregnancy creatinine was 2.6 mg/dl. Of note, she had a very low BMI but reported an adequate caloric intake. She was on a mixed-proteins moderately restricted diet. Due to an increasing trend of urea and creatinine, she was prescribed the supplemented plant-based diet we usually employ in advanced CKD in pregnancy. However, she did not tolerate the supplements, and resumed her previous dietary habits. Since creatinine and urea were steadily increasing, reaching a strict "pre-dialysis" level (and the patient did not wish to start dialysis in pregnancy), she started a vegan diet (protein intake: 0.6 g/kg/day), with a sharp decrease in urea and a milder, but relevant decrease in serum creatinine (**Fig. 1**). During pregnancy the growth of the baby was normal, with normal umbilical and uterine Doppler flow. At 33 weeks she was hospitalized for renal function monitoring in the context of a new increase in serum creatinine (3.29 mg/dl) and serum urea (68 mg/dl). Labour was induced (Foley catheter, amniorrhexis and oxytocin infusion) and she delivered a healthy female baby at 33 weeks and 6 days of gestational age. The baby was adequate
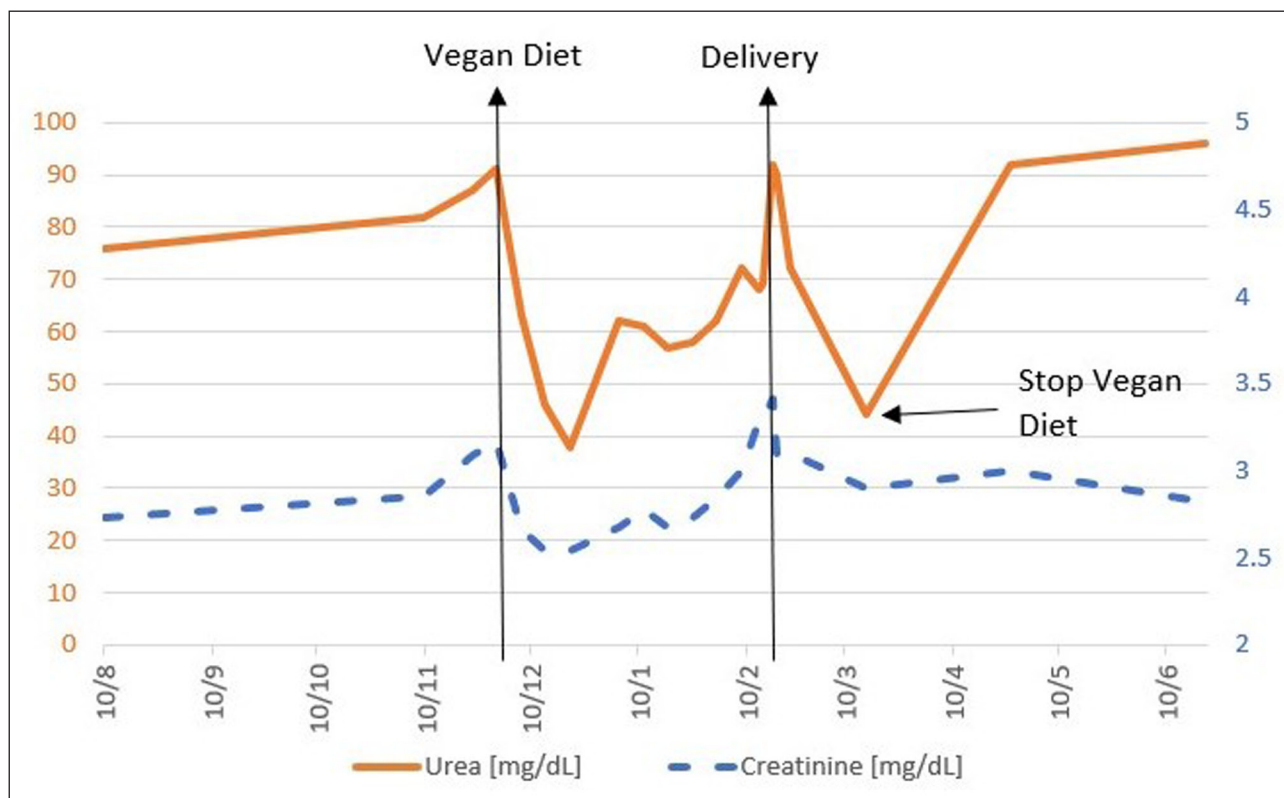
Figure 1 (ABS 23). Creatinine and urea level during pregnancy and after delivery.

for gestational age (weight: 1,900 g, corresponding to the 39th centile of Ines charts – Italian growth curves). The baby was discharged after 10 days in neonatal intensive care unit.

She continued the vegetarian diet for a few weeks after pregnancy, and then she resumed her previous diet. Six months after delivery the mother, still on pre-dialysis care, reported wellbeing for herself and the baby.

CONCLUSIONS

The present case may suggest that a diet proposal in severe CKD patients may probably allow safe management of pregnancy, postponing the need for dialysis start and ensuring good foetal growth, even though in a context of preterm delivery.

ABS 24

PREVALENCE SURVEY ON BREASTFEEDING AND BABIES' HEALTH DETERMINANTS IN SICILY: RESULTS OF THE STUDY "IN PRIMIS"

M.P. Ferro[1], P. Ficano[2], B. Ottaviani[3], S. Palmeri[4], S. Scelfo[5], S. Colaceci[6], A. Cernigliaro[1], S. Spila Alegiani[6], A. Giusti[6], A. Casuccio[4], S. Scondotto[1]; Master Prospect Working Group

[1]Dipartimento per le Attività Sanitarie e Osservatorio Epidemiologico, Regione Siciliana, Palermo, Italy

[2]Unità Operativa Aziendale per l'Educazione e Promozione della Salute, Azienda Ospedaliera Universitaria Policlinico "Paolo Giaccone", Palermo, Italy

[3]Ufficio Educazione alla Salute, Direzione Sanitaria Aziendale, Azienda Ospedaliera Ospedali Riuniti Villa Sofia Cervello, Palermo, Italy

[4]Dipartimento di Scienze per la Promozione della Salute e Materno Infantile "G. D'Alessandro", Università degli Studi di Palermo, Palermo, Italy

[5]Unità Operativa Dipartimentale di Diabetologia e Obesità in Età Evolutiva, ASP Caltanissetta, Caltanissetta, Italy

[6]Istituto Superiore di Sanità, Rome, Italy

INTRODUCTION

Although exclusive breastfeeding (EB) is strongly recommended by WHO during the first 6 months of life and its impact in individual health is universally recognized, in Southern Italy the prevalence rate of EB is still low (42.7% under 6 months – ISTAT 2013). Increasing prevalence of EB is one of the priorities of the Regional Prevention Plan 2014-2018 within the maternal and child health promotion area.

A survey was launched as part of a University Master Degree (PROSPECT) with the aim of describing breastfeeding prevalence and determinants in the Sicilian mothers and babies.

METHODS

A prospective cohort survey was conducted among a sample of mothers resident in Sicily who delivered at the regional birth centers from April to June 2017. To estimate EB prevalence, a structured questionnaire was administered by telephone interview within 30 days of delivery. The study also provides a 6 months follow-up.

RESULTS

At 30-day postpartum 1,055 women were included, with a median age 31.4 years. 57% of women had a job before pregnancy and 48% attended a pre-birth course. The prevalence of caesarean section was 41%. Only 15% of mothers kept the infant in skin-to-skin contact after birth for more than 10 minutes and in 90% of the cases rooming-in was practiced. The prevalence of EB in hospital was 33%, 44% of newborns received also artificial breast milk substitutes (BMS) (complementary feeding), while 15% did not receive breast milk at all. 44% of mothers received a prescription of BMS at discharge. In the 1st month of life prevalence of EB reached 39%, the integration with BMS decreased (26%), while the non-breastfed children doubled (33%). Skin-to-skin contact, rooming-in and mother's occupation were positively associated with EB during hospitalization, while spontaneous delivery and non-prescription of BMS at discharge were positively associated with EB at one month.

CONCLUSIONS

This is the first prevalence population study conducted in Sicily. Data from this survey confirm a still low prevalence of EB at discharge, at 1 and 6 months. These results can contribute to set up and evaluate progress of Regional interventions aimed to protect, promote and support breastfeeding and mother-child health.

ABS 25

PRE-PREGNANCY BODY MASS INDEX SHIFT ACROSS GESTATION: PRIMARY EVIDENCE OF AN ASSOCIATION WITH EATING DISORDERS

A. Meneghello, F. Volpe, L. Giliberti, P. Guerrini, G. Straface, V. Zanardo

Division of Perinatal Medicine, Policlinico Abano Terme, Abano Terme, Italy

INTRODUCTION

Previous studies indicated that gestational weight gain-related disorders share many similarities

with feeding and eating disorders. We examined the association of pre-pregnancy Body Mass Index (BMI), defined according to 2009 IOM, and its shift across gestation with symptoms of feeding and eating disorders, defined by EDE-Q [1].

METHODS

This observational cohort study took place at the Division of Perinatal Medicine of Policlinico Abano Terme, Italy, from January 2015 to October 2015. The sample included 655 healthy at term puerperae. We correlated gestational BMI in different women categories to EDE-Q Global score and Restrain, Eating concern, Shape concern, and Weight concern subscales, by Spearman's correlation test.

RESULTS

Among 655 women, 59 (9.0%) were categorized as underweight, 463 (70.7%) normal weight, 98 (15.0%) overweight, and 35 (5.3%) as obese in pre-pregnancy period. At the end of gestation, underweight women category disappeared, normal weight women lightened to one third, overweight women tripled, and obese women doubled. At the same time, EDE-Q global scores increased from normal weight (0.25 ± 0.41), to overweigh (0.47 ± 0.58), and to obese (0.72 ± 0.70) puerperae. In addition, EDE-Q global scores were significantly correlated with gestational BMI increase in Global score (rho = 0.326; $p < 0.001$) and in the four subscales: Restrain (rho = 0.161; $p < 0.001$), Eating concern (rho = 0.193; $p < 0.001$), Shape concern (rho = 0.335; $p < 0.001$), and Weight concern (rho = 0.365; $p < 0.001$), respectively.

CONCLUSIONS

It was found that the shift of woman BMI across an uncomplicated pregnancy is a warning indicator of unhealthy eating and feeding symptoms.

REFERENCES

[1] Fairburn CG, Beglin SJ. Assessment of eating disorders: interview or self-report questionnaire? Int J Eat Disord. 1994;16(4):363-70.

ABS 26

METABOLOMICS AND INFANTS OF MOTHERS WITH GESTATIONAL DIABETES: A PRELIMINARY STUDY

E. Cossu, M. Congiu, A. Dessì, R. Pintus, V. Fanos

Neonatal Intensive Care Unit, Neonatal Pathology and Neonatal Section, AOU and University of Cagliari, Cagliari, Italy

INTRODUCTION

The gestational diabetes is defined as a disorder of glucose regulation of variable entity. It is diagnosed during pregnancy and may have major complications for both the mother and the fetus. Among the most common complications for the newborn there is the risk of developing heart diseases and malformations such as ventricular hypertrophy, the transposition of large vessels and cardiac tube fusion anomaly. The risk for these infants to develop these heart problems is five times higher compared to children of healthy mothers. The objectives of the study were to characterize the urinary metabolome of a group of infants of diabetic mothers and of those large for gestational age, to evaluate the differences in the metabolome of newborns of diabetic mother according to the different therapy performed in pregnancy (diet therapy versus insulin therapy), to identify characteristic and predictive biomarkers of neonatal outcome and to compare data with those of the studies present in the literature.

PATIENT AND METHODS

The study was performed at the nursery and neonatal pathology of Cagliari University Hospital. Twenty patients were enrolled: 13 newborns of mothers with gestational diabetes in diet treatment, 5 of mothers with gestational diabetes in insulin therapy and 2 large for gestational age. Urine samples were collected before within the first 8 hours of life and stored in a freezer at -80°C until metabolomics analysis. The technique of choice was 1H-NMR coupled with multivariate statistical analysis.

RESULTS

The results showed no separation among the groups except for one patient (outlier). The analysis showed that this sample had a different urinary metabolome, including a higher glucose concentration compared to others. This patient was admitted to the neonatal pathology ward due to heart malformation. From animal studies it seems that high glucose concentration exerts toxic effects on the development of the cardiac tube during pregnancy.

CONCLUSIONS

This study has several limitations such as the small patients cohort but the results are interesting and the potential of metabolomics as a predictive tool has been highlighted. Since this is a preliminary analysis, the goal is to extend the research to a larger cohort of patients in order to study the glucose trend as a predictive factor and to identify other biomarkers.

REFERENCES

[1] Marincola FC, Dessì A, Pattumelli MG, Corbu S, Ossicini C, Ciccarelli S, Agostino R, Mussap M, Fanos V. (1)H NMR-based urine metabolic profile of IUGR, LGA, and AGA newborns in the first week of life. Clin Chim Acta. 2015;451(Pt A):28-34.

[2] Dessì A, Marincola FC, Pattumelli MG, Ciccarelli S, Corbu S, Ossicini C, Fanos V, Agostino R. Investigation of the ^{1}H-NMR based urine metabolomic profiles of IUGR, LGA and AGA newborns on the first day of life. J Matern Fetal Neonatal Med. 2014;27(Suppl 2): 13-9.