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Abstracts

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ABS 1

INDUCTION OF LABOR IN CONSTITUTIONALLY SMALL FOR GESTATIONAL AGE FETUSES AT TERM OF PREGNANCY: DOES GESTATIONAL AGE IMPACT DELIVERY OUTCOME?

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INTRODUCTION

The appropriate gestational age for induction of labor (IOL) of small for gestational age (SGA) fetuses without Doppler abnormalities remains object of debate. Previous studies evaluating perinatal outcome often do not distinguish between small fetuses (estimated fetal weight, EFW, less than the 10th percentile) with Doppler abnormalities, who meet the criteria for intrauterine growth restriction, and those that are "constitutionally small", without Doppler abnormalities. This group is considered at lower risk of adverse outcome (also called "constitutionally SGA"), and therefore some experts suggest expectant management until 39 or 40 weeks, in the absence of abnormal results at fetal monitoring or maternal comorbidity. The aim of this study was to compare the outcome of IOL before or after 38 weeks in SGA fetuses at term of pregnancy.

METHODS

We conducted a retrospective observational study on women with singleton pregnancy at term (> 37 weeks) complicated by a diagnosis of SGA fetus, who were referred to Careggi University Hospital in Florence between 2012 and 2016 for IOL. Constitutionally SGA fetuses were defined as those with an EFW or an abdominal circumference between 3rd and 10th centile for gestational age, with normal amniotic fluid level and no Doppler abnormalities. Exclusion criteria were: other indications to IOL, such as premature rupture of membranes, maternal comorbidities, or abnormal fetal heart rate tracing. Patients who had spontaneous labor or elective cesarean section were also excluded. Mode of delivery was compared between cases induced before and after 38 weeks. The mode of IOL and rate of adverse neonatal outcome were also compared between groups. Statistical analysis included chi-square or Fisher exact test for categorical variables, and t-test or Mann-Withney test for continuous variables, based on their distribution. A p-value < 0.05 was considered statistically significant.

RESULTS

109 pregnancies that fulfilled the inclusion criteria were identified. Sixteen of these (15%) were induced before 38 weeks, while 93 (85%) were induced at or after 38 weeks. Maternal characteristics were similar between groups. A statistically significant difference was observed in the use of oxytocin, which was administered twice more in cases induced before 38 weeks as compared to cases induced after 38 weeks (p = 0.04). The rate of cesarean section for failed IOL was significantly higher in the group induced before 38 weeks compared to cases induced later (p = 0.002) (**Tab. 1**). No significant difference in neonatal outcome was observed between the two groups.

CONCLUSIONS

In pregnancies with a diagnosis of constitutionally SGA fetus, with normal Doppler assessment and absence of maternal indications for delivery before 38 weeks, the decision to extend pregnancy beyond 38 weeks (but no later than 40 weeks) may be more appropriate, since IOL before this threshold is associated with a greater rate of cesarean sections due to failed IOL.

Table 1 (ABS 1). Delivery outcome after labor induction before or after 38 weeks in SGA fetuses.

	37^{+0}-37^{+6} weeks at induction of labor (n = 16)	≥ 38 weeks at induction of labor (n = 93)	p-value
Spontaneous vaginal delivery	11 (68.8%)	76 (81.7%)	n.s.
Operative vaginal delivery	0	5 (5.3%)	n.s.
Emergency cesarean section in labor	0	6 (6.5%)	n.s.
Cesarean section not in labor (failed induction)	5 (31.2 %)	6 (6.5%)	**0.002**

ABS 2

PREDICTION OF PRETERM BIRTH IN ASYMPTOMATIC WOMEN WITH REDUCED CERVICAL LENGTH: A PROSPECTIVE STUDY ON MATERNAL INFLAMMATORY MARKERS

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INTRODUCTION

Preterm birth (PTB) is associated with an increased risk of neonatal morbidity and mortality. The pathophysiology of PTB is complex, with multiple pathways including maternal systemic and genital tract infections. Although several maternal inflammatory biomarkers have been associated with spontaneous PTB, their role in asymptomatic women is still unclear. We sought to examine the relationship between maternal markers of inflammation and PTB in asymptomatic women with reduced cervical length (CL) and no previous PTB.

METHODS

Prospective study in pregnant women with a singleton gestation between the 24th and 34th week of gestation. Patients who were referred to the high-risk clinic of Careggi University Hospital in Florence between 2015 and 2017 for cervical shortening (< 25 mm) were recruited. CL was measured by transvaginal ultrasonography. Exclusion criteria were: multiple gestation, previous PTB, active labor or premature rupture of membranes at initial assessment, fetal anomalies, vaginal bleeding at recruitment and presence of cervical cerclage or pessary. Maternal blood sample, vaginal swab and CL measurement were performed at recruitment. Levels of cytokines including interleukin (IL)-8, heat shock protein 70 (HSP-70), matrix metalloproteinase 8 (MMP-8) in maternal plasma and vaginal swabs samples were determined using Luminex xMAP technology. Maternal demographic and obstetric characteristics, as well as delivery outcome, were collected. Women were divided into two groups, a term-birth group and a PTB group, according to gestational age (GA) at delivery (≥ or < 37 weeks of gestation, respectively). Statistical analysis included chi-square test for comparison of categorical variables, Shapiro-Wilk to test normality of continuous variables and t-test or Mann-Whitney tests for comparisons among continuous variables, based on their distribution. A p-value < 0.05 was considered statistically significant.

Table 1 (ABS 2). Maternal markers of inflammation in the 2 groups (term and preterm) and statistical significance.

Factor *ng*	Term group (n = 26)	PTB group (n = 9)	p-value
HSP-70 plasma	57.64 (16.98)	60.62 (6.60)	0.65
HSP-70 swab	9.05 (4.47)	16.59 (4.93)	**0.01**
IL-8 swab	0.69 (0.49)	0.63 (0.49)	0.80
MMP-8 plasma	0.82 (0.35)	0.75 (0.42)	0.63
IL-8 plasma	5.33 (0.97)	4.30 (1.99)	1.00
MMP-8 swab	54.16 (1.02)	131.59 (3.12)	0.54

Data are presented as n (%).
PTB: preterm birth; IL-8: interleukin 8; HSP-70: heat shock protein 70; MMP-8: matrix metalloproteinase 8.

RESULTS

Overall, 35 women were included in our preliminary analysis. The mean GA at recruitment was 27.20 ± 1.81 weeks. Among gestational characteristics, no significant differences were found between the term and preterm group in the frequency of other obstetrical pathologies, which occurred in 15.4% of women in the term group compared to 44.4% in the preterm group (p = 0.16). PTB occurred in 9 women (25.7%). Mean GA at delivery was 38.7 ± 1.1 in the term-birth group, and 32.4 ± 2.8 in the PTB group. Higher concentrations of HSP-70 in the cervical swab were found in the PTB group, compared to the term group (mean concentration 16.6 ± 4.9 ng vs 9.1 ± 4.5 ng, respectively, p = 0.013) (**Tab. 1**). No differences in the other maternal inflammatory markers concentrations either in plasma or swab samples were found between the two groups.

CONCLUSIONS

In asymptomatic women with cervical length shortening at 24 to 34 weeks of gestation and no previous PTB, higher levels of HSP-70 in the vaginal swab are associated with increased risk of premature delivery.

ABS 3

MULTIVARIABLE EVALUATION OF THE MATERNAL HEMODYNAMIC PROFILE IN HIGH-RISK PREGNANCIES COMPLICATED BY INTRAUTERINE GROWTH RESTRICTION: A PROSPECTIVE STUDY

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INTRODUCTION

The aim of this study was to evaluate the effect of mild (5^{th}-10^{th} percentile) and severe (< 5^{th} percentile) intrauterine growth restriction (IUGR) on maternal hemodynamic parameters in high-risk pregnant women using a multivariable analysis and adjusting for major confounding factors.

METHODS

A prospective cohort study was conducted between January 2013 and April 2016 and included 136 high-risk pregnant women between 24 and 39 weeks of gestation. Three cohorts of patients were recruited, which were composed of 49 fetuses appropriate for gestational age, 47 mild IUGR fetuses (5^{th}-10^{th} percentile) and 40 severe IUGR fetuses (< 5^{th} percentile). Maternal echocardiography was performed at the time of enrollment and included hemodynamic parameters of systolic-diastolic function and cardiac remodeling indices. Data were analyzed using a univariable analysis and a multivariable general linear model (GLM). The GLM coefficients were used to estimate the effect of IUGR after adjusting for significant confounding factors of hemodynamic parameters.

RESULTS

Heart rate, total vascular resistance, total vascular resistance index, cardiac output, cardiac index, early and late diastolic Tissue-Doppler velocity ratio, left ventricular mass and left ventricular mass index were influenced by IUGR. The influence of IUGR on these parameters remained after the model was adjusted for hypertension (preeclampsia and gestational hypertension) and smoking.

CONCLUSIONS

In pregnancies at high-risk for IUGR and hypertensive disorders of pregnancy, intrauterine growth restriction has a significant independent effect on most maternal hemodynamic parameters, even when its impact is adjusted for major cardiovascular confounding factors.

ABS 4

REGIONAL AUDIT SYSTEM IMPLEMENTATION FOR STILLBIRTH: A WAY TO BETTER UNDERSTAND AND TARGET THE PHENOMENON

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INTRODUCTION

Despite the large numbers of Stillbirth (SB) occurring every year, global attention for this issue is still low. The World Health Organization suggests all countries to implement high quality national audits for perinatal mortality to improve the registration of all perinatal deaths and the identification of cause of death. This study aims to evaluate the efficacy of implementation of a Regional Audit System (RAS) for SB in Emilia-Romagna.

METHODS

All cases of SB (> 22 weeks) have been enrolled in the period 2014-2016. For every case the same diagnostic workup including placental histology, fetal autopsy, microbiology, maternal-fetal haemorrhage and genetic tests was performed. A clinical record with main lab and clinical data about mother and fetus was filled in, and each case was discussed in a multidisciplinary local audit. Data were reviewed in RAS commission in order to assign a cause of death to every SB, by using the ReCoDe classification, and to evaluate the quality of care.

RESULTS

332 cases of SB were recognised among 107,528 live births (3.09‰). Sixteen cases were recognized by RAS while not with current recordings. Intrapartum cases (5.2%) were a

minority. In respect with local classification, RAS commission attributed different causes of death in 55 cases (16.7%). According to ReCoDe, the most prevalent groups of causes were: placental (38.5%), fetal (17.6%), cord (14.2%) and maternal diseases (7.6%). In 47 cases (14.2%) the cause remained unexplained. At multivariate analysis, infections were most likely in early SB, < 28 weeks (p = 0.001) and intrapartum cases (p = 0.002), while maternal disorders were mostly associated with overweight/obese women (p = 0.01) and large for gestational age (p = 0.007). In 36 cases death was judged as possibly/probably preventable if a strict observation of perinatal management protocols was performed.

CONCLUSIONS

RAS increases recording precision and significantly changes locally attributed causes. More than 2/3 of SB causes were associated to the fetus and its annexes, leaving < 15% still unexplained. RAS allows identifying sub-optimal care processes and populations, which benefit from targeted prevention measures. These data demonstrate that RAS could be potentially implemented nationwide. Further researches are needed to better understand the link between histopathological signs of placental pathology and SB etiology, in order to reduce the number of unexplained SB and allow counselling on future pregnancy.

ABS 5

FETAL GENDER PAIRING AND OBSTETRIC OUTCOME IN TWIN PREGNANCY: A 7-YEARS RETROSPECTIVE STUDY AT SINGLE CENTRE

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INTRODUCTION

During the last two decades several evidences have shown the role of fetal gender in pregnancy outcome. Male gender has been shown to be associated with higher incidence of preterm labor, gestational diabetes, failure of progression in labor and higher cesarean section rate for fetal distress. Most studies have been conducted on singleton pregnancies, while few evidences support a potential role of fetal gender pairing in twin pregnancies.

METHODS

A retrospective observational study was conducted on a cohort of 947 women with multiple pregnancies who delivered in 7-years time at a single university tertiary hospital. Clinical data were extracted by reviewing obstetric records through a standardized electronic database regarding maternal characteristics (age, prepregnancy BMI, parity, assisted reproductive technologies [ART]), complications occurred during pregnancy and all data regarding labor and delivery, including neonatal outcome. Only twin pairs with complete data were included and the analysis was performed on monochorionic (MC) and dichorionic (DC) diamniotic (DA) pregnancies separately. Pregnancy and delivery outcomes were investigated comparing the groups: female-female, male-male, and opposite sex, by using Fisher's exact test or chi-square test and t Student test or ANOVA test, as appropriate. A p-value less than 0.05 was considered statistically significant.

RESULTS

The group of MCDA twins included 173 cases and the comparison between the female-female vs male-male groups did not result in any differences in terms of maternal characteristics and pregnancy outcome. However, a trend was observed in increased rate of fetal growth restriction (FGR), intrauterine death (IUD) and spontaneous preterm birth (sPTB) < 28 and 32 weeks in males than females. Regarding neonatal outcome, males were more likely to report an Apgar score < 7 at 5 minutes (p = 0.001). The group of DCDA twins included 686 cases and no differences resulted from the comparison among the 3 groups in terms of pregnancy complications and neonatal outcome. DCDA pregnancies conceived by ART were more likely to have one or both female gender fetuses (p = 0.003) rather than males. Results are presented in **Tab. 1**.

CONCLUSIONS

Fetal sex seems to have a less pronounced effect in twin than in singleton pregnancies, suggesting that a more complex interplay among different factors contribute to pregnancy outcome in multiple pregnancies. However, we confirmed that male-male pairs in MCDA twins have a worse adaptation to extrauterine life with significantly lower Apgar score than the females. Besides, an increasing trend in sPTB, FGR and IUD in males pairs has been observed.

Table 1 (ABS 5). Fetal gender pairing and pregnancy outcome in monochorionic diamniotic (MCDA) and dichorionic diamniotic (DCDA) twins.

	MCDA twins (n = 173)			DCDA twins (n = 686)			
	Female-female fetuses (n = 84)	Male-male fetuses (n = 89)	p	Female-female fetuses (n = 186)	Male-male fetuses (n = 177)	Female-male fetuses (n = 323)	P
Maternal age	32.2 ± 0.6	32.8 ± 0.6	0.102	35.0 ± 0.4	34.4 ± 0.4	35.8 ± 0.3	0.9963 a vs b 0.3269 a vs c **0.0233** b vs c
BMI	21.9 ± 3.5	22.5 ± 3.9	0.279	22.6 ± 0.3	22.7 ± 0.3	22.9 ± 0.3	1.000
Nulliparity	51 (60.7%)	52 (58.4%)	0.440	140 (75.3%)	120 (65.8%)	236 (73.1%)	0.259
ART conception	7 (8.3%)	13 (14.6%)	0.238	113 (60.8%)	81 (45.8%)	96 (60.7%)	**0.003**
Hypertensive disorders	2 (2.4%)	2 (2.2%)	0.668	14 (33.3%)	11 (26.2%)	17 (40.5%)	0.509
Gestational diabetes	12 (14.3%)	8 (9%)	0.197	40 (30.1%)	34 (25.6%)	59 (47.1%)	0.671
FGR (at least 1 fetus)	13 (15.5%)	16 (18%)	0.407	23 (12.4)	23 (13%)	50 (15.5%)	0.563
Admission for threatened labor	12 (14.3%)	8 (9%)	0.197	28 (15.1%)	27 (15.2%)	50 (15.5%)	0.992
Obstetric cholestasis	4 (4.8%)	3 (3.4%)	0.527	13 (7.0%)	20 (11.3%)	24 (24%)	0.243
PTB < 28 weeks	2 (2.4%)	7 (7.9%)	0.099	11 (5.9%)	12 (6.8%)	16 (5.0%)	0.692
PTB < 32 weeks	19 (22.6%)	15 (16.9%)	0.223	32 (17.2%)	32 (18.1%)	53 (16.4%)	0.892
sPTB	11 (13.1%)	14 (15.7%)	0.392	37 (19.9%)	40 (22.6%)	62 (19.2%)	0.657
sPTB < 28 weeks	2 (2.4%)	4 (4.5%)	0.369	10 (5.4%)	11 (6.2%)	14 (4.3%)	0.646
sPTB < 32 weeks	2 (2.4%)	8 (9.0%)	0.060	17 (9.1%)	18 (10.2%)	33 (10.2%)	0.918
Intrauterine death	0	4 (4.5%)	0.068	1 (0.5%)	3 (1.7%)	3 (0.9%)	0.534
Emergency CS (not in labor)	22 (26.1%)	20 (22.4%)	0.568	38 (20.4%)	38 (21.4%)	51 (15.7%)	0.251
Apgar score at 5 min < 7	6 (7.1%)	18 (20.2%)	**0.001**	14 (7.5%)	14 (7.9%)	22 (6.8%)	0.893
Low arterial cord pH (< 7.2)	5 (5.9%)	4 (4.4%)	0.666	8 (4.3%)	16 (9.3%)	17 (5.3%)	0.124

MCDA: monochorionic diamniotic; DCDA: dichorionic diamniotic; ART: assisted reproductive technologies; FGR: fetal growth restriction; sPTB: spontaneous preterm birth.

ABS 6

INOSITOL STEREOISOMERS SUPPLEMENTATION AND INCIDENCE OF GESTATIONAL DIABETES MELLITUS IN WOMEN AT HIGH RISK OF THIS DISORDER

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INTRODUCTION

Aim of our study is to test the hypothesis that inositol supplementation in pregnancy reduced the incidence of gestational diabetes mellitus (GDM) in women at high risk of this disorder and to identify the effects of different inositol stereoisomers on the insulin resistance and on GDM. There are no studies that tested which inositol stereoisomers supplementation, among myo-inositol, d-chiro-inositol and myo-d-chiro-inositol, improve maternal and fetal outcome.

METHODS

Our study is designed as a prospective, randomized, double-blind, placebo controlled clinical trial. Non-obese singleton pregnant women with an elevated fasting glucose in the first or early second trimester were enrolled in the study. Each woman was assigned randomly to a supplementation with myo-inositol, d-chiro-inositol and myo-d-chiro-inositol or placebo, during pregnancy. Main outcome measure in the study was the development of GDM on a 75 grams oral glucose tolerance test performed at 24 to 28 weeks' gestation. Secondary outcome measures were increased in BMI, need for maternal insulin therapy, macrosomia, polyhydramnios, neonatal birthweight and hypoglycemia.

RESULTS

39 women were allocated to receive myo-inositol, 36 women were allocated to receive d-chiro-

inositol, 34 to receive myo-d-chiro-inositol and 56 placebo. The incidence of GDM in mid pregnancy was significantly reduced (p = 0.001) in women randomized to receive myo-inositol and d-chiro-inositol compared to myo-d-chiro-inositol and placebo (relative risk 0.127). Women randomized to receive myo-inositol also required less insulin therapy, delivered at a later gestational age, had significantly smaller babies with fewer episodes of neonatal hypoglycemia compared to women treated with others inositol stereoisomers or placebo.

CONCLUSIONS

Specifically myo-inositol supplementation in pregnancy reduced the incidence of GDM in women at high risk of this disorder. The reduction in incidence of GDM in the treatment arm was accompanied by improved both in maternal and fetal outcome.

ABS 7

CESAREAN SECTION: DELAYED CORD CLAMPING OR MILKING?

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INTRODUCTION

Delayed umbilical cord clamping (UCC) is defined as carried out more than 30-60 seconds after birth. Delayed clamping allows placental transfusion that provides an additional 30% of blood volume to the newborn, preventing iron deficiency in the first year of life. Neonatal benefits associated with this increased placental transfusion are higher hematological indices and better cardiopulmonary adaptation. Evidence suggests that cesarean section (CS), compared with vaginal delivery, is associated with a reduced placental transfusion; this is more evident in scheduled CS not in labor. Data on which factors affect placental transfusion in CS, and which is the best strategy to enhance it are lacking. Our aim was to assess the effect of umbilical cord milking (UCM) on neonatal hematocrit (Ht) at 48 hours, used as a placental-fetal transfusion indicator, in a cohort of CS.

METHODS

Prospective observational study including all singleton term pregnancies that underwent CS in 2 Community Hospitals. Cases with contraindication to delayed UCC were excluded. UCC was recommended to be after the first breath of the neonate and at least 60 sec after birth, and UCM was indicated when waiting over 60 sec was not possible. UCM consisted in 3 squeezes of 20 cm on the unclamped umbilical cord. Statistical analyses were conducted by SPSS® 24.0; p-value < 0.05 was considered significant. For power analysis we considered a two tailed test with α level 0.05 and 1-β level 0.8 and we needed 25 subjects per group to demonstrate a significant difference in Ht values with a standard deviation of 5.

RESULTS

We collected 99 CS, 53 elective and 44 performed in labor. In the whole population of CS the mean clamping time in the early UCC group was 34 ± 12 sec and 61 ± 5 sec in the delayed one. We performed early UCC and consequently UCM more frequently during CS in labor (40%) vs elective (17%) (p = 0.025). In the whole population UCM was correlated with a higher Ht (61.6 ± 5.8 vs 58.1 ± 7.5, p = 0.07) but not significantly, whether delayed UCC, or performing CS in labor did not influence this value. We further analyzed the subgroup of 53 elective CS in order to reduce the confounding effect of uterine contractions on placental transfusion; UCM led to significantly higher Ht (62.9 ± 5.6 vs 58.6 ± 4.3, p = 0.01), and this result was also significant after correcting for delayed UCC and waiting for the first breath at multivariate analysis (p = 0.03). Also in this subgroup delayed UCC did not significantly affect Ht value (61.1 ± 6.4 vs 59.2 ± 4.5, p = 0.3). Moreover, UCM did not negatively affect neonatal bilirubin level or need of phototherapy.

CONCLUSIONS

In term infants born after elective CS, UCM resulted in increased placental transfusion represented by significantly higher Ht at 48 hours in newborns, irrespective of timing of cord clamping.

ABS 8

ARABIN CERVICAL PESSARY FOR PREVENTION OF PRETERM BIRTH IN SINGLETON GESTATIONS: FACTORS ASSOCIATED WITH GESTATIONAL AGE AT DELIVERY AND EARLY PESSARY REMOVAL

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INTRODUCTION

Preterm birth (PTB) is one of the most important public health problems because of the associated risks of neonatal morbidity and mortality. Currently, Arabin cervical pessary appears to be one of the possible options to prevent PTB. It allows a change in the inclination angle of the cervical canal with respect to the uterus, shifting the lines of force on the inferior uterine segment. In addition, it seems to prevent further dilatation of the internal uterine orifice. The aim of this study was to evaluate the factors associated with gestational age (GA) at delivery and with need of early pessary removal in singleton pregnancies with cervical pessary placed for prevention of PTB.

METHODS

We conducted a retrospective analysis of pregnant women with a singleton pregnancy at 14 to 31 weeks of gestation. Women recruited: who were referred to the outpatient clinic of Careggi University Hospital in Florence between 2011 and 2016 for cervical shortening (< 25 mm) and who had had a pessary placed to prevent PTB. Cervical length (CL) was measured by transvaginal ultrasonography. Exclusion criteria were: multiple gestation, fetal anomalies, active labor or preterm premature rupture of membranes (pPROM) at initial assessment, and presence of cervical cerclage. Removal of the pessary was planned between 35 and 37 weeks of gestation, unless a pPROM or premature labor occurred. For each woman, the following factors were evaluated: maternal characteristics, GA and CL before pessary placement, occurrence of pPROM and GA at delivery. Statistical analysis included chi-square for categorical variables, and t-test or Mann-Whitney test for continuous variables, based on their distribution. A p-value < 0.05 was considered statistically significant.

RESULTS

Sixty women with a short CL between 14 to 31 weeks of gestation were identified. Mean GA at pessary placement was 22.7 ± 3.34, and median CL was 12.0 mm (IQR 7, 16). PTB occurred in 33% (20/60) of patients, with a 27% incidence of PTB < 34 weeks. The pessary was removed because of pPROM before 34 weeks in 15% of women, while 32% of cases had early removal because of preterm labor < 35 weeks. Among maternal characteristics, a higher BMI was significantly associated with preterm delivery (< 37 weeks). A lower GA at pessary placement was associated with a higher risk of delivery before 37 weeks (mean ± SD, 21.2 ± 2.4, p = 0.01) and 34 weeks (mean ± SD, 23.5 ± 3.5, p = 0.03) (**Fig. 1**). Lower CL values at the time of pessary placement were associated with a higher likelihood of having the pessary removed before 30 weeks of gestation (median 9.5 mm vs 12 mm, p < 0.05).

CONCLUSIONS

A lower GA at the time of pessary placement is associated with higher risk of preterm delivery. Women with a shorter CL at the time of pessary

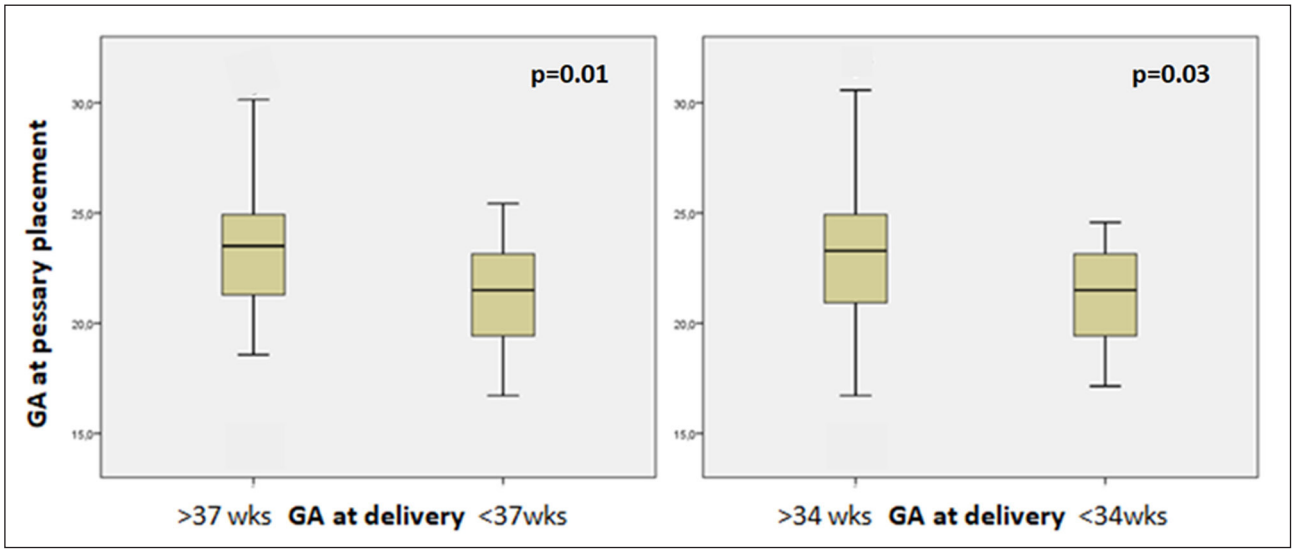

Figure 1 (ABS 8). Association between gestational age at pessary placement and gestational age at delivery.

placement are more likely to have the pessary removed before 30 weeks of gestation because of pPROM or premature labor.

ABS 9

ECHOGRAPHIC DIAGNOSIS OF MARGINAL AND VELAMENTOUS CORD INSERTION: WHICH REAL UTILITY?

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INTRODUCTION

Marginal and velamentous cord insertions are considered two abnormal type of cord insertion, associated with adverse maternal and fetal outcome. Marginal cord insertion is defined as a link within 2 cm from the placental edge (7-8.5% of single pregnancies) while velamentous cord insertion occurs when the umbilical vessels insert into the membranes before they reach the placenta. Some pathological lesions found in the placenta may be associated with anomalous cord insertions. The aim of this study is to evaluate the association between anomalous cord insertions and pathological lesions of the placenta and how these influence maternal and fetal outcome.

MATERIALS AND METHODS

This was a retrospective observational study from January 2015 to December 2016 placed in Obstetric Unit of Padua University, in which 1,060 patients with singleton pregnancy were considered. Exclusion criteria were multiple pregnancies, miscarriages and TOP (termination of pregnancy). The correlation between the type of placental insertion and many different variables was estimated. Specifically, both the maternal-fetal aspects and the histological features of the placenta (type of cord insertion, intervillous thrombi, placental infarcts, retroplacental hematoma, villitis and chorioamnionitis) were evaluated.

RESULTS

Marginal and velamentous cord insertion was associated with a preterm delivery and a neonatal weight < 2,500 g ($p < 0.05$). There was a statistical correlation between the distance of cord insertion from the placenta edge and the gestational week of delivery ($p < 0.05$). Type of cord insertion was not linked with the way of delivery. Moreover, preterm delivery was associated with retroplacental hematoma. While velamentous cord insertion was associated with a major risk of maternal preeclampsia/HELLP syndrome and neonatal resuscitation ($p < 0.05$), both marginal and velamentous cord insertion showed a more frequent hospitalization in the neonatal intensive care unit ($p < 0.05$). Marginal cord insertion was associated with a major risk of gestational diabetes, PROM and pPROM too. Finally, the diagnosis of chorioamnionitis was associated with a higher recurrence of neonatal resuscitation ($p < 0.05$).

CONCLUSIONS

There was an association between anomalous cord insertion and intervillous thrombi, placental infarcts, chorioamnionitis and retroplacental hematoma. This leads to a worse maternal and fetal outcome.

ABS 10

CORRELATIONS BETWEEN BODY COMPOSITION CHANGES AND BIOCHEMICAL PARAMETERS AND GESTATIONAL DIABETES MELLITUS

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INTRODUCTION

To evaluate if changes in body composition or lipid/glycemic profile are involved in developing gestational diabetes mellitus (GDM) in overweight/obese women enrolled in an early lifestyle program.

METHODS

Two hundred and eight women with BMI ≥ 25 were enrolled in an interventional study at 9^{th}-13^{th} week, receiving a lifestyle program (hypocaloric, low-glycemic index, low-saturated fat diet + specific physical activity recommendations). GDM was diagnosed with a 75-g 2-h oral glucose tolerance test at 16^{th}-18^{th} weeks (OGTT1), repeated, if negative, at 24^{th}-28^{th} weeks (OGTT2). The tetrapolar bioelectrical impedance analysis measured gestational weight gain, whole and visceral fat mass (FM, vFM), fat free mass + water, free fat mass (FFM, vFFM) and the total body water (TBW) at

enrolment, at 20th and at 30th week. At enrolment, triglycerides, cholesterol (total, HDL, LDL), insulin and fasting glycaemia were measured.

RESULTS

Age was 32.4 ± 4.9 (20-47). Most of women (76.9%) were Caucasian, 133 (63.9%) pluriparous with a BMI of 35.3 ± 5.9 (25.1-55.4), 63 (30.3%) presented family history of diabetes. Obese of class I and II prevailed (n = 138, 66.3%), and 37 cases (17.8%) presented with a BMI ≥ 40. Ninety women (43.2%) were found positive for GDM at OGTT1. These women had a higher pre-pregnancy BMI (36.5 ± 6.0, p = 0.01) and a higher FM both at enrolment (45.1 ± 12.1, p = 0.03) and at 20th weeks (46.0 ± 12.7, p = 0.03), compared to OGTT1 negative ones (n = 118, 56.7%). Moreover, they had higher level of fasting glycaemia (90.3 ± 14.1 mg/dl, p = 0.0003), triglycerides (141.1 ± 82.7 mg/dl, p = 0.001) and insulin (14.3 ± 11.5 uIU/ml, p = 0.03). FFM, TBW, vFM and vFFM didn't show any correlation with GDM at OGTT1. At OGTT2, 98/118 women (83.1%) remained negative. Those becoming positive for GDM showed higher level of fasting glycaemia at first trimester (88.3 ± 10.0 mg/dl, p = 0.02) compared to negative ones. No other differences emerged.

CONCLUSIONS

Higher pre-pregnancy BMI and FM with higher values of triglycerides, insulin and fasting glycaemia seems to predict early GDM diagnosis. Instead, changes in body composition are not correlated with late onset GDM, which is predicted by altered fasting glycaemia at first trimester. Different cut-off of blood glucose values could be hypothesized as risk factor for GDM in overweight/obese population.

ABS 11

ACCURACY AND CLINICAL UTILITY OF STANDARD POST-MORTEM RADIOLOGICAL IMAGING AFTER EARLY SECOND TRIMESTER TERMINATION OF PREGNANCY FOR CONGENITAL MALFORMATION

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INTRODUCTION

In recent years, a drop in the rate of autopsies after the termination of pregnancy (TOP) has been documented due to an increasing number of parents that deny their consent. Therefore, there is the need to find less invasive techniques alternative to autopsy that may help identify the cause of perinatal death or to confirm the prenatal diagnosis in case of TOP for fetal abnormality. The aim of this study was to assess the accuracy and clinical utility of radiological exams (magnetic resonance imaging [MRI], computed tomography [CT] and radiography [RX]) as part of post-mortem examination, compared to autopsy, the gold standard, in cases of TOP due to ultrasound (US) findings of fetal abnormalities. The accuracy of prenatal US was also examined.

METHODS

This is a prospective study conducted between 2007 and 2017 in a single tertiary referral center, IRCCS Burlo Garofolo, Trieste. All cases of TOP > 90 days and < 23 weeks of gestation due to US diagnosis of fetal malformation were included. As per internal protocol and after parents' consent, radiological post-mortem examinations and autopsy were performed. The concordance between US and post-mortem MRI (pmMRI) or any radiological exam compared to autopsy was calculated. The following groups were created based on agreement between the diagnostic exam and autopsy findings: 1) total agreement; 2) agreement for main findings; 3) agreement for main findings but major relevant additional findings found at autopsy; 4) total disagreement.

RESULTS

Overall, 143 patients were included. Of these, 12 were excluded due to missing results. Central nervous system (CNS) defects and multiple abnormalities were the most represented groups (48 and 26 cases, respectively). The overall concordance with autopsy was 99% for prenatal US and 78% for pmMRI, respectively. The same result (78%) was obtained if CT and RX were added to the analysis. pmMRI detection rate (DR) was high for CNS defects (98%), gastrointestinal, genitourinary and respiratory defects (100%), while it was poor for cardiovascular and musculoskeletal defects (31% and 29%, respectively). For musculoskeletal abnormalities, the performance of RX and CT exams improved the DR from 28% for pmMRI alone, to 88%. In 8% of cases, pmMRI added clinically relevant information to the prenatal US examination that contributed to the final diagnosis: all cases were in the CNS group.

CONCLUSIONS

In a tertiary referral hospital and for the evaluation of fetal defects at a gestational age below 23 weeks, prenatal US has higher concordance with autopsy than pmMRI. The autopsy remains the gold standard to identify adjunctive findings necessary to reach a final diagnosis. pmMRI is a useful alternative if autopsy is declined, particularly in cases with CNS defects or, when routinely performed, for preventing inconclusive autopsies due to brain tissue autolysis.

ABS 12

EMOTIONAL AND PSYCHOLOGICAL ASPECTS IN LONGTERM HOSPITALIZED PREGNANT WOMEN

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INTRODUCTION

Pregnancy is generally considered, compared to other phases of life, a period of low risk for the development of psychiatric disorders. This is due to the high levels of progesterone, known for its relaxing and soothing action. However, it is evident that more and more women develop psychological alterations and manifest feelings such as anxiety, irritability, unstable mood and depression mainly in the first and third trimester of pregnancy. Moreover, pathological pregnancy could affect the mental well-being of a pregnant woman. Most of the high-risk pregnant women are hospitalized for long periods, sometimes until delivery. Aim of our study was to investigate the psychological impact of hospitalization.

METHODS

We performed a pilot study at the Obstetric Clinic of AOU of Cagliari, aimed at investigating the impact of hospitalization in pregnant women analyzing anxiety, mood and stress levels. The sample involved a cohort of 53 hospitalized women suffering from pathological pregnancy that gave their informed consent. Cognitive behavioural assessment form hospital (CBA-H) was used to perform a screening concerning the subjective, emotional and behavioural problems related to a specific clinical pathology. Another objective was to study the relationship between the psychological variables and the method of carrying out the birth.

RESULTS

53 hospitalized women for at least 7 days entered the study. The admission of pregnant women occurred between 22nd and 37th week of gestation for the following pathologies: threat of preterm birth (n = 26), intrauterine growth restriction (IUGR) (n = 11), high blood pressure and preeclampsia (n = 3), spontaneous rupture of membranes (n = 6), placenta previa (n = 3) and other pathologies (n = 4). Regarding the emotional aspects of the pregnant during hospitalization, the analyzed sample showed significant values of anxiety, also called situational, higher than the reference values ($p = 0.001$). Moreover, even depression values were found to be higher than the reference normative value. Finally, it was found that the length of hospitalization is correlated with a decrease in psychophysical well-being.

CONCLUSIONS

Given the significant values emerging from our study we believe that the CBA-H has a good reliability in pregnant long-term hospitalized women. It appears very important to pay more attention to the emotional experience of high-risk pregnant women during hospital admission. It is important to take care of the person and not of the pathology because, as we know, therapeutic success depends mainly on the patient's resources and experience. The midwife, employed in long-term care units, could establish a "helping relationship" towards the pregnant woman and become an important positive figure in the patient adaptation towards the disease.

ABS 13

POSTPARTUM HAEMORRHAGE AND OBSTETRICAL OUTCOMES IN OOCYTE DONATION PREGNANCIES

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INTRODUCTION

In vitro fertilization is the possible way to overcome the rise of maternal age and other possible cause of infertility. Advanced maternal age is associated with a major use of oocyte donation with an increased risk of maternal and fetal risk.

METHODS

Retrospective case-control study on the pregnancy outcome of all pregnancies from medically assisted procreation with female gametes (MAP-E) that gave birth between January 2011 and August 2017 at Careggi Hospital compared with a control group of pregnancies from MAP-homologous (MAP-O) and singleton pregnancies obtained by spontaneous conception (SC) born in the same time. The estimated pregnancy outcomes were postpartum haemorrhage (PPH), and other obstetrical outcomes as delivery by caesarean section (CS), gestational diabetes mellitus (GDM), hypertensive disorders including preeclampsia (HDP), preterm birth ≤ 34 weeks (PTB) and small for gestational age (SGA).

RESULTS

The study group includes 290 MAP-E pregnancies compared with 270 MAP-O and 850 singleton SC. The three groups didn't show significant differences in maternal traits except for a higher mean age (43.4 ± 2.9 vs 37.7 ± 2.4 vs 33.6 ± 5.5, $p < 0.001$) with higher percentages of patients over 45 years (41.3% vs 5% vs 0.8%, $p < 0.001$) in MAP-E and higher incidence of obesity (7.2% vs 1.7%, p 0.02) than MAP-O. The risk of PPH in singleton pregnancies by oocyte donation is greater than MAP-O (45% vs 32.2%, p 0.01, OR 1.72). Singleton pregnancies by MAP-E had an increased risk of PPH (blood loss ≥ 1,000 cc) vs pregnancies by SC (45% vs 15.5%, OR 4.46), the risk for MAP-E is very high compared to MAP-O for singleton (OR 2.38) but especially for twin pregnancies (OR 8.6) (**Fig. 1**) and compared to singleton pregnancies by SC (7.29). Concerning the other obstetrical outcomes CS represents the main mode of delivery from MAP-E with a significant difference with singleton MAP-O (78% vs 50.5%, $p < 0.001$, OR 3.47). The risk of HDP is greater in singleton pregnancies by oocyte donation with a significantly increased risk compared to MAP-O (12% vs 1%, $p < 0.001$, OR 12.6); for comparison to multiple MAP-O, heterologous had significant differences for: GDM (36.3% vs 14.3%, $p < 0.001$, OR 3.4), HDP (20.2% vs 2.4%, $p < 0.001$, OR 10.3). Compared to SC pregnancies, oocyte donation shows an increased risk for all the outcomes: CS (78% vs 30.8%, $p < 0.001$, OR 7.91); GDM (26.1% vs 10.8%, $p < 0.001$, OR 2.92); HDP (12% vs 2.2%, $p < 0.001$, OR 5.99); SGA (16% vs 11%, $p < 0.05$, OR 1.16); PTB ≤ 34 weeks (9.4% vs 1%, $p < 0.001$, OR 7.94).

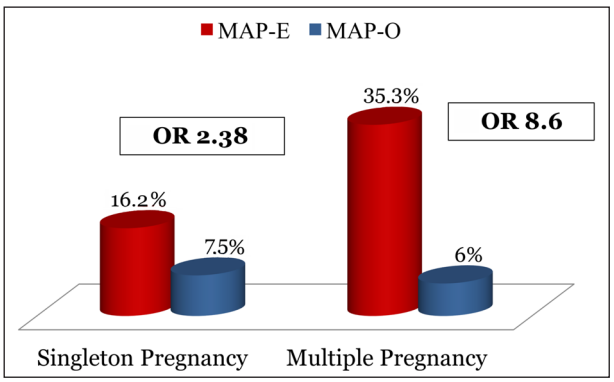

Figure 1 (ABS 13). Postpartum haemorrhage ≥ 1,000 cc. MAP-E: medically assisted procreation with female gametes; MAP-O: MAP-homologous.

CONCLUSIONS

Most women who undergo MAP-E are in advanced age, representing a high-risk population for obstetric complications, particularly in multiple gestation case, with particular attention to an increased risk of PPH.

ABS 14

FETAL LUNG MATURITY INDUCTION IN LATE PRETERM FETUSES: OUR EXPERIENCE

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INTRODUCTION

Nowadays, prematurity is still considered the leading cause of perinatal death around the world. In Italy, the most recent percentage is 6.6%. In 1972, Liggins and Howie published the first randomized study pertaining to antenatal corticosteroids to induce fetal lung maturity before 34 weeks of gestation [1]. The use of antenatal corticosteroids in the late preterm period (34-36.6 weeks) still remains a debated question. Moreover, the neonatal morbidity is not comparable to full-term infants. Aim: to verify in a tertiary level hospital the benefits and effects of the antenatal corticosteroids administration in the late preterm infants on neonatal outcome at birth.

METHODS

Singleton pregnancies admitted to Obstetric Unit of Padua University Hospital for maternal and/or fetal indications between 34^{+0} and 36^{+6} weeks of gestation, between January 2016 and September 2017, were enrolled. During hospitalization,

considering the reason for admission and the considerations of the responsible doctor, antenatal corticosteroids were administered. At birth, maternal and neonatal outcome were registered. Adverse neonatal outcome was defined by: neonatal respiratory distress syndrome (RDS), hypoxia, intraventricular haemorrhage, recovery in Neonatal Intensive Care Unit (NICU), days of hospitalization, neonatal hypoglycemia, hypothermia, jaundice, bronchopulmonary dysplasia, transient tachypnea of the newborn, abnormalities of swallowing and important loss of weight.

RESULTS

134 women were included: 110 were not subjected to treatment (Group A) and 24 were (Group B). The two groups were compared considering neonatal outcome. The most frequent diagnosis at recovery was: hypertensive disorders, preterm labour, premature rupture of membranes and intrauterine growth restriction. Group B showed a minor mean birth weight (2,799 g vs. 2,463 g, p = 0.08), a higher rate of respiratory distress syndromes (29.1% vs. 10.9%, p = 0.95), longer hospitalization (10.3 vs. 5.9 days, p = 0.41) and a higher number of NICU admissions (33.3% vs. 11.8%, p = 0.03). However, after a multivariate analysis correction, there was not difference about the rate of RDS between the groups (p = 0.95) and the only significant risk factor related to induction was neonatal hypoglycemia in Group B (33.3% vs. 7.2%, p = 0.02). Lower birth weight and longer hospitalization were related to intrauterine growth restricted condition.

CONCLUSIONS

Antenatal corticosteroid administration between 34^{+0} and 36^{+6} weeks of gestation appears to be linked to a higher risk of neonatal hypoglycemia after birth. There were no differences between the groups about RDS.

REFERENCE

[1] Liggins GC, Howie RN. A controlled trial of antepartum glucocorticoid treatment for prevention of the respiratory distress syndrome in premature infants. Pediatrics. 1972;50(4):515-25.

ABS 15

ARTERIAL BLOOD GAS VALUES OF UMBILICAL CORD: DIFFERENCES BETWEEN UNCLAMPED AND CLAMPED CORD

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INTRODUCTION

Umbilical cord blood gas and acid-base assessment are the most objective determinations of the neonatal metabolic condition at the time of birth. The analysis of arterial cord blood reflects the newborn's metabolic status, while the analysis of venous cord blood reflects both the maternal status and the placental metabolic function. The sample to obtain the blood gas analysis is performed within a minute after birth, from a double clamped umbilical cord isolated from placenta and environment, in order to avoid the continuous metabolic function of the placenta. A possible alternative method, previously used by some authors, consists in blood sampling from unclamped pulsating umbilical cord. The aim of the study is to verify the reliability of arterial blood gas values obtained from unclamped umbilical cord, compared with the values obtained from the same cord clamped immediately after.

MATERIALS AND METHODS

A cross-sectional study was conducted on umbilical cord blood of healthy newborns delivered vaginally at term. For each baby, two blood samplings have been collected: the first from pulsating umbilical cord, within 60 second after birth, and the second after clamping the cord, within 90 second after birth. The blood gas values analyzed are pH, hemoglobin concentration (tHb), carbon dioxide (pCO_2), oxygen (pO_2), base excess (BE), oxygen saturation (SpO_2) and lactate (Lac). The values obtained with the two methods of sampling were compared through measures of agreement (correlation coefficients) and measures of disagreement.

RESULTS

The intraclass correlation coefficient (ICC) for the values of pH, tHb, BE and Lac is above 0.75 (evidence of excellent reliability), while the intraclass correlation coefficient for the values of pCO_2, pO_2 and SpO_2 is above 0.4 (evidence of good reliability).

CONCLUSIONS

Sampling from pulsating umbilical cord is a reliable technique to obtain the main arterial blood gas parameters of blood gas analysis, when compared with the sample from the clamped cord. This result could allow the blood sample without clamping the umbilical cord within a minute after birth, which is a beneficial practice for the newborn's health in the short and long term. In healthy newborns delivered at term, the blood sampling directly from the unclamped pulsating umbilical cord is a

possible solution to assess the neonatal metabolic condition and, at the same time, allow the cord clamping after one minute from birth.

ABS 16

ABDOMINAL CIRCUMFERENCE GROWTH VELOCITY (ACGV) IN PREGNANCIES AT RISK FOR FETAL GROWTH RESTRICTION (FGR)

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INTRODUCTION

Fetal growth restriction (FGR) is a major determinant for perinatal mortality and morbidity. Small for gestational age (SGA), defined as fetal weight/birth weight below the 10th centile for gestational age, is commonly used interchangeable for FGR. However, many SGA fetuses are physiologically small and at the same time some adequate for gestational age (AGA) fetuses are FGR, if their growth velocity has dropped across trimesters. In the last few years, the evaluation of abdominal circumference growth velocity (ACGV) has been increasingly used to better identify babies at risk for FGR. The aim of the study is to evaluate ACGV in a group of pregnancies referred for FGR risk.

METHODS

A prospective study was conducted on pregnancies referred to our Maternal-Fetal Medicine Unit since September 2017 for increased risk of FGR (n = 80), including previous FGR or preeclampsia (PE), first trimester screening test positive for FGR or PE, abnormal uterine artery Doppler at 20 weeks, evidence of fetal growth velocity reduction. A serial fetal biometry and feto-placental Doppler monitoring is usually performed in these pregnancies in our centre. Women

Table 1 (ABS 16). Abdominal circumference growth velocity (ACGV) and ultrasound and pregnancy variables.

	ACGV ≤ 10th centile (n = 30)	ACGV > 10th centile (n = 41)	p
AC at 2nd trimester (mm)	161.6 ± 12.4	155.1 ± 11.7	**0.027**
AC at 2nd trimester (centile)	52.5 ± 18.1	34.7 ± 18.0	**0.0001**
AC at 3rd trimester	270.1 ± 12.5	272.1 ± 20.8	0.426
AC at 3rd trimester (centile)	35.3 ± 24.3	41.9 ± 29.8	0.335
AC at late 3rd trimester	315.6 ± 17.7	307.6 ± 16.2	0.052
AC at late 3rd trimester (centile)	46.9 ± 21.9	26.5 ± 29.1	**0.002**
Difference AC centile from 2nd to late 3rd trimester	-26 ± 12.5	12.1 ± 23.3	**0.0001**
Estimated fetal weight (EFW) (g)	2,593 ± 335	2,666 ± 406	0.426
Estimated fetal weight (EFW) (centile)	25.0 ± 21.9	43.1 ± 32.1	**0.010**
EFW < 10th centile	9 (30%)	6 (14.6%)	0.102
EFW < 5th centile	7 (23.3%)	3 (7.3%)	0.059
EFW < 3rd centile	5 (16.7%)	2 (4.9%)	0.108
MCA PI	1.5 ± 0.2	1.6 ± 0.2	0.231
UA PI	0.90 ± 0.2	0.84 ± 0.1	0.199
CPR	1.7 ± 0.4	1.9 ± 0.4	0.093
CPR < 10th centile	11(36.7%)	4 (9.8%)	**0.007**
Uterine arteries mean PI at late 3rd trimester	49.3 ± 32	37 ± 28.9	0.133
Uterine arteries mean PI > 95th centile at late 3rd trimester	3 (10%)	2 (4.9%)	0.353
Weeks at delivery	38.2 ± 1.3	38.6 ± 1.3	0.209
Induction of labor	14 (60.9%)	11 (34.4%)	**0.047**
Emergency Cesarean section for fetal distress	4 (9.8%)	2 (6.7%)	0.456
Birth weight (g)	2,690 ± 306	2,931 ± 425	**0.025**
Birth weight (centile)	13.4 ± 13.6	30.6 ± 30.1	**0.014**
Male gender	12 (52.2%)	8 (25%)	**0.037**

ACGV: abdominal circumference growth velocity; EFW: estimated fetal weight; MCA: middle cerebral artery; PI: pulsatility index; UA: umbilical artery; CPR: cerebroplacental ratio.

with early onset FGR, fetal genetic diseases or malformations were excluded. AC measurements at 2nd, 3rd trimester and from 36 to 39 weeks were reported. ACGV was calculated as the difference between Z score AC in the late third trimester and Z score AC at 2nd trimester, divided by the interval between the 2 measurements in days. The study population was analyzed comparing all the ultrasound and delivery outcome variables in the group with ACGV ≤ 10th centile versus the one with ACGV > 10th centile. Doppler measurements included umbilical artery (UA) pulsatility index (PI), middle cerebral artery (MCA) PI and cerebroplacental ratio (CPR). Chi-square test or Fisher's exact test and t test or Mann-Whitney test were used as appropriate. $P < 0.05$ was considered statistically significant.

RESULTS

The analysis was performed in 71 cases. Fetuses with ACGV ≤ 10th centile had a significantly bigger AC measurement ($p = 0.027$) and centile ($p = 0.0001$) at 2nd trimester than those with normal growth velocity. In addition, they had a significantly lower centile for estimated fetal weight (EFW) at late 3rd trimester ($p = 0.010$) than the control group, and similarly they had a lower birthweight centile ($p = 0.014$). The percentage of SGA fetuses between the two groups was similar. ACGV ≤ 10th centile fetuses resulted to have more frequently a CPR < 10th centile ($p = 0.007$), they had a higher rate of induction of labor ($p = 0.047$) and they were more likely males ($p = 0.037$) than those fetuses with normal growth velocity. Results are presented in **Tab. 1**.

CONCLUSIONS

The stratification of a high-risk population by using ACGV together with usual biometric and Doppler variables allows identifying a new population of fetuses that may be at higher risk for neonatal complications, independently of the size of the baby.

ABS 17

IMPACT OF MODE OF DELIVERY AND PERINEAL MAJOR INJURY ON NEONATAL OUTCOMES

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INTRODUCTION

The primary goal of current perinatal assistance is to deliver a healthy baby with a healthy mother. Unfortunately permanent damages on mother health (hypertensive/metabolic disorders, pelvic floor disorders…) receive little attention compared to neonatal outcomes. As the mode of delivery has an impact on women's pelvic floor health, the lack of data on short- and long-term maternal outcomes, compared to neonatal outcomes, represents a critical point. The aim of our study was to test the null hypothesis that mode of delivery, with special reference to operative Vaginal Delivery (oVD) and major pelvic floor injuries, has no impact on neonatal outcomes within the context of current obstetrical practice.

METHODS

Data of all deliveries occurring at the Buzzi Hospital in Milan between 2014 and 2016 (9,405 deliveries) were prospectively entered into a specifically designed database and analyzed. Only women consistent with classes 1 to 5 of Robson Classification (6,692 deliveries) were considered for analysis. Unfavorable Neonatal Outcome (UNO) was defined as at least one between: APGAR score at 5' < 7, Arterial pH < 7.1 and Base Excess > -12. UNO were then compared to the mode of delivery: normal Vaginal Delivery (nVD), oVD and Cesarean Section (CS) and to major perineal injury (≥ III degree perineal tears). Statistical analysis was performed via Software Stata 9.0 (Stata Corporation, College Station, Texas, USA); p-value < 0.05.

RESULTS

Mean age of the 6,692 women with single term deliveries was 33 years (15-48), mean BMI 26.1 kg/m^2 (10.4-51.2), mean gestational age 39 weeks (37-42). Mode of delivery was vaginal in 5,960 (oVD in 884 – 14.8%) and by CS in 724 cases (10.8%). Episiotomy rate was 21.1% (1,411/6,692) (98% mediolateral) and severe perineal tears (≥ III degree) were observed in 76/5,960 vaginal deliveries (1.3%). UNO was detected in 356 cases. The distribution of UNO according to mode of delivery is reported in **Tab. 1**. Severe perineal lacerations were not significantly associated with UNO (1/65 [1.5%] in UNO vs 355/5,653 [6.3%] in normal neonatal outcome cases, $p = 0.080$). In our population of healthy pregnant women who experienced labor, with a policy of selective adoption of episiotomy (21%), we had 15% of oVD and 11% of in labor CS. Under these circumstances a higher rate of UNO is significantly associated with oVD. The same is not

Table 1 (ABS 17). Distribution of Unfavorable Neonatal Outcome (UNO) according to different mode of delivery.

	nVD (n = 5,076)	oVD [a] (n = 884)	CS (n = 724)	p-value
UNO	226/4,300 (5.3%)	88/771 (11.4%)	36/639 (5.6%)	< 0.0001

Missing data account for number discrepancies.
nVD: normal Vaginal Delivery; oVD: operative Vaginal Delivery; CS: Cesarean Section; UNO: Unfavorable Neonatal Outcome.
[a] Vacuum Extraction.

true for severe perineal tears, but our numbers are small for this comparison.

CONCLUSIONS

oVD is significantly associated with UNO. Also Pelvic Floor Dysfunction after delivery is significantly associated with oVD. These data should be critically evaluated and considered when deciding the best mode of delivery.

ABS 18

LOW-RISK MIDWIFE-LED LABOR AND DELIVERY IN A TERTIARY REFERRAL OB-STETRIC CENTER

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INTRODUCTION

Aim: to analyse the evolution of midwife-led labor in low-risk women at term.

METHODS

Retrospective observational cohort of 966 low-risk pregnancies in spontaneous term labor, selected among a total of 3,069 deliveries occurred in the year 2017, in a tertiary referral centre in Milan. This group of women was managed according to a specific midwife-led labor protocol: the mothers were from 18 to 39 years old and had a BMI < 30 kg/m^2; pregnancies from assisted reproductive technologies were excluded, except for intrauterine insemination. They all had singleton cephalic fetuses, without any known fetal or maternal pathology, nor during neither before pregnancy. Women with a premature rupture of membrane (< 24 h) and a limpid amniotic fluid, going into spontaneous labor, were included. Primary outcomes were the rate of low-risk deliveries on low-risk labors, according to local criteria of inclusion and exclusion, and the rate of post-partum outcomes.

RESULTS

Among the 966 (33%) low-risk women, 55% were nulliparous. Patients admitted to low-risk labor managed to have vaginal delivery in 87% of cases, 10% required vacuum extraction and 3% underwent cesarean section. Of the 966 low-risk women, 372 patients (38.5%) actually had a low-risk vaginal delivery: they included the 23% of nulliparous and the 57% of parous women (blood loss ≥ 500 ml occurred in 12% of cases, 85% was < 1,500 ml), episiotomy was performed in 4% of these women and 3rd-4th degree lacerations were observed in 1%. Neonatal adverse outcomes, defined as pH < -12 and Apgar score < 7 at 1', occurred on 0.5% and 0% respectively.

For the remaining 61.5% of patients, deviation from low-risk labor was due to different exclusion criteria: epidural analgesia was performed in 62% of cases, in particular in 51% of the nulliparous and 22% of the parous women, blood loss ≥ 500 ml occurred in 15%, episiotomy was performed in 25% and 3rd-4th degree lacerations were observed in 2.5% of cases. Considering neonatal adverse outcomes, pH < -12 was registered in 2.9% and Apgar < 7 at 1' in 1.5% of these babies.

CONCLUSIONS

According to our management, setting a labor as a low-risk one has a positive predictive value of low-risk delivery of 38.5%. The major cause of deviation from low-risk is epidural analgesia. The satisfying results in terms of post-partum outcomes, compared to the group of women deviating from the low-risk labor, show the efficiency of the previous selection of low-risk labor.

ABS 19

CLINICAL CONTRIBUTION OF POST-MORTEM MRI AFTER INTRA-UTERINE MRI IN EARLY SECOND TRIMESTER TERMINATION OF PREGNANCY FOR CNS DEFECTS

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INTRODUCTION

Intrauterine magnetic resonance imaging (iuMRI) is a useful imaging technique complementary to prenatal ultrasonography (US), especially for the central nervous system (CNS) malformations. The accuracy of both methods improves with progression of the gestational age. However, due to law that regulates termination of pregnancy (TOP) in our country, there is the need to achieve the diagnosis as soon as 20-22 weeks of gestation. In the early second trimester (< 22 weeks), as per US examination, there are some limiting factors that may affect the diagnostic accuracy of iuMRI, such as the relatively small size of the fetus and incomplete development of brain structures, its location in the maternal womb, fetal movements and others. Post-mortem MRI (pmMRI) is not affected by these factors, except for the incomplete development of the brain structures. We wanted to evaluate whether the above limiting factors might influence the iuMRI accuracy compared to pmMRI in a cohort of fetuses that underwent TOP due to CNS defect in the early second trimester of pregnancy.

METHODS

This is a 10 years retrospective study (2007-2017) in a single tertiary referral centre, Institute for Maternal and Child Health IRCCS Burlo Garofolo, Trieste. We included only cases of TOP for CNS malformation that have had performed both iuMRI and pmMRI within one week period. PmMRI is part of an internal protocol, together with other examinations including autopsy, in case of TOP for fetal malformation. Parents' consent is needed for post mortem examinations. Concordance between iuMRI and pmMRI was calculated, and the rate of clinically relevant additional findings provided by pmMRI is reported.

RESULTS

Overall, 27 cases were included. Of these, 2 were excluded due to brain autolysis found at pmMRI. Abnormalities of the corpus callosum were the most represented defects (16/25 cases; 64%), either isolated (44%) or associated to other CNS findings (28%). The median GA at iuMRI was 21 weeks, and the median interval between iuMRI and pmMRI was 5 days. The concordance between pmMRI and iuMRI was 100% for the primary diagnosis. In 6 cases (24%) iuMRI added clinically relevant additional findings to US, thereafter confirmed by pmMRI. All cases were related to malformations of cortical development. In 1 case pmMRI identified, in addition to agenesis of corpus callosum, the presence of abnormal cortex sulcation not identified at iuMRI. All diagnoses were confirmed by autopsy.

CONCLUSIONS

This study shows that, in the early second trimester and in case of CNS defects, limiting factors such as fetal movements, in womb location and others, have scarce influence on iuMRI accuracy within the diagnostic potentially of the technique itself.

ABS 20

SECOND TRIMESTER ABNORMAL UTERINE ARTERY DOPPLER AS THE MAIN RISK FACTOR FOR PREECLAMPSIA IN WOMEN WITH THROMBOPHILIA AND PREVIOUS THROMBOSIS

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INTRODUCTION

Thrombophilic conditions and previous thrombosis have been associated to the development of placental complications of pregnancy. In detail, thrombophilia is often described as a risk factor for preeclampsia (PE), fetal growth restriction (FGR) and perinatal death. The aim of this retrospective study was to investigate the impact of multiple risk factors on the development of adverse pregnancy outcome, in a cohort of patients with hereditary thrombophilia and/or previous thrombosis.

MATERIALS AND METHODS

Pregnancy data from 275 patients with hereditary thrombophilia and/or previous thrombosis were collected. The cases were divided into three groups: 77.5% had a hereditary thrombophilia and at least one adverse obstetric outcome; 12.5% had previous thrombosis without thrombophilia; 10.5% had thrombophilia plus previous thrombosis. Prophylactic low-molecular-weight heparin (LMWH), acetylsalicylic acid (ASA) or both were provided in 268 cases. The risk factors considered

for analysis were: age, BMI, 2nd trimester uterine artery (UtA) Doppler, type of prophylaxis, and previous obstetric adverse outcomes.

RESULTS

The outcome considered were: FGR, PE, intrauterine fetal death (IUFD), Apgar score < 7, umbilical artery pH 95th centile in 5.1% of cases, while the overall frequency of PE and FGR was 2.5% and 13.5%, respectively. Two cases of IUFD occurred, both in pregnancies characterized by V Leiden factor mutation, in association with FGR. The Chi-square test and ANOVA did not identify significant differences in terms of risk association with the considered outcomes. Logistic regression analysis reported significant results in terms of association between abnormal UtA Doppler and FGR (p = 0.0196, OR 4), and previous adverse obstetric outcomes and FGR (p = 0.04, OR 2.5). PE was significantly associated with second trimester abnormal UtA Doppler (p = 0.022, OR 8).

CONCLUSIONS

Even when considering a treated cohort, women with risk factors for or previous thrombosis have a higher frequency of placental complications when compared to general population. UtA Doppler stands as the main tool in order to identify the cases at risk of developing severe complications. Accurate obstetric history also should address close monitoring.

ABS 21

FETAL RHD DETECTION FROM CIRCULATING CELL-FREE FETAL DNA IN MATERNAL PLASMA: VALIDATION OF A COMMERCIAL KIT USING AUTOMATIC EXTRACTION AND FROZEN DNA

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INTRODUCTION

Recent introduction of fetal RHD genotyping on cell-free fetal DNA (cffDNA) circulating in maternal plasma represents a big step forward in the management of RhD negative pregnant women and haemolytic disease of the fetus and the newborn. Non-invasive determination of fetal RHD genotype would allow for targeted maternal antenatal anti-D prophylaxis and, consequent, reduction of use of Rhesus-immune globulin with numerous advantages (at present, according to local protocol, RhD pregnant women receive at least 1 anti-D prophylaxis around 28 weeks of gestation). Some Countries already implemented this screening at national level. However, validation of the method is mandatory before clinical application. GENIC is a regional grant project on validation of fetal RHD genotyping on cffDNA. The final goal of the project is to realize a multidisciplinary protocol and introduce the screening of fetal RHD genotype in RhD negative pregnant women at a regional level (Friuli-Venezia-Giulia). Herein, we describe the results of the validation process.

MATERIAL AND METHODS

The recruitment of RhD negative pregnant women (n = 189) at different gestational ages was performed at Institute for Maternal and Child Health IRCCS Burlo Garofolo, Trieste. DNA extraction and fetal RHD genotyping was performed at Laboratory of Immuno-Haematology, ASUIUD, Udine. Fetal DNA extraction was performed from 52 maternal plasma samples through manual and automated method. Real time PCR Free DNA fetal Kit® RHD was applied for RHD genotyping. Several aspects of the validation process were evaluated (analysis on manual vs. automated fetal DNA extraction, and fresh vs. frozen extracted fetal DNA, respectively) in order to test the differences between the techniques and to evaluate the stability of the DNA. Tests were performed in double and in different days. The results of the analysis were compared with cord blood fetal RhD.

RESULTS

Overall, 259 genotyping tests were performed. The concordance between fetal RHD genotyping on cffDNA and fetal cord blood RhD determination was 100% (41 fetuses resulted RhD positive, and 11 RhD negative). No differences were observed between manually or automatically extracted fetal DNA, nor for fresh or frozen extracted fetal DNA.

CONCLUSIONS

These findings confirm the feasibility of fetal RHD determination on cffDNA, and prove the reliability of the analysis even on frozen extracted fetal DNA. The latter might be determinant in the organization of a screening program for a vast area. In our cohort of 52 women, in 11 antenatal anti-D prophylaxis could be avoided. These data encourage for the realization of a regional screening program.

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ABS 22

COMBINED FIRST TRIMESTER SCREEN VERSUS FETAL CELL-FREE DNA TEST: WHICH SCREENING STRATEGY?

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INTRODUCTION

Nowadays, screening for chromosomal abnormalities has become part of obstetric management. The new Italian essential level of assistance (LEA) extends the first trimester combined screening to the entire population, offering the invasive diagnosis in presents of a risk ≥ 1/300. The most recent introduction of fetal cell-free DNA (cfDNA) in maternal blood testing (non invasive prenatal testing - NIPT) has highly improved the detection rate of the common fetal autosomal trisomies. Aim: The primary purpose is to compare the different prenatal screening strategies of trisomy 21, 18 and 13 about their effectiveness, rate of invasive procedures and associated costs in a specific geographic area (Padua). The second aim was to identify the most cost-effective screening strategy in the regional prenatal screening protocol.

MATERIAL AND METHODS

It was a retrospective evaluation of the principal first trimester methods of screening of fetal aneuploidies in 1,719 patients with singleton pregnancies who delivered at the Obstetrical Clinic of Padua University, from June 1st 2016 until May 31st 2017. Four groups of patients were identified, according to the chosen screening type. Demographic data and screening results were collected for each clinical group. Not considering those patients that did not performe a screening or prenatal diagnosis, three possible prenatal screening strategies were evaluated: 1) first trimester combined screening (FTCS) followed by invasive test in high risk patients; 2) fetal cfDNA on maternal blood followed by invasive in high risk patients; 3) contingent model followed by invasive in high-risk patients (≥ 1/50), and fetal cfDNA testing in intermediate risk patients (between 1/51-1/300 (3rd A option) or between 1/51-1/1,000 (3rd B option). Finally, based on the population data, prenatal screening costs estimation has been performed for each proposed screening strategy.

RESULTS

47.4% of the population did not undergo any prenatal screening/diagnosis, 24.1% was screened with FTCS, 14.1% chose fetal DNA testing and 14.4% underwent invasive diagnosis. Overall, 1 case of trisomy 18 and 13 cases of trisomy 21 were diagnosed, 3 of which at birth in non-screened patients. In the first screening strategy (FTCS), the detection and the invasive testing rate were 90% and 5.58%, respectively, with an estimated cost/patient of 112.34 €. In the second group (fetal cfDNA), the detection and the invasive testing rate were 99.2% and 5.29%, with an estimated cost/patient of 579.10 €. In the third strategy, the results were different in the 2 subgroups. In the 3rd A option, the detection rate and invasive testing rate were 90% and 2.67%, respectively, with an estimated cost/patient was 117.66 €. In the 3rd B option, the detection rate and invasive test rating was 97% and 2.97%, respectively, with an estimated cost/patient was 173.216 €.

CONCLUSIONS

The contingent model seems to be the most suitable screening strategy because it ensures the best cost/efficiency ratio.

ABS 23

LATENT SYPHILIS IN PREGNANT MIGRANTS: TO TREAT OR NOT TO TREAT?

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INTRODUCTION

During the last decade the European prevalence of syphilis in pregnancy has increased, in particular among migrant women. Latent syphilis can be vertically transmitted in any phase of pregnancy, even though asymptomatic. Diagnosis and treatment are mandatory in pregnant women to avoid transmission. In case of previous treatment out of pregnancy a doubt is posed on repeated treatment during gestation, unless the patient is

found to be at risk of new exposure. We report our experience on women affected by latent syphilis treated with penicillin during pregnancy.

METHODS

We included all pregnant patients with a positive lab result to syphilis referred to our center. In case of positivity to screening tests, confirmatory ones were performed. Maternal and fetal evaluation, such as prenatal ultrasound and complete workup, was carried out. Our strategy consisted of treatment with benzathine benzylpenicillin total dose of 7,200,000 IU administered at diagnosis in all cases of latent syphilis, with no exclusion criteria. According to the literature, the use of penicillin in pregnancy is completely safe. We performed follow up for feto-neonatal signs of disease, pregnancy outcome and vertical transmission rates. We report follow up data on children up to 12 months.

RESULTS

In the last 3 years we observed 57 cases of non-Italian pregnant women with latent syphilis. In this study we excluded 16 patients, because the neonatal follow up is still ongoing. 30% of our patients reported to have had previous diagnosis and adequate treatment, and claimed of being at low risk of reinfection. All pregnancies were singleton. Treatment was preferentially administered within the first half of the second trimester, or at the latest one month before delivery. Timing and modality of delivery were not managed based on maternal latent syphilis, and no difference was shown with low risk pregnancies. No adverse outcomes were observed in terms of allergic reactions to therapy. Maternal complications such as hypertension, diabetes and hepatosis and fetal teratogenic effects we not found. No case of neonatal infection was reported.

CONCLUSIONS

Screening tests for syphilis should be performed in preconceptional period. When not done, every expectant mother must be tested during the first trimester or, at least on the first visit. In confirmed cases, we suggest pharmacological treatment for all patients with latent syphilis, even when previous treatment is reported. In our experience, this therapeutic approach determined absence of vertical transmission with no adverse outcome in both mother and child.

ABS 24

CLINICAL OR ECHOGRAPHIC EVALUATION FOR PREDICTION OF NEONATAL WEIGHT?

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INTRODUCTION

Fetal weight estimation in pregnancy is aimed at identifying fetal growth abnormalities, such as large for gestational age fetuses (LGA) and fetal growth restriction (FGR), often associated with neonatal morbidity and mortality. The most common methods are the clinical approach and the obstetrical ultrasounds scan (US). Currently, US is not included in the monitoring of the second half of pregnancy, except in cases where an impaired growth or other maternal-fetal abnormalities are suspected. The aim of the study was to compare the predictive value of estimated fetal weight at birth by symphysis-fundus measurement and US in the late third trimester. The second purpose was to compare the predictive role of birth weight estimation by US at 28-32 versus 36-38 gestational weeks.

MATERIALS AND METHODS

Singleton and physiological pregnancies were enrolled between 36 and 38 gestational weeks, from July until October 2017, at the Maternal and Fetal Medicine Unit of the Department of Woman and Child Health, in Padua. All patients had a previous US performed at 28-32 weeks of pregnancy. Symphysis-fundus measurement (Johnson's formula) and obstetrical US (Hadlock's and Scioscia's formulas) were performed for all the women by two experienced operators. Estimated fetal weight was transformed into Standard Deviation Score (SDS) on the base of the neonatal anthropometric charts (INeS 2010). All data about maternal and neonatal outcome were collected at the delivery.

RESULTS

50 patients were enrolled in this study. The mean gestational age at clinical and US evaluations was 37.08 (± 0.91) weeks of pregnancy, and at delivery was 39.23 weeks (± 0.98). The mean birthweight was 3,394.83 g (± 427.72). At a first analysis, Hadlock's, Scioscia's and Johnson's formulas were all found to be significantly correlated with the neonatal weight (r = 0.67, 0.40, 0.65). The Hadlock's formula seemed to have the best predictive capability for FGR. Considering the estimation in LGA fetuses, the best specificity was found in Scioscia's formula (94.6%) and the best sensitivity in the Johnson's (100%). The latter significantly overestimates the

neonatal weight ($p < 0.05$). Finally, US performed at 28-32 weeks of pregnancy demonstrated less accuracy and a significant overestimation of the neonatal weight than the US performed at 36-38 weeks ($p < 0.05$)

CONCLUSION

Obstetrical US remains the most accurate method in the prediction of neonatal weight and in the detection of fetal growth restrictions. Moreover, estimation by US is even more accurate if performed in late pregnancy, than in the early third trimester.

ABS 25

THE ROLE OF CEREBROPLACENTAL RATIO TO PREDICT NEONATAL OUTCOME IN FETUSES WITH INTRAUTERINE GROWTH RESTRICTION

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INTRODUCTION

Cerebroplacental ratio (CPR), the ratio between fetal middle cerebral artery (MCA) pulsatility index (PI) and umbilical artery (UA) PI, is usually associated with an adverse neonatal outcome when less than 1 in intrauterine growth restricted (IUGR) fetuses. The CPR role in the management of late IUGR fetuses during pregnancy and in the timing of delivery is still controversial. Aim: to evaluate the role of CPR in predicting short-term neonatal outcomes in late IUGR fetuses.

METHODS

This was a retrospective study performed at the Department of Woman's and Child's Health of Padua University from February 2010 to December 2017. IUGR was defined as a fetus with an abdominal circumference and/or an estimated fetal weight (EFW) below the 10th percentile for gestational age, with normal or abnormal maternal-fetal Doppler velocimetry. IUGR patients were enrolled during an ultrasound scan performed after the suspicious of intrauterine restriction or during the routine scan of the third trimester, as control patients. The control group was defined by an EFW between the 10th and 95th percentile for gestational age. Exclusion criteria were: autoimmune, endocrine and metabolic diseases; twin gestations, fetal chromosomal and morphological abnormalities and infections. An UA and uterine arteries PI > 2 standard deviations for gestational age were defined abnormal. CPR was defined pathological when 95th percentile, all for gestational age).

RESULTS

45.5% of IUGR fetuses showed a CPR < 1. Median gestational age at birth was 34 weeks (range 31-37) and median weight at birth was 1,607.5 grams (range 1,277.8 g-2,273.7 g). 78% of cases required cesarean delivery (26% for Doppler abnormalities). Median Apgar score was 7 (6-9) at 1' min and 9 (8-9) at 5' min. NICU hospitalization occurred in 41.6% of cases; 13.39% of infants showed signs of systemic infection, 1.57% had IVH and 11.2% presented feeding problems. Finally, there was a positive correlation between CPR < 1 and admission in NICU (OR 5.77) and neonatal sepsis (OR 24.03).

CONCLUSIONS

CPR ratio seems to be useful for obstetric management and prediction of neonatal outcome in late IUGR. This study showed a possible association between CPR < 1 and a worse neonatal short-term outcome.

ABS 26

INDUCTION OF LABOR WITH THE USE OF PROSTAGLANDINS: PSYCHOLOGICAL OUTCOMES

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INTRODUCTION

Induction of labor it's an option when maternal and fetal benefits derived from it overcome the advantages of waiting for the spontaneous onset of labor. This study aims at understanding how induction may affect psychological wellbeing after delivery.

MATERIAL AND METHODS

Women admitted for induction with prostaglandins at the Obstetric and Gynecological Clinic of the University Hospital of Monserrato (AOU Cagliari) were recruited between August 1, 2016 and August 1, 2017. The Edinburgh Postnatal Depression Scale (EPDS) was used within 72

hours from delivery to evaluate psychological outcomes as it is the most widely used screening instrument for postpartum depression. A non-parametric correlation was applied, dividing the sample into subgroups according to parity, number of prostaglandin administrations, time between induction and delivery, type of delivery, availability of rooming-in or transfer of the newborn into the neonatal ward for mild or severe pathology and EPDS score values (the significant results are written in bold in **Tables 1-3**).

RESULTS

In the period of time considered, 273 of 1,767 women (15.45%) were induced primarily for rupture of membranes > 24 hours and post-term pregnancy. Our study included 162 women (59.34%) with a completed EPDS questionnaire: of these 121 (74.7%) were nulliparous, 140 (86.4%) were induced once, 79 (48.8%) gave birth one day after induction, 122 (75.31%) had a vaginal delivery of which 94 (58.33%) spontaneous and 28 (17.28%) through operative

Table 1 (ABS 26). Correlation between days from the first prostaglandin-administration and delivery and the other variables in the sample of women who underwent induction (n = 162): nulliparous women need more time from induction, are induced more times, have a higher incidence of operative deliveries and higher Edinburgh Postnatal Depression Scale (EPDS) scores.

			Parity (nulliparous = 0 versus pluriparous ≥ 1)	Number of inductions	Type of delivery (vaginal birth = 0, AV = 1, CS = 2)	Rooming-in or transfer of the newborn into the neonatal ward	EPDS score (values between 0 and 23)
Spearman's Rho	Days from the first prostaglandin-administration and delivery	Correlation Coefficient	**-.336****	**.627****	**.261****	-0.28	**.170****
		Sign. (two tailed)	.000	.000	.001	.725	.031
		N	162	162	162	162	162

AV: vacuum application; EPDS: Edinburgh Postnatal Depression Scale.

Table 2 (ABS 26). Correlation between the type of delivery and the other variables in the sample of women who underwent induction (n = 162).

			Parity (nulliparous = 0 versus pluriparous ≥ 1)	Number of inductions	Days from the first prostaglandin-administration and delivery	Rooming-in or transfer of the newborn into the neonatal ward	EPDS score (values between 0 and 23)
Spearman's Rho	Type of delivery (vaginal birth = 0, AV = 1, CS = 2)	Correlation Coefficient	**-.262****	**.214****	**.261**	-0.31	**.164***
		Sign. (two tailed)	.001	.006	.001	.699	.037
		N	162	162	162	162	162

AV: vacuum application; EPDS: Edinburgh Postnatal Depression Scale.

Table 3 (ABS 26). Correlation between the operative vaginal delivery and EPDS scores in the sample of women who underwent induction (n = 162): women with operative vaginal delivery need more time from induction, are induced more times, have a higher EPDS scores.

			Parity (nulliparous = 0 versus pluriparous ≥ 1)	Number of inductions	Days from the first prostaglandin-administration and delivery	Rooming-in or transfer of the newborn into the neonatal ward
Spearman's Rho	EPDS scores in women with vaginal operative delivery	Correlation Coefficient	.207	**.431****	**.523****	.080
		Sign. (two tailed)	.291	.022	.004	.686
		N	28	28	28	28

EPDS: Edinburgh Postnatal Depression Scale.

delivery (vacuum application – AV), 23 (14.20%) presented an altered score at the EPDS. Of the newborns, 45 (27.8%) were transferred to the neonatal ward. **Tables 1-3** show non-parametric correlation between the variables considered. A positive correlation between two variables means that as one increases, the other increases in parallel, a negative or inverse correlation means that as one variable increases, the other decreases progressively. For example, **Tab. 1** shows a negative correlation between parity and days between induction and delivery, that is, nulliparous need more time from induction. The variable availability of rooming-in or transfer of the newborn into the neonatal ward does not show any statistically significant correlation with the other variables.

CONCLUSIONS

In our study group nulliparous women needed more time from induction, were induced more times, had a higher incidence of operative deliveries (AV + caesarean section) and higher EPDS scores. Operative vaginal delivery (AV) was the one that mostly correlates with EPDS score alert values. Availability of rooming-in or transfer of the newborn into the neonatal ward does not seem to affect EPDS score values. Indeed our study suggests to consider these variables as relevant during maternal care after birth and to improve perinatal clinical research in this field.