Introduction: according to the World Health Organization, Tuberculosis (TB) affects more than 2 billion people worldwide. Italy is a low-endemic country with an annual incidence of 6.7 cases per 100,000 inhabitants, especially immigrants. TB is also an important cause of maternal mortality worldwide. In low-endemic countries, like Italy, the latest English Maternal Mortality Report has recorded an increase in deaths due to a lower degree of clinical suspicion, especially in immigrants, and poor knowledge of the pathophysiology. Pregnancy represents the first access to the health system for immigrants from high-endemic countries. During pregnancy, TB is associated with poor outcomes. The clinical diagnosis of TB can occur only in case of active disease, because latent TB cases are asymptomatic. However, the diagnostic process may become more complicated in pregnant women because systemic nonspecific symptoms. The aim of our study is to investigate the prevalence of active TB in a cohort of pregnant and postpartum women followed up at San Gerardo Hospital, Monza, Italy and to describe obstetrics outcome.

Methods: a retrospective cohort study of active TB cases was performed from January 2010 to January 2018.

Results: during the study period, five cases of active TB (Table 1) were identified: all women came from countries with a high incidence of TB. In three patients the TB diagnosis was made during pregnancy and in one case during the postpartum period. The disease onset was in two cases with chest pain, in one case with fever and cachexia, and in two cases with low grade fever and cough. Two of them had a history of previous familiar cases of TB. There were no cases of HIV positivity. One patient (number 4 – Table 1) showed a miliary TB with myopericarditis. TB infection had a negative impact on pregnancy and patient’s outcomes including maternal cachexia, preterm rupture of the amniochoric membranes and preterm...
delivery, labor induction for malaise, pneumonia with pleuritis and myopericarditis. Furthermore, the late diagnosis of these four TB cases led to epidemiological issues, with the need to screen and start TB prophylaxis in 93 women, 95 newborns and 26 health workers (midwives, socio-health workers, physicians) because of the non-application of respiratory precaution measures due to the underestimation of the diagnosis.

Conclusion: our data confirm that lack of awareness / clinical suspicion is a barrier to TB diagnosis in low-burden countries and may lead to poor clinical outcomes in pregnant women. The main challenge in controlling TB infection is the early diagnosis of latent TB in patients at high risk of developing active TB and the timely treatment of active TB. Maternal care services could be an opportunity to improve case detection, especially among immigrants.
Anti-Rotavirus vaccination of premature infants in NICU of the Sicily Region: three-year project to monitor the effectiveness of vaccination

Francesco Vitale1, Eloisa Gitto2, Salvino, Marcello Vitaliti3, Angela Motta4, Giovanni Corsello5, D. Mancuso3, A. Arco2, C. Costantino1

Premise: Vaccines are among the most effective, cost-effective and safe interventions available to Public Health for the primary prevention of infectious diseases. Some infectious diseases have the characteristic of being prevented by vaccination. Rotavirus infection is among the preventable diseases with vaccination. The preterm infants represent a risk category of serious infection by rotavirus and are particularly exposed to the risk of hospitalization and complications. Because the benefit of vaccination in this group of infants is high, vaccination should not be suspended or delayed. In Sicily, rotavirus vaccination has been introduced in an active and free offer since January 2013 but, until now, no rotavirus vaccination in preterm infants has been proposed in any regional NICU during hospitalization. Purpose of the study: Evaluation of a specific vaccination policy for preterm infants, to avoid the failure to vaccinate preterm infants, establish protocols capable of vaccinating them already in hospital environment, to allow an adequate assessment of vaccination's benefits at this age and to exclude vaccine adverse events. Methods: Vaccinate all preterm infants with a gestational age greater than or equal to 28 weeks during the period 2018-2020 who do not have contraindications to the administration of the rotavirus vaccine, at the NICU of the AOU Policlinico of Messina and Palermo and of the ARNAS of Catania and Palermo. The preterm infants will be vaccinated in the ward if they are still in NICU or on an outpatient basis if discharged. Results: Through the support of the computerized vaccine registry of the Sicily Region we will proceed to identify the rotavirus vaccination status of preterm infants hospitalized for GERV, and any cases of intestinal invagination in these infants within 30 days after vaccination. Conclusions: The present study aims to define a standardized regional guideline for the vaccination of preterm infants directly in the NICU operating on the Sicilian territory. The
study's results may be used to modify or supplement the existing guidelines on rotavirus vaccination in preterm infants.
NOME PRESENTER  
Lisa Pucci

TOPIC  
INFEZIONI IN AMBITO PERINATALE

TITOLO  
Do we really need to worry about Listeria during the perinatal period?

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CONTENUTO  
INTRODUCTION- More and more frequently the scientific community wonders how much the infection caused by the bacterium Listeria monocytogenes (LM) represents a concrete danger for pregnant women and for newborns.

LM is an ubiquitous distributed bacterium which is one of the most important causes of death from foodborne infections in industrialized countries. It causes invasive syndromes responsible for a case-fatality as high as 30%. The disease affects primarily pregnant women and newborns, because LM is able to pass through the fetoplacental barrier. The outcomes after LM infection during pregnancy consist in preterm birth (50%), abortion (10-20%) and intrauterine fetal death (11%).

All recent scientific papers concerning human LM infections agree that, even if rare, listeriosis is a serious problem in the perinatal period. Here we intend to discuss a clinical approach that could be useful for obstetrics and gynaecologists who have women at high risk of listeriosis in their care. The proposed approach takes into consideration also several national guidelines published by different countries.

METHODS- A review of the recent literature concerning pregnancy-associated listeriosis has been performed. A joint effort among healthcare specialists (clinician, gynaecologist and biologist) with different approaches to the infection has been conducted in order to consider all the aspects which are involved in the infection onset and in the pregnant women’s treatment and welfare.

RESULTS- A common approach for the management of pregnant women with suspected infection by LM is suggested, considering the high risk of fatal consequences for the fetus and the enormous difficulties for a reliable early diagnosis. The clear identification of the immunological status of individuals potentially at high risk of infection should be performed in the preconception period or in the presence of symptoms suggestive of listeriosis, in order to allow the early detection of an ongoing infection.

CONCLUSION- Although listeriosis is a rare infection which could cause mild maternal illness, since it can be really devastating for the fetus worldwide experts are attaching increasing importance to the early diagnosis of these infections, also because they are suspected to be consistently underestimated. LM could cause more consequences than one might think, especially during the first trimester of pregnancy. The healthcare providers should know in depth the risk and the symptoms of a LM infection, because only an early diagnosis can limit the damage caused by the bacterium on the fetus.
Introduction
Pertussis is still a major public health problem in Europe. Newborns and infants are at higher risk of contracting PT. In Italy, in the time frame 2001-2014, 63.6% of 7,102 hospitalizations for pertussis occurred in infants < 1 year of age (hospitalization rate= 59/100.000). The most effective strategy to reduce PT risk in infants is at present the diphtheria-tetanus-acellular pertussis (dtap) booster in pregnancy. The National Vaccine Prevention Plan 2017-19 introduced maternal immunization (MI) to be offered for free to all pregnant women (PW) defining the vaccine as “safe” for both PW and the fetus. Nevertheless, even though such a statement may be sufficient for health care providers, it might not be complete enough for PW. A survey recently carried out among 600 PW in Italy, found out that PW are aware of the risk of PT in newborns and declare to be available to accept MI, providing that enough data/arguments on safety are given them by Gynecologists. At today, only one dtap vaccine is approved for MI (Boostrix, GSK). Thus, dtap immunogenicity and safety data collection or generation is needed to provide Italian Gynecologists with information tools to match the PW expectations.

Methods
A literature research in Pubmed database by using specific key words (i.e maternal immunization, dtap vaccine etc) was carried out and national guidelines or recommendations on dtap MI were searched. Furthermore, a data gap analysis on MI in Italy was drawn up.

Results
A consistent number of publication were retrieved for the different terms introduced (more than 9000 on Maternal Immunization). When focusing the search on dtap in MI, more than 20 papers were identified, encompassing a huge number of PW vaccinated with dtap (more than 1,200,000 only in the report from Vizzotti et al, Vaccine 2015). MI turned out to be recommended in 30 Countries, including Italy. Safety data on dtap vaccine in MI proved to be reassuring. However, the gap analysis revealed that no clinical data on MI were collected in Italy. Thus, we joined a multinational, multicentric study to assess the immunogenicity and safety of Boostrix, when compared to placebo, given at 27-36 weeks of gestation in healthy women aged 18-45 years; infants born from mothers enrolled in the study will be followed-up in two separate clinical trials.

Conclusions
Italian Gynecologists and/or Pediatricians are expected to give PW exhaustive information on the rationale and safety of dtap MI. Countries recommendations and scientific literature generate a consistent database
to retrieve data and built up effective communication tools. Furthermore, original Italian clinical data are also being collected to further focus the available information on the local context.
CONTENUTO

Introduction: Parvovirus B19 is a widespread virus which infects 1-5% of pregnant women. Maternal symptoms may be non-specific and therefore delay early diagnosis. In the fetus however Parvovirus B19 can cause anemia, non-immune hydrops fetalis (NIHF), and death. Transplacental transmission rate ranges between 30% and 50% and it is higher in the first and second trimester. In most cases, fetal anemia secondary to Parvovirus is transient and an intrauterine transfusion can support the fetus during the aplastic crisis. However, the development of hydrops represents a negative prognostic sign, associated with high mortality. For this reason, fetal blood transfusion is recommended, unless the pregnancy is at an advanced gestational age, and risks associated with delivery are considered to be less than those associated with the procedure. The aim of this study is to investigate the prevalence of fetal complications following maternal Parvovirus B19 infection at various gestational ages, and to describe obstetrical outcomes.

Methods: a retrospective cohort study of Parvovirus fetal infection cases was performed at the Obstetrics and Gynecology Unit of San Gerardo Hospital, Monza, Italy from January 2010 to December 2017. Cases were identified after suggestive ultrasound findings.

Results: during the study period, six cases of fetal Parvovirus B19 infection were identified (Table 1). All women were Caucasian and had other children at home. The average time at diagnosis was 21 weeks (range 15 weeks – 26 weeks and 6 days). Maternal symptoms were non-specific: fever, diarrhea, and rash; one patient presented with Mirror Syndrome. All fetuses showed signs of anemia at Doppler examination of Middle Cerebral Artery (MCA) and effusions: two presented with hydrops, four with ascites (two of them subsequently developed hydrops). Polyhydramnios and hyperplacentosis were diagnosed in two cases. Viral DNA was identified by polymerase chain reaction (PCR) of amniotic fluid or fetal blood in five cases. In one case invasive diagnosis was not performed and fetal infection was demonstrated at birth. Three cases received intrauterine transfusions. Two cases out of three had a progressive regression of effusions. Fetal death occurred in two occasions, the first one 2 days after an intrauterine transfusion. In this circumstance, the maternal infection occurred before the 20th gestational week. Pediatric follow-ups on all the living children show a normal neurological outcome.

Conclusion: our data confirm that fetal hydrops and ascites are the most common ultrasound signs of fetal Parvovirus B19 infection. The diagnosis should be made on the basis of viral DNA identification in the amniotic fluid or fetal blood, in combination with maternal serologic assays for Parvovirus B19-specific IgG, IgM and fetal MCA Doppler evaluation for anemia. Timely executed intrauterine transfusion of severely anemic fetuses represents an opportunity to reduce the risk of fetal death.
INTRODUCTION
According to ISTAT, migrant people resident in Campania at the beginning of 2017 are 243,694 and they provide for 4.2% of the resident population. 51.55% of these are women. They carry a high risk for sexually transmitted disease (STD), above all HIV infection. During pregnancy it is essential to offer the screening for HIV infection as early as possible, in order to start antiretroviral therapy as soon and reduce the risk of vertical transmission.

The aim of this study was to evaluate the percentage of HIV infection among migrant people and the difficulty for migrant pregnancy women in accessing HIV test and antiretroviral therapy and to report the pregnancy outcome.

METHODS
This is a retrospective observational cohort study.
We defined a migrant as a woman who delivered in a country different from her country of birth. A descriptive analysis was conducted using SPSS 20.0. Data are reported as number (percentage) for categorical variables and mean± standard error, for continuous variables.

RESULTS
We considered a total of 86 migrant pregnant HIV positive women, including 14 (16,2%) from Europe, 68 (79%) from Africa and 4(4,65%) from South America.
67 migrant women (77,9%) had a diagnosis of HIV infection during pregnancy, and of these 48 (55,8%) during third trimester. 9 (10,4%) pregnant women presenting CD4<500 cells/µL and a detectable HIV-RNA at delivery. 15 (17,4%) didn’t take anti-retroviral therapy (ART) during pregnancy. The reported causes of HIV infection were prostitution in 32 (37,2%), infected partner in 19 (22%), injection drugs in 1 (1,1%) and sexual violence in 11 (12,7%). We could not define a known cause in 23 (26,7%) of cases.
Average age at delivery was 31±3 years old. Gestational age at delivery was 39±4 weeks.
Twenty-nine (33,7%) women delivery by cesarean section, 15 of these for the viraemia at time of delivery, 3 for fetal distress, 5 for premature rupture of membranes, 1 for placenta praevia, 5 for previous cesarean section. 17 (19,7%) women had a vaginal delivery, 12 (13,92%) terminated the pregnancy (10 for voluntary

TITOLO
HIV infection among migrant people: a single center experience.
termination and 2 due to a fetal malformations), 4 (4,65%) had a spontaneous abortion, 2 (2,32%) gave a therapeutic abortion for malformations and 1 (1,16%) had an intrauterine fetal demise.

CONCLUSION:
In our cohort, 55, 8% of migrant pregnant women performed HIV test late in pregnancy but the percentage of women that did not undergo antiretroviral therapy during pregnancy and that performed Caesarean section with a detectable viraemia is fortunately low (17,44%).

Methods: This is a population-based cohort study of women counselled for suspected toxoplasmosis infection during pregnancy between January 2000 and December 2012 in Campania. In Italy, all pregnant women are screened for toxoplasmosis during pregnancy with IgG and IgM antibody at the first visit and, if both negative, every month until delivery. Women with positive IgM antibody are referred for counselling and further evaluation at University of Naples Federico II. At the first counselling visit, women underwent samples for IgG and IgM antibodies and IgG avidity at the local reference laboratory. Women were classified into three groups: 1) seroconversion if one or more samples taken in pregnancy with IgG-/IgM- were followed by another sample with IgG+/IgM+, 2) suspected infection if IgG+/IgM+ at first sample taken in pregnancy but women with high avidity before 12 weeks were excluded from this group, and 3) no infection in pregnancy in all other cases.

Results: Between January 2000 and December 2012 there were 761,966 deliveries in Campania. Of them 1,217 (0.16%) were referred to University of Naples for suspected toxoplasmosis during pregnancy. After confirmed sample in our reference laboratory, 176 (14.5%) women were classified as seroconversions, 407 (33.4%) were classified as suspected infection and 634 (52.1%) were considered not infected in pregnancy. 52.1% (634/1,217) of women referred to our centre for suspected infection were therefore considered as not infected in pregnancy after confirmatory test at reference laboratory.

Conclusion: 50% of women referred for suspected toxoplasmosis in pregnancy, were not actually infected in pregnancy. Incidence of toxoplasmosis seroconversion in pregnancy in Campania has been demonstrated to be as low as 0.02%.
INTRODUCTION- Listeriosis is a rare infection affecting primarily pregnant women, elderly and individuals with a weakened immune system and is caused by the ubiquitous bacterium Listeria monocytogenes (LM). Infection during pregnancy can cause severe consequences especially for the fetus, leading to sepsis, premature delivery, stillbirth and abortion. A pilot observational study has been conducted in order to establish the prevalence of seroconversion of specific antibodies against LM in a population of pregnant women from Senigallia (Italy), who have attended the Principe di Piemonte Hospital between December 2016 and September 2017. Moreover, correlations between the presence of LM-specific antibodies and women’s health status and habits have been sought.

METHOD- Sixty pregnant women were screened for the prevalence of antibodies against listeriolysin O, a specific toxin produced by LM which is recognized as the major target of the host immune response using a commercial ELISA assay. Women were interviewed twice during their pregnancy. Information was obtained regarding their personal habits, gynaecological history, general anamnesis and family history of abortion events. Further information on delivery was finally collected. Principal Component Analysis (PCA) was used to define relations between women showing LM-specific antibodies and the information obtained from the questionnaire (SPSS software).

RESULTS- The prevalence of LM-specific IgG antibodies were found as 18% (95% CI, 8.2 – 27.7 %), corresponding to 11 women. Although listeriosis has not been confirmed for none of them, 4 women received antibiotic therapy. PCA revealed that positive women reported incidents of fever and/or intestinal pains during pregnancy. Particularly, 45.4% presented intestinal pains and 27.3% fever with vomit (12.1% and 18% in negative women, respectively). No significant correlation with the presence of LM-specific antibodies was observed in women with a previous abortion or with abortion cases in their families, while a slight association with processed food and soft cheese consumption was found.

CONCLUSIONS- Listeriosis may be very serious during pregnancy, but an early maternal diagnosis and treatment may reduce the risk of transplacental transmission. A timely diagnosis can only be achieved with serological screening, even though it is not possible to distinguish between current or prior infection. The detection of LM-specific IgG cannot be considered a clear signal of acute listeriosis, because antibodies could have been formed during a past infection. Our results shows that a 18% of positivity rate can be expected. PCA identified variables related to the presence of LM-specific antibodies that could be useful to
clinicians in interpreting the serological results. Findings from this pilot study should be used to design a wider study focused on the prevalence of LM-specific antibodies in pregnant women, which could lead to significant clinical implications.
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NOME PRESENTER
Martina Ilaria Mazzocco

TOPIC
INFEZIONI IN AMBITO PERINATALE

TITOLO
MASTITIS AND BREAST ABSCESSES IN BREASTFEEDING: MILK CULTURE, ANTIBIOTIC TREATMENT AND FOLLOW UP.

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CONTENUTO
INTRODUCTION
Breastfeeding represents a unique opportunity for improving both infant and maternal health. Lactational mastitis has been estimated to occur in 2-10% of breastfeeding women and 3% of women with mastitis develop a lactational breast abscess. Most episodes of lactational mastitis are caused by Staphylococcus aureus. Recently, methicillin-resistant S. aureus (MRSA) has become an important pathogen in cases of lactational mastitis, mostly in abscesses. The aim of our study was to evaluate the pathogens implicated in lactational pathologies and responses to antibiotic therapy. Secondary aims were to follow up the breastfeeding and maternal-neonatal outcomes.

METHODS
In this observational study we investigated 47 women with lactational pathologies with a multidisciplinary working approach. Milk and breast abscess samples were collected from 22 cases of mastitis (group A) and 25 cases of abscesses (group B). Samples were introduced into blood culture bottles and cultured on selective agar plates if positive. Most women were primiparous (90% and 72% respectively) and all had delivered a term newborn with normal birthweight.

RESULTS
Breastfeeding was exclusive during the onset of lactational pathologies in 81% of group A and 64% of group B, while in 2 breast abscess cases breastfeeding was recently stopped. MRSA was detected in 9 mastitis and 19 abscesses, S. aureus methicillin-susceptible was detected respectively in 2 and 3 samples, other pathogens were Streptococcus stp and Enterococcus stp. The first line therapy was penicillin in the majority of cases (14 and 15, respectively), but it was modified according to antibiogram in 64% of mastitis and 95% of abscesses. Based to results of antibiogram, Clindamycin was the most used antibiotic (6/14 and 13/15, respectively). Breastfeeding during therapy was exclusive in 11 mastitis and in 10 abscesses, complementary in 6 and 3 cases respectively; 8 women decided to stop breastfeeding (2 and 6, respectively), 6 of them with worsening of symptoms. No neonatal adverse effects were reported during antibiotic therapy and 1 case of maternal adverse effect was reported. Hospitalization was required in 10 cases (6 in group A, 4 in group B); breast abscesses required needle aspiration with or without ultrasound guidance in 14 cases and we collected also 4 cases of breast incision (performed in other clinics). 9 cases (3
mastitis and 6 abscesses) were lost at follow up. Breastfeeding continued until 7 neonatal months in group A and 5.5 months in group B.

CONCLUSIONS
Milk culture in mastitis is very important to choose the appropriate antibiotic therapy. The first line antibiotic therapy at diagnosis of lactational abscess is Clindamycin. Needle aspiration with or without ultrasound guidance should represent the first line treatment in abscess that require drainage. A multidisciplinary follow up could improve the continuation of breastfeeding to reduce complications and to improve maternal and neonatal health.
CONTENUTO
Abstract
Measles is a contagious disease caused by the measles virus (MV) and is one of the main causes of childhood mortality worldwide. Measles is best prevented through vaccination and much progress has been made to increase global vaccination coverage to reduce its incidence. In Italy, despite vaccination, outbreaks of measles still occur. According to the National Plan for measles elimination, one strategy was the achievement of more than 95% coverage by two different doses; the vaccination of women of childbearing age and susceptible populations is also an essential objective. In the present study, the incidence of measles in different age groups and the occurrence of new cases diagnosed through molecular findings were evaluated.

Material and methods
Six hundred thirty-four subjects, stratified by age into groups (1 to 6), were unrolled in this study during 2017. IgG and IgM were detected using a commercial kit and the detection of viral nucleic acid was carried out by Realtime PCR using a commercial kit (Fast-track Diagnostics, FTD Measles) in 87 patients, who were hospitalized for measles in different hospitals of Western Sicily. In addition, in the study two babies with measles-related sequele were considered; they were born to women with measles infection acquired in the last trimester of pregnancy.

Results
The seroprevalence was 93.4%. Data stratified by age groups showed that the younger age groups (1 to 4) were characterized by a lower seroprevalence ranging from 60.9% to 89.8% with respect to the other age groups (5 to 6), table 1. The measles RNA was detected in 22 out of the 87 patients screened (50%), the higher percentage was detected in the younger age group (0-1 yrs), table 2. In relation to the two newborns, whose mothers acquired the infection in pregnancy, almost all samples analyzed both by molecular and serological methods, confirmed congenital infection. One of the two newborns showed measles-related signs and symptoms at birth, table 3.

Discussion
The analysis of our data suggests the high risk of newborns due to measles infection. Indeed, the low seroprevalence rate detected in the groups of younger subjects (from 2 to 4) could lead to a higher circulation of measles among young adults. This situation causes primary infection also in pregnant women with a high risk for the newborn and also for all babies under one year of age, who are more susceptible. The cases of congenital infection that we reported, even if the babies developed well, are the clear
demonstration that urgent efforts are needed to increase global coverage through advocacy, education, and the strengthening of routine immunization systems.
Introduction: Approximately 50% to 75% of women of reproductive age have developed immunity to parvovirus B19. Seronegative pregnant women, exposed to the virus, can transmit the infection to the fetuses in approximately 17% to 33% of cases. The majority of fetuses affected have a spontaneous resolution of the infection. Despite this, several complications such as miscarriage and stillbirth may potentially occur. Fetal PB19 infection is among the most common cause of non-immune fetal hydrops, which carries a high risk of perinatal mortality and morbidity. Long term sequelae of PB19 infection such as cardiomyopathies, hepatic failure and abnormal neurodevelopmental outcome have been reported. The aim of this systematic review was to elucidate the outcome of fetuses affected by congenital PB19 infection.

Methods: The outcomes observed were: intra-uterine death (IUD), neonatal death (NND), overall death, including either IUD and NND, spontaneous resolution of hydrops or fetal anemia, need for intrauterine transfusion (IUT), resolution of hydrops or anemia after transfusion, IUD following transfusion, abnormal brain scan after birth, abnormal neurodevelopmental outcome. All the observed outcomes were reported in fetuses presenting and in those not presenting signs of hydrops on ultrasound. Meta-analyses of proportions and meta-analyses using individual data random-effect logistic regression were used to analyze the data.

Results: Thirty-six studies (599 fetuses affected by PB19 infection). The overall risk of death in fetuses affected by congenital PB19 was higher in fetuses with hydrops (OR: 4.2, 95% CI 1.6-11.0). IUD occurred in 22.4% (95% CI 14.0-31.9) of fetuses affected by hydrops and in 4.4% (95% CI 1.1-9.6) of those unaffected (OR: 3.60, 95% CI 1.3-10.4), while the corresponding figures for TOP were 2.9% (95% CI 0.0-9.3) and 3.0% (0.7-6.7). Spontaneous resolution of the infection occurred in 0.2% (95% CI 0.0-2.6) of cases with and in 54.8% (95% CI 19.4-88.3) of cases without hydrops. Resolution of the infection after IUT occurred in 57.7% (95% CI 46.8-68.2) of hydropic and in 100% (95% CI 45.5-100) of non-hydropic fetuses. The risk of IUD after IUT was higher in fetuses affected compared to those not affected by hydrops. Finally, the prevalence of abnormal brain imaging was 9.8% (95% CI 2.5-21.0) in fetuses affected and 0.0% (95% CI 0.0-0.0) in those...
Conclusion: Hydrops is the main determinant of mortality and adverse perinatal outcome in fetuses affected by PB19 infection. The overall risk of death and IUD was higher in fetuses affected by hydrops, while there was no difference in the occurrence of NND between the two groups. Spontaneous resolution occurred in about half of cases not presenting with hydrops and in almost none of the cases with hydrops. Perinatal outcome in non-hydropic fetuses is generally favorable.
INTRODUCTION
Parvovirus B19 infection affects 1.5% of susceptible pregnant women of which 25-30% with asymptomatic infections. In the majority of cases symptoms are mild such as erythema to cheeks, neck, legs and arms; infection can cause severe fetal anemia as a result of fetal erythroid progenitor cells infection, high output cardiac failure and nonimmune hydrops fetalis. Maternal transient aplastic crisis was reported in subjects with reduced average life of erythrocytes. We analyzed our data to report features of severe foetal and maternal infections.

METHODS
All pregnant women with diagnosis of recent Parvovirus B19 infection managed at Sant’Anna Hospital (from 01/2016 to 12/2017) were included.

RESULTS
27 pregnant women were diagnosed with recent Parvovirus infection. 40% had an infection at the beginning of pregnancy, 52% during II trimester. 26 women delivered at term with healthy babies; 1 pregnancy is still ongoing. 85% had no maternal or foetal complications.

2 cases had severe maternal illness: FIRST CASE: 31-years-old pregnant woman, para 1, admitted at 17 weeks with fever, leukopenia and dyspnea; she had aplastic crisis and developed hemodynamic instability. Haematological disorder improved with intravenous human parvovirus specific IgA; she had persistent anemia during pregnancy. No ultrasound sign of fetal infection. She delivered at term.

SECOND CASE: 39-years-old, para 2, at 24 weeks of gestational age. Outbreaks with nausea, vomit and neck rigidity. During hospitalization she had diagnosis of meningitis. PCR on liquor was positive for Enterovirus. No neurological residual after full recovery. No ultrasound signs of fetal infection. She delivered at term.

2 cases had ultrasound foetal signs: THIRD CASE: 30-years-old pregnant woman, para 2, admitted at 26 weeks for incidental diagnosis of ascites, pericardial effusion, tricuspid regurgitation and increase in middle cerebral artery blood flow. Intrauterine transfusion was performed at 27 weeks of pregnancy (Hb 1.8 g/dl before transfusion, Hb 6.5 g/dl after) with 25 cc of red cells; contemporary evacuating amniocentesis. PCR on ascites revealed Parvovirus > 5.000.000 copies/ml. Intrauterine transfusions and evacuating amniocentesis were performed again at 28 weeks and 29 weeks of pregnancy. She had complete resolution of ascites and normalization of middle cerebral artery blood flow. She delivered at term.

FOURTH CASE: 24-years-old pregnant woman, para 5, admitted for moderate ascites. Spontaneous resolution of ascites. Pregnancy still ongoing.

CONCLUSION
Despite the majority of Parvovirus infections are asymptomatic, pregnant women who are exposed or develop symptoms should be assessed for serological status. In women with proven parvovirus B19 infection, close ultrasound monitoring is recommended, in order to promptly identify hydrops and/or severe foetal anemia. Experience with intrauterine transfusion of erythrocytes can make a difference to improve foetal outcomes.
INTRODUCTION

The placenta and membranes may be infected by ascending bacteria from the maternal birth canal and the maternal and fetal inflammatory reactions, elicited by these microorganisms can determine important clinical outcomes. The aim of our study was to investigate placental histology and fetal membranes infections in pregnancies complicated by preterm rupture of membranes (pPROM) or rupture of membranes at term (PROM).

METHODS

This prospective study was conducted from February to September 2017 in the Division of Gynecology and Obstetrics of the University of Cagliari. 50 consecutive pregnancy with pPROM or PROM entered the study. A placental swab on amniotic membranes near the cord insertion was collected for microbiological evaluation. Placentas were sent to pathology investigation. Obstetrical and neonatal data were collected.

RESULTS

The sample included 23 patients with pPROM and 27 patients with PROM. The microbiological cultures of bacteria was obtained in 30% of pPROMs and in 26% of PROMs. The microbiological sampling was positive in 76% of the cases. Chorioamnionitis was identified in 54% of cases (48% pPROMs and 59% PROMs). Chorioamnionitis was identified in 71% of patients with pPROM and positive culture. Histological signs of chorioamnionitis were also found in cases with negative microbiological cultures.

Apgar scores ≤ 6 were detected in 35% of pPROMs. In 50% of these cases, chorioamnionitis was present and in 38% of cases was associated to the identification of bacteria in the membranes. In cases of neonatal infection the bacteria evidenced in the fetal membranes often correlate with neonatal microbiological investigation. Moreover, a case of arteritis and a case of funisitis were found in association of microbiological positivity of membranes and histological chorioamnionitis.

CONCLUSIONS

This study provides important preliminary results: 1) it is possible to collect microbiological samples in the fetal membranes at delivery and this analysis could be important in particular in preterm births; 2) histological evaluation of the placentas correlates strongly with microbiological evaluation of
membranes. These data are of great interest because they could open a new chapter of intrapartum diagnostics in the case of pPROM and PROM. If confirmed on larger series our results would provide microbiological and histopathological data to the paediatricians that could allow a targeted and personalized treatment of the newborn.
Preterm premature rupture of membranes (PPROM): can we optimize our first line treatment by studying the local microbiota?

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Introduction
There is no consensus as regards the optimal antibiotic treatment for the prophylaxis of chorioamnionitis in women with a diagnosis of preterm premature rupture of the membranes (PPROM). The objective of this study was to evaluate whether a systematic protocol for the assessment of the urinary and vaginal microbiota can guide when selecting the optimal antibiotic prophylaxis in women diagnosed with PPROM.

Methods
We conducted a retrospective observational study on all cases of non-iatrogenic PPROM <34+0 weeks admitted at a Tertiary Unit over a three-year period, between 2013 and 2016. As per internal protocol all women with a diagnosis of PPROM were systematically submitted to vaginal and cervical swabs and urine midstream specimen for urine culture and Chlamydia Trachomatis PCR, and conservatively managed as per International Guidelines using broad-spectrum antibiotics. Data regarding microbiological assays and antibiotic sensitivity were retrieved and analysed in order to evaluate the incidence of PPROM associated with genitourinary infection and the local microbiota.

Results
Overall, 81 patients with full microbiology assessment were included. Ureaplasma Urealyticum, either isolated or associated with Micoplasma Hominis, was found in one third of cases (27/81) and represented the most common pathogen, followed by Group B Streptococcus (GBS), which accounted for 14 cases (17.3%), and Gardnerella Vaginalis (13 cases, 16%). There was no positive specimen for Chlamydia Trachomatis. Negative vaginal and cervical swabs and urine culture accounted for 37 out of 81 cases (45.7%). No differences were noted between PPROM occurring before 22 weeks and between 22 and 33+6 weeks.

Conclusion
Within our population, nearly one half of women with PPROM and full microbiology assessment showed no evidence of underlying infection, while Ureaplasma Urealyticum and GBS represented the most common pathogens. Periodical assessment of the microbiota in pregnant women at high risk of genitourinary infection may lead to changes in the choice of the first line antibiotic prophylaxis for PPROM, thus optimizing patient care.
INTRODUCTION
The increase in the number of case reports of microcephaly and other brain malformations and disorders in babies born from women who were infected with Zika virus (ZIKV) during pregnancy has, in the last two years, prompted an increase in demand for laboratory testing to detect ZIKV infection. According to the Ministry of Health recommendation, in Italy testing for ZIKV infection is currently recommended for all pregnant women with history of travel in an ongoing transmission area during the current pregnancy whether symptomatic or not. ZIKV test is also recommended to all exposed partners of pregnant women. No recommendation have been issued regarding couples planning pregnancies.

OBJECTIVE
To describe the expanded ZIKV testing strategy in couples returning from areas with ongoing ZIKV transmission.

METHODS
Since February 2016, INMI L. Spallanzani has implemented a testing algorithm that includes testing of all partners of pregnant women or with a planned pregnancy. The following information were collected: symptoms, date of onset, duration of symptoms, contact with known ZIKV cases; comprehensive travel history (dates, place, duration of visit); and vaccination history especially that associated with vaccination for flaviviruses including yellow fever.

RESULTS
From February 2, 2016 to December 31, 2017, 253 women with ongoing or planned pregnancy, 144 (56.9%) partners were counseled and tested for ZIKV. Despite no ZIKV infection in women was detected in the acute phase of ZIKV epidemic curve, 2 pregnant women were found ZIKV positive during the last four months of 2017, one of them was asymptomatic.

Conclusions: Our testing strategy allowed to detect the diagnosis of ZIKV two ZIKV positive pregnant women, and two additional cases of ZIKV infection which would have been missed due to absence or mildness of symptoms highlighting the important role of partner testing in order to prevent a possible ZIKV sexually transmitted infection. The fact that the detection of the two ZIKV positive pregnant woman in a period of low circulation of the virus compared to the levels recorded in 2016, underlines the importance of not lowering the attention ending the surveillance of ZIKV infection of pregnant women. Moreover, as with other sexual transmitted infectious diseases, family planning healthcare services in areas with no ongoing transmission should evaluate the inclusion of ZIKV epidemiological and virological investigation in women and their partners with history of travel in areas with ongoing transmission.
Are the 2 year griffiths scores of babies with CBH and IVH significantly different compared to those of babies suffering from isolated IVH?


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Introduction: Intraventricular Haemorrhage (IVH) and Cerebellar Haemorrhage (CBH) are known pathologies affecting the developing brain of very premature infants (VPI). MRI is known to be superior in detecting all grades of these lesions, but little is known about the influence on neurological outcome of IVH and CBH diagnosed exclusively with MRI. In addition, influence of both lesions occurring together (frequent phenomenon) on neurological outcome, when compared to influence of isolated IVH, is still a matter of debate. The aim of our study is to investigate the potential adding value of CBH coexisting with IVH as an aggravating factor of the outcome in a cohort of VPI (<32 weeks of gestational age).

Patients & methods: We revised data of VPI who underwent brain MRI on a 1,5T system at term equivalent age and a complete neurological examination and Griffiths Mental Developmental Scales (GMDS-ER) at 2 years of corrected age. Two groups were selected: first consisted of VPI with only IVH (any grade); second – of VPI presenting IVH together with CBH (any grade). GMDS-ER was administered by a 10-year experienced single operator blinded to MRI results. Total DQ relates to global development, scale A assess gross motor skills, B - adaptive behaviour and social development, C - receptive/expressive language, D - fine motor functions, E - precursors of reasoning and planning. Developmental Quotient (DQ) above 85 was considered normal. T-student test was performed to compare mean values in IVH vs IVH+CBH groups.

Results: Data about 173 very preterm infants were revised: 35/173 (20,2%) presented with isolated IVH (first group) and 22/173 (12,7%) - with IVH+CBH association (second group). In the first group mean gestational age was 28 +/- 0,4 and total developmental quotient (tDQ) was 90,91 +/- 2,7 (results are presented as mean +/- standard error). Patients with IVH+CBH association had a mean gestational age of 26 +/- 0,3 and tDQ of 84,27 +/- 3,8. Detailed results for total and subscale scores in two groups can be found in Table 1. Difference between two groups was present only as a trend for total DQ (p=0,149), but have reached statistical significance for subscale A (p<0,05). Mean gestational age was lower for babies with IVH+CBH association (28 +/- 0,4) compared to those with IVH only (p<0,001).

Conclusions: Presence of CBH in addition to IVH has ambiguous effects at 2 years. We cannot exclude further detrimental influence on longer outcome, as a significant reduction on scale A can conceal additional deficits. In fact, locomotor skills can be reliably distinguished from cognitive abilities only in older
children, while at this stage scale A relates to mental energy and concentration as well. Our findings seem not to be independent from GA at birth.
Contenuto
Introductions: Hydrocortisone (HC) is used to facilitate the weaning from the ventilator of preterm infants at high risk of developing Bronchopulmonary dysplasia (BPD). While most reports have focused on pulmonary benefits of HC treatment, data on cardiovascular and metabolic side effects are scanty.

Aim: To assess the effects of HC therapy on blood pressure and plasma sodium concentration in preterm infants at high risk of developing BPD.

Methods: Infants born between 24+0 and 31+6 weeks who received HC for BPD at Salesi Children Hospital between 2004.01.01 and 2017.12.31 were studied. HC was administered at a starting dose of 5 mg/kg/d divided in 4 doses for 1 week and the dose tapered every 5 days. We retrospectively analyzed blood pressure (mean, systolic and diastolic) and sodium concentrations 7 days before vs 7 days after the start of HC. Statistical analyses was performed using paired t-test.

Results: 1387 patients below 32 weeks were considered, 69 of the 1387 received corticosteroid treatment for BPD and 44 were treated with HC. Blood pressure data were available for all study patients whereas sodium for 28 of them. Systolic, diastolic and mean blood pressure were statistically higher after HC (systolic, diastolic and mean blood pressure were 65±7 vs 72±6, 40±4 vs 45±4 and 50±5 vs 56±4 mmHg before and after HC respectively; p=0.000). Highest values were found after 5-day of HC treatment (mean: 48±7; systolic: 74±8; diastolic: 48±7 mmHg).

Sodium concentrations were increased after the start of HC compared to the 7 days before baseline values (135±4 vs 137±4 mEq/L; p=0.008)

Conclusion: HC treatment in preterm infants at risk of developing BPD was associated with a statistically significant elevation of blood pressure and plasma sodium. The evaluation of other side effects of HC are in progress as well as the study of their predictors/associations.
Aim. There are three dedicated and 41 on-call neonatal emergency transport services (NETS) in Italy and activity levels vary dramatically. We examined the cost-effectiveness of a hub-and-spoke NETS by looking at the costs and activity levels in the Liguria region and established the financial needs for improving NETS across Italy.

Methods. The cost of running NETS in the Liguria region from 2012-2015 was evaluated and analysed and three different models determined the transports needed each year to provide the best organisational model. We used the following formula. $\text{ATC} = FC + uVC \cdot (x_m + x_o) + (PC_m \cdot x_m + PC_o \cdot x_o) / (x_m + x_o)$

Results. The average number of NETS transports in the Liguria region during the study period was 234 and the models indicated that 200-350 transports per year was the optimal amount of activity that was needed to achieve good financial performance and for the personnel to acquire a suitable skill set. Only five of the 41 on-call Italian NETS and the three dedicated services carried out more than 200 transports a year. Of the rest, 26 carried out up to 100 and 10 carried out 101-200. In figure NETS total costs and average cost for a single transport are shown. Sub-dividing the transports performed inside the metropolitan area from those outside the metropolitan area was necessary in order to calculate the ATC that included the cost of fuel consumption. However, we were more interested in the total number of transports. Thus, we report the sum of metropolitan and outside metropolitan transports in the x-axis, increasing and decreasing them in the same proportion with respect to the 2012-2015 data.

Conclusion. Italian NETS, which is managed on the basis of regional decisional autonomy, is expensive and no longer sustainable in this era of limited financial resources. A complete overhaul is urgently needed. Our study of the Italian Liguria region indicated that 200-350 transports per year were needed to achieve good financial performance and staffing skills. Only eight of the Italian NETS carry out more than 200 transports a year, suggesting that the current system is expensive and no longer sustainable in this era of limited financial resources.
INTRODUCTION
Assisted reproductive technology (ART), including in vitro fertilization (IVF) with autologous oocyte (AO) or oocyte donation (OD), has been associated with increased odds of perinatal complications compared to spontaneous conception (SC) in singleton pregnancies. Whether this observation also applies to twin gestations is still unclear, mostly due to statistical limitations of previously published studies, such as limited sample size and lack of correction for confounding factors. The aim of our study was to compare delivery and neonatal outcomes of dichorionic twin pregnancies after IVF with AO, IVF with OD, and SC in a retrospective cohort of pregnant mothers with no pregestational disease or gestational complications.

METHODS
Observational retrospective study of twin pregnancies managed and delivered at our tertiary university maternal-fetal medicine center between 01/2010 and 07/2017. Inclusion criteria: dichorionic pregnancies without maternal pregestational disease and/or obstetric complications. Exclusion criteria: higher twin order, pregestational maternal disease (chronic hypertension, diabetes, other endocrine/autoimmune diseases), gestational complications (pregnancy induced hypertension, gestational diabetes), and monochorionic pregnancies. Assessed outcomes: gestational age at delivery, induction of labor, mode of and bleeding at delivery, birthweight, small for gestational age (SGA) neonate, umbilical gas analysis values, NICU admission, and composite neonatal outcome defined as at least one among the following: perinatal mortality, resuscitation ≥ 10 minutes, perinatal mortality, respiratory distress syndrome, intraventricular hemorrhage, bronchopulmonary dysplasia, leukomalacia, and retinopathy of prematurity.

RESULTS
During the study period, 18,153 women delivered at our department, 1,118 of whom were twin gestations (6.2%). Final study population included 281 twin pregnancies and 558 newborns. There were 78 (27.7%) IVF with AO pregnancies, 21 (7.5%) IVF with OD pregnancies, and 182 (64.8%) SC pregnancies (Table). Four endouterine demises were diagnosed in ART group (AO and OD) whereas none was identified in SC group (p=0.02). ART-pregnant mothers were more frequently nulliparous and older than SC women, with OD patients displaying the most advanced age among the 3 groups. OD group showed lower incidence of vaginal delivery and increased frequency of elective, pre-labor cesarean section than SC group. OD-twins had lower birthweight and were more likely to be admitted to the NICU compared to SC twins. Yet, no differences were identified in gestational age at delivery, incidence of SGA, or likelihood of adverse composite neonatal outcome.
CONCLUSION
In uncomplicated dichorionic twin pregnancies, ART appears to be associate with advanced maternal age, nulliparity, and increased odds of intrauterine demise and pre-labor cesarean section compared to SC.
Do we allow to use the neonatal transport index as a reference tool in perinatal care regional organization?

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Introduction: What is the acceptable amount of transferred neonates from Level I-II maternity wards to Level III NICU? Could we consider an appropriate index of neonatal transport to assess the quality of regionalization of perinatal care?

Methods: Trying to answer these questions we retrospectively studied all transports our Neonatal Emergency Transport Service (NETS) completed within years 2012-2016 included and relating to the ten Hospitals in Liguria region, Italy. We removed from our NETS database every back-transports and transports from outside Liguria region we performed during the study period. We calculated the Neonatal Transport Index (NTI) according to: (number of transports / live births) * 100. We established the values of NTI for the whole Liguria region.

Results: Results are shown in the table. Data are presented for each hospital our NETS usually cover and related to the level of care (Level I and II), for each hospital distance from the hub Gaslini Children’s Hospital expressed in kilometers, and subdivided for each year of the study. SD: standard deviation.

Conclusions: Based on these observations we can consider that a) Liguria region is very long and distances from Gaslini Hospital may be as far as 320 kilometers, round trip; b) 6/10 are Level I hospitals; c) 3/6 Level I hospitals are the most far away; d) statistical evaluation of our data pointed out that Level I hospitals reached an overall NTI significantly higher than Level II Hospitals (1.95±0.99 SD vs 1.33±0.46 SD; p<0.05), while no statistically significant differences have been observed when the distances from Gaslini Children’s Hospital were taken into account (χ2 Fisher’s exact test ; p-value less than 0.05). Accordingly, it seems that the key point for the decision to transfer or not to transfer a newborn is the level of assistance each maternity ward can provide having them similar birth rates. This is not a unexpected results and it is a critical point in Italian perinatal care regionalization program related to the high number of Level I birth centers are still active and that among them up to 25% of Level I maternity wards carrying out ≤ 500 births per year. We believe that NTI may be a valuable tool and hypothesize that 1-2 points % NTI is a reasonable target to establish an effective perinatal care regionalization process and that this can be used to prioritize educational program on neonatal care in each area.
INTRODUCTION. In a recently published RCT (PROTECT trial), we demonstrate that progestogens are not effective as maintenance tocolysis after threatened preterm labor (PTL), in women with short cervix. Moreover, a higher rate of preterm birth (PTB), borderline significant, was found in women treated with vaginal progesterone (P). Our aim is to verify if this finding is affected by other factors, namely by the presence of a urinary tract infection.

METHODS. This is a secondary analysis of the PROTECT trial. Women with singleton pregnancy with an arrested PTL between 22 0/7 and 31 6/7 weeks of gestation and cervical length <25 mm were randomized to receive 17-hydroxyprogesterone caproate (17P), vaginal P or no treatment. At the admission, we collected vaginal swabs and urine culture for each women.

RESULTS. PTB did not differ significantly between groups: 17P 18/80 (23%), P 30/78 (39%), controls 17/77 (22%). Sixty-eight women treated with P had negative urine culture, and 26/68 (38.2%) had a PTB. In 17P (10/63 15.9%) and control group (14/67 20.9%) there was a lower rate of PTB in women with negative urine culture (P vs controls p=0.027; 17P vs controls p=0.461). In the whole population, women with both urine culture and vaginal swab positive had a higher rate of PTB (12/24 50%) respect with women with at least one negative test (52/208 25%, p=0.009). In 17P arm women with both test positive had a higher PTB rate (6/12 50%) respect with those with at least one test was negative (11/66 (16.7%, p=0.010). In control group there were no difference (both test positive 2/6, 33.3%, at least one test negative 15/71, 21.1%).

CONCLUSIONS. The higher rate of PTB found in women treated with P as maintenance tocolysis is not affected by a concomitant urinary tract infection. In 17P arm urogenital tract infection may have influenced PTB rate.
CONTENUTO
Introduction: Severe intraventricular haemorrhage (IVH) and subsequent post-haemorrhagic ventricular dilatation (PHVD) are still among major causes of neurodevelopmental impairment in preterm infants. No consensus exists yet regarding the best treatment strategy for progressive PHVD and results from randomised trials are waited. In our centre, the external ventricular device (EVD) is placed as a first therapeutical option, substituted with permanent ventriculo-peritoneal shunt (VPS) if the stabilization of the ventricular size is not achieved. The aim of our study was to analyse the relation between clinical and neuroradiological parameters and need for VPS in preterm infants with PHVD.

Methods: Preterm infants admitted to our NICU between January 2012 and February 2017 with post-natal IVH and consequent PHVD treated with EVD were retrospectively identified. Infants were then divided in two groups based on the need for VPS at discharge (shunt-free and shunt dependant). Clinical characteristics and brain MRI parameters (ventricular size and ADC value in 8 regions of interest) before and after EVD placement were analysed. Haemorrhage severity was estimated using IVH score (0 to 23 points), based on the volume of blood present in each ventricle and ventricular dilatation. Statistical analysis was performed using the Mann–Whitney and the X2 test.

Results: Study group consisted of 19 infants with mean gestational age of 28,3±2,8 weeks and mean birth weight of 1230±529 g. VPS was needed in 10/19 infants (52,6%). Infants in shunt-dependent group had significantly lower gestational age (26,70±2,54w vs 29,5±2,55w, p=0,038) and birth weight (1022±518g vs 1460±462g, p=0,041). There was a trend for earlier EVD placement in shunt-free group, 15,7±3,5 vs 26,1±15,1 days after birth (p=0,065). No difference was observed in CSF protein levels between two groups. Infection occured in 2 cases (1 in each group). There was a trend to lower IVH score in shunt-free group at first MRI (17,5 Vs 53,5, p=0,074), and a significantly bigger change in IVH score after EVD placement, adjusted for time (7 Vs 43, p=0,005). We have observed significantly higher ADC values in the right and left frontal white matter on both MRI scans in the shunt-free group. No difference was observed in superficial and ventrical siderosis, synachiae and subarachnoid membranes distribution.

Conclusions: Patients that became shunt-dependent had lower gestational age, lower weight at birth, higher IVH score and a lower capacity to remove the blood from the ventricles. A bigger delay in EVD placement seemed to be related to permanent shunt dependency. Increased white matter ADC values in
infants with PHVD that became shunt-free may reflect an increase of the extracellular water. Further studies are needed in order to understand the meaning of this phenomenon.
Is maternal serum pregnancy associated plasma protein-A (PAPP-A) a predictive marker of spontaneous preterm birth?

INTRODUCTION:
Preterm birth (PTB) is the most common cause of neonatal morbidity and mortality occurring in 6.8% of pregnancies in Italy. Two-thirds of PTB occur after spontaneous onset of labor (sPTB), whereas one third is medically indicated because of maternal or fetal complications, such as preeclampsia (PE) or fetal growth restriction (FGR). sPTB is often considered as if it were a single condition, however PTB is a syndrome attributable to multiple pathologic processes. In fact, some cases of sPTB appear to be caused by placental insufficiency. Pregnancy associated plasma protein-A (PAPP-A) is a glycoprotein produced by syncytiotrophoblast with a key role for normal placentation. Low maternal blood levels of PAPP-A in the first trimester have been associated with FGR and PE. However, a potential role of PAPP-A in the pathogenesis of PTB can be hypothesized. Thus, the aim of the study is to determine the relationship between PAPP-A and sPTB.

METHODS: This was a 3-year observational retrospective study conducted in Careggi University Hospital (Florence) on women with a singleton pregnancy who underwent first trimester screening for aneuploidy. Plasma values of PAPP-A were recorded. Women with cervical length (CL) measurement during the second trimester were included. Those pregnancies whose delivery outcome was not available were excluded. The PTB rate overall, sPTB and indicated PTB rate were evaluated. The association between low PAPP-A (<0.4 MoM) and pregnancy complications, including FGR, PE and PTB, were evaluated. The predictive value of CL for PTB was explored. Chi-square test was applied and a ROC curve analysis was performed. SPSS version 20 was used for statistical analysis and a p value of 0.05 was considered significant.

RESULTS:
The study population included 2101 women with a singleton pregnancy undergoing first trimester screening. After exclusion criteria, 448 cases were analysed. The overall PTB rate was 9.2% whereas the sPTB rate was 2.2%. A low PAPP-A at first trimester was found in 4% of women and it resulted significantly associated with PTB ≤32 weeks (p=0.039), while the association with sPTB was not significant. A significant increase in FGR (p=0.007) and PE (p=0.025) prevalence was observed in women with low PAPP-A (Table 1). We confirmed the known statistically significant correlation between short CL and sPTB (p=0.009). Using the ROC curve, a CL ≤37 mm was observed to be the most relevant value for prediction of sPTB in our
population. The sensitivity and specificity of cervical length ≤37 mm to predict sPTB were 100% and 56.4% respectively.

CONCLUSION:
PAPP-A plasma value at first trimester is predictive of iatrogenic preterm delivery, IUGR e PE related, while it is not associated with sPTB. We confirmed that CL is the best predictive marker of sPTB. However, because of the low prevalence, it is not possible to extensively explore the role played by PAPP-A in sPTB according to the different pathogenetic phenotypes.
CONTENUTO

Introduction: The increased oxygen availability soon after birth and the low antioxidant levels seem to favor inflammation and oxidative stress in premature infants. We previously showed high blood levels of adenosine in very low birth weight (VLBW) babies and even significantly higher levels in those developing MRI-diagnosed white matter lesions. The aim of this retrospective analysis was to further investigate the role of adenosine as a neurological biomarker, relating its blood levels in VLBW infants to neurological outcome at 12 and 24 months of corrected age.

Methods: Thirty two VLBW babies admitted at birth to our department from February 2014 to January 2015 who performed metabolic screening at 15±2 days of life were included in the study. Adenosine level was assessed by Mass Spectrometry using dried blood spots collected. As a part of clinical post-discharge follow-up, Griffiths Mental Developmental Scale (GMDS) was performed at 12 and 24 months of corrected age, and a linear relationship between adenosine values and Griffiths scores was evaluated.

Results: Out of 32 enrolled patients, 27 completed GMDS at 12, and 25 – at 24 months. The Pearson’s correlation coefficient for adenosine/GMDS was of -0.52 at 12 months, and of -0.5 at 24 months. Taking in consideration infants with adenosine levels below 1 μM, only 1/13 patient presented abnormal GMDS score (<85) at 12 months, and 3/12 patients – at 24 months.

Conclusions: The main finding of the present study is the medium strength linear association between higher adenosine levels at 15 days of life and a lower Griffith score at 12 and 24 months of corrected age. Our results suggest that adenosine could be a promising early biomarker for neurological outcome in VLBW infants. Further prospective studies with higher number of babies and a longer duration of clinical follow-up are warranted.
ID 25

NOME PRESENTER
Liviana Primerano

TOPIC
LA PREMATURITA'

TITOLO
MATERNAL AND FETAL OUTCOMES IN SINGLETON OOCYTE DONATION PREGNANCIES: EXPERIENCE OF A TERTIARY REFERRAL OBSTETRIC ITALIAN CENTER

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CONTENUTO
To evaluate the rate of pregnancy complications, mode of delivery, maternal and neonatal post-partum outcomes and the rate of prematurity in a cohort of singleton pregnancies from oocyte donated patients, compared to a cohort of ICSI/FIVET patients.

This is a retrospective study on a cohort of singleton pregnancies from oocyte donation (OD), compared to a cohort of single pregnancies from ICSI/FIVET, delivered in a tertiary referral obstetric Italian center. 157 OD pregnancies and 443 ICSI/FIVET pregnancies were encountered between 2014 and 2017: we included 115 and 352 singleton pregnancies from OD and ICSI/FIVET, respectively.

OD patients were significantly older than ICSI/FIVET patients (44+-4 vs 37+-4 years), while no differences were noted for BMI (26+-4.5 vs 25.8+-4.3 kg/m2) and the rate of nulliparous women (87% vs 80.7%).

OD pregnancies were more often complicated by hypertensive disorders of pregnancy (chronic hypertension, gestational hypertension and preeclampsia), in 8.7% of cases towards the 3.7% of ICSI/FIVET (p<0.05). No differences were noted for gestational diabetes (5.2% vs 16%), cholestasis of pregnancy (3.5% vs 2.6%), disorders of placentation (2.6% vs 1.4%) and for the rate of intrauterine growth restriction (1.7% vs 4%).

The rate of cesarean section was 73% and 38.4% for OD and ICSI/FIVET pregnancies, respectively: in particular, among OD patients the rate of maternal-choice cesarean section was 50%, significantly higher than ICSI/FIVET patients (13%). 217 (61.6 %) ICSI/FIVET patients managed to have a vaginal delivery, while only 31 (26%) OD delivered vaginally (p500 cc) (25.2% vs 24.4%, respectively), even when stratifying for the severity of blood loss.

Neonatal adverse outcomes, defined as pH-12 and Apgar score <7 at 1’, occurred on 11.3% and 9.4% in OD and ICSI/FIVET, respectively (p=0.25). Neonatal weight was similar in both groups: 3179+-663 g in OD vs 3180+-652 g in ICSI/FIVET pregnancies; the rate of low birth weight (<2500 g) was 12% in OD vs 9% in ICSI/FIVET (p=0.38).

Mean gestational age at delivery was 38.2+-2.3 weeks in OD and 38.6+-2.3 weeks in ICSI/FIVET. In OD group, 12.2% of neonates were born prematurely before 37 gestational weeks; in ICSI/FIVET group, the 8.2% of babies were premature (p=0.28). In both groups, the majority of premature neonates were delivered after 32 gestational weeks (9.5% and 7% in OD and ICSI/FIVET patients, respectively).
OD patients more often developed hypertensive disorders of pregnancy. The rate of cesarean section was higher than ICSI/FIVET group, because of a greater rate of maternal-choice cesarean sections. Post-partum maternal and neonatal outcomes and the rate of prematurity was similar in both groups.
To evaluate the rate of pregnancy complications, maternal and neonatal post-partum outcomes in a cohort of twin pregnancies from oocyte donation, compared to a cohort of ICSI/FIVET patients.

This is a retrospective study on a cohort of twin pregnancies from oocyte donation (OD), compared to twin pregnancies from ICSI/FIVET, delivered in a tertiary referral center. 157 OD and 443 ICSI/FIVET pregnancies were encountered, between 2014 and 2017: 42 and 91 twin pregnancies from OD (26.8%) and ICSI/FIVET (20.5%) were included.

OD patients were significantly older than ICSI/FIVET patients (44+/−4 vs 36+/−4 years), while no differences were noted for BMI (26.7+/−3 vs 25.9+/−6.6 kg/m2) and the rate of nulliparous women (76% vs 87%). The rate of twin pregnancies was not significantly different between OD and ICSI/FIVET. Among OD twins, 90% were dichorionic (BC/BA n=38) and 7% were monochorionic (MC/BA); 1 case of a dichorionic triamniotic triplet (BC/TA) was also described. Among ICSI/FIVET twins, 85% were BC/BA (n=78) and 7.7% were MC/MA; 3 cases of BC/TA triplets and 3 cases of trichorionic triamniotic triplets were registered. No differences were noted considering the chorionicity.

OD pregnancies were more often complicated by hypertensive disorders (chronic hypertension, gestational hypertension and preeclampsia), in 29% of cases towards the 5.5% of ICSI/FIVET. No differences were noted for gestational diabetes (11% vs 7%), cholestasis (16% vs 8%) or disorders of placentation (7% vs 2%).

Considering only BC/BA twins, the rate of pregnancies complicated by IUGR of at least one fetus was not significantly different in OD (16%) versus ICSI/FIVET (10%).

According to local protocols, only BC/BA twins were admitted to labor. Among BC/BA pregnancies, almost all underwent a cesarean section (95% in OD vs 91% in ICSI/FIVET); only 2 OD patients and 7 ICSI/FIVET patients managed to have a vaginal delivery. Considering maternal post-partum outcomes, almost half of both OD and ICSI/FIVET patients experienced a hemorrhage >500 ml (55% vs 54%), without any difference even when stratifying for the severity of blood loss.

Neonatal adverse outcomes, defined as pH-12 and Apgar score <7 at 1’, occurred on 7% and 13% in OD and ICSI/FIVET, respectively (p=0.30). Neonatal weight was similar in both groups: 2227+/−636 g in OD vs 2271+/−631 g in ICSI/FIVET pregnancies.

Mean gestational age at delivery was 34.9+/−2.6 weeks in OD and 35.3+/−2.9 weeks in ICSI/FIVET. 74% of twins from OD were born before 37 gestational weeks, compared to 45% of twins from ICSI/FIVET (p<0.05).
In our population, OD patients more often developed hypertensive disorders of pregnancy. At delivery, both groups experienced the same rate of cesarean section and post-partum maternal and neonatal outcomes. The prematurity rate was higher for OD twins, even if the majority of premature babies experienced a mild prematurity.
Maternal hypertension and survival in very preterm singletons and twins: Not just one answer....

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When predicting mortality after MH in very preterm infants, results depend on how gestational age and size at birth are accounted for. Although our findings cannot be interpreted causally, overall we saw evidence of a survival advantage associated with MH in singletons at higher gestational age, but not in twins. An effect modification by gestational age seems present in singletons. Using birth weight over SGA improves prediction.
TITOLO
MILD GERMINAL MATRIX-INTRAVENTRICULAR HEMORRHAGE IN PRETERM INFANTS: ANATOMICAL INSIGHTS PROVIDED BY SWI-VENOGRAPHY

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CONTENUTO
INTRODUCTION: The anatomy of the deep venous system plays an important role in the pathogenesis of brain lesions in the preterm brain as shown by different histological studies. The aims of this study were to compare the subependymal vein anatomy of preterm neonates with germinal matrix-intraventricular hemorrhage (GMH-IVH), as evaluated by susceptibility weighted imaging (SWI) venography, with a group of age-matched controls with normal brain MRI, and to explore the relationship between the anatomical features of subependymal veins and clinical risk factors for GMH-IVH.

PATIENTS & METHODS: SWI-venographies of 48 neonates with GMH-IVH and 130 neonates with normal brain Magnetic Resonance Imaging (MRI) were retrospectively evaluated. Subependymal vein anatomy was classified into 6 different patterns: type 1 represented the classic pattern and types 2–6 were considered anatomic variants. A quantitative analysis of the venous curvature index (CI) was performed. Variables were analyzed by using Mann Whitney U and X2 tests and a multiple logistic regression analysis was performed to evaluate the association between anatomical features, clinical factors and GMH-IVH.

RESULTS: A significant difference was noticed among the six anatomical patterns according to the presence of GMH-IVH (X2= 14.242, P=.014). Anatomic variants were observed with higher frequency in neonates with GMH-IVH than in controls (62.2% and 49.6%, respectively). Neonates with GMH-IVH presented a narrower curvature of the terminal portion of subependymal veins both in the left (Mean CI 1.651±0.374 vs 1.422±0.249 for TSV, and 1.681±0.332 vs 1.425±0.338 for DLV) and right hemisphere (Mean CI 1.423±0.274 vs 1.384±0.255 for TSV, and 1.590±0.167 vs 1.384±0.266 for DLV). GMH-IVH was significantly associated with both the subependymal veins anatomical pattern (Odds Ratio=2.47, P=.0164) and CI (right CI Odds Ratio=4.202, P=.0003; left CI Odds Ratio=2.044, P=.0227).

CONCLUSIONS: Preterm neonates with GMH-IVH show higher variability of subependymal veins anatomy including specific patterns (type 2 and 6) and a narrower venous curvature. This variation may be an additional independent risk factor predisposing to venous congestion, sludging and consequent GMH-IVH when alterations of the cerebral blood flow occur in the first few days of life.
INTRODUCTION: In the last decades, perinatal care and the survival rates of very low birth weight infants (VLBW) have improved significantly. Following this trend, the incidence of major brain lesions, like cystic periventricular leukomalacia (c-PVL), have been constantly decreasing. On the other hand, milder forms of white matter damage, like punctate white matter lesions (PWML), are frequently seen in preterm infants undergoing MRI at term equivalent age. The aim of this study was to analyze prevalence of different types of the white matter injury (WMI) as seen on term-equivalent age MRI, and investigate related clinical risk factors.

PATIENTS & METHODS: All VLBW infants admitted at birth to our NICU between January 2012 and October 2016 and consecutively scanned at term equivalent age as a part of follow-up program were retrospectively identified and included in the study. Prenatal, perinatal and post-natal clinical data were collected from NICU electronic database and clinical records. MRI scans were performed at 1,5 T system and included T1, T2, diffusion and susceptibility weighted (SWI) sequences. Images were reviewed in order to evaluate prevalence of c-PVL and prevalence, number (less or more than six) and type of PWML (hemorrhagic or non-hemorrhagic according to SWI appearance). Univariate and multivariate analysis of risk factors for all types of WMI was performed.

RESULTS: Study population included 321 newborn. Nine of them (3%) presented c-PVL and 61(19%) - PWML. Inside the last group, in 26 cases (43%) 6 or more PWML were present, while in 15 cases (25%) PWML were seen on SWI indicating haemorrhagic nature of the lesions. Placental abruption (OR=4.67) and presence of GMH-IVH (OR= 3.94) emerged among the risk factors for cPVL, while incomplete antenatal steroid treatment (OR 2.71) and intubation (OR=10.1) resulted significant for PWML ≥6. Oxygen treatment for more than 7 days (OR=0.19) and cesarean section (OR= 0.22) presented OR<1. The only risk factor associated with SWI+ PWML was the presence of GMH-IVH (OR=8.67).

CONCLUSIONS: Our study confirms an important reduction in cPVL prevalence in modern NICUs. Respiratory distress emerges as an important risk factor in the development of PWML. Accordingly, incomplete antenatal steroid treatment for pulmonary maturation seems to influence the development of those lesions, while intubation increases the odds of having more than 6 PWML ten-fold. Further studies could help to corroborate our findings.
**ID 30**

**NOME PRESENTER**
Sara Uccella

**TOPIC**
LA PREMATURITA'

**TITOLO**
Pattern of neurodevelopmental outcome at 2 years of corrected age (CA) in isolated Low-Grade Intraventricular Hemorrhages vs Low-Grade Cerebellar Hemorrhages

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**CONTENUTO**
Introduction – How minimal bleeding of germinal matrix could affect neurodevelopmental outcome if VLBW is still debated. Aim of our study is to find out neurodevelopmental features of isolated low grade intraventricular haemorrhage (LG-IVH) compared with isolated low grade cerebellar haemorrhage (LG-CBH) in order to establish their possible independent involvement in neuropsychiatric outcome at 2 years of corrected age (CA) in a cohort of VLBW.

Materials and Methods – VLBW admitted to our NICU who underwent brain MRI at TEA and completed Griffiths Mental Developmental Scale (GMDS) at 2 years were retrospectively identified and included in the study. MRI scans were performed at 1,5 T system and included T1, T2, diffusion and susceptibility weighted (SWI) sequences. LG-IVH was defined as presence of hemosiderin deposits inside germinal matrix and/or along the ependyma of the ventricles (as seen on SWI), in absence of ventricular dilatation or periventricular infarction. LG-CBH was defined as presence of punctate haemorrhagic lesions within cerebellum. Patients completed neurological examination according to Hempel model, to assess any minor neurologic dysfunction (MND) and Griffiths’s Mental Development Scale (GMDS-ER) performed by a single operator blinded to MRI results. Mean values were reported for continuous variables. T-Student test was performed.

Results – The study group consisted of 173 patients (mean GA 28 weeks). When all grades of lesions were considered, prevalence of IVH (57 patients, 32,9%) was higher than prevalence of CBH (35 patients, 20,2%). Isolated LG-IVH was found only in 8 patients (prevalence 4,6%), and isolated LG-CBH – in 10 (prevalence 5,8%). Mean gestational age was 28 and 27.5 respectively in LG-IVH and LG-CBH groups (non-significant difference, p=0,7)

A Griffiths score of 85 was used as cut off for normal outcome. LG-IVH group showed higher scores in all subscales. Statistical significance between the two groups was achieved for total developmental score (*0,041), motor (*0,044), social (*0,040) and coordination (*0,027) subscales. In the LG-IVH group 4/8 cases had MND; in the LG-CBH group 4/10 cases had MND.

Conclusions – In our cohorts, even if MND are more frequent in LG-IVH, babies LG-CBH showed a trend of worst impairment on developmental outcome. LG-CBH group showed lower score in all domains and statistic significance was present for the tDQ and for the subscales A (gross-motor), B (social and adaptive)
and D (visual-spatial). This could be explained by involvement of cerebellar-thalami-cortical boundles and
cognitive role played by cerebellum. This finding seems not to be related to GA. Longer follow-up on this
population is recommended in order to confirm higher risks for neurological impairments due to LG-CBH.
INTRODUCTION: Various perinatal factors can influence development of prematurity-related brain lesions, but their precise individual roles are yet to be defined. In particular, the role of placental inflammation in the development of ultrasound-detected white matter lesions and intraventricular haemorrhage is still matter of debate. The goal of our study was to identify perinatal risk factors, with particular attention to placental histopathology, for MRI-diagnosed brain lesions in a cohort of VLBW infants.

METHODS: All VLBW infants born in our hospital between January 2012 and October 2016 who had received a term equivalent age brain MRI scan as a part of follow-up program were retrospectively identified. Scans were performed at 1.5 T system and included T1, T2, diffusion and susceptibility weighted sequences. Among the identified patients, only newborns with an available placental histology were included in the study. Perinatal data including placental histology were collected from NICU electronic database and clinical charts. Univariate and multivariate analyses of potential risk factors were performed for germinal matrix-intraventricular haemorrhage (GMH-IVH), cerebellar haemorrhage (CBH), cystic periventricular leukomalacia (c-PVL) and punctate white matter lesions (PWML).

RESULTS: The study group consisted of 286 patients. Independent risk factors for GMH-IVH (prevalence: 23.8%) identified by multivariate analysis are shown in Table 1. As for CBH (prevalence: 16.8%), multivariate analysis identified the use of inotropic support within 72h after birth (OR 5.24) and contemporary presence of GMH-IVH (OR 6.38) as independent risk factors. In our study, placental characteristics, including chorioamnionitis, were not identified as independent risk factors for white matter lesions, including both c-PVL (prevalence: 2.4%) and punctate white matter lesions (prevalence: 19.9%).

CONCLUSIONS: Our study shows that placental inflammation or infarction are risk factors for the development of GMH-IVH, a disease occurring in the first days of life. Moreover, Apgar score and incomplete or absent antenatal steroid prophylaxis are confirmed risk factors for GMH-IVH. Interestingly, chorioamnionitis is not associated to MRI-diagnosed white matter lesions, in contrast with previous studies based mainly on ultrasound findings.
INTRODUZIONE: Nascita prematura e basso peso al nascere potrebbero influenzare la nefrogenesi e sono associati a un rischio di malattia cronica renale (CDK) e ipertensione in età adulta. Il диагностика differenziale tra preclampsia (PE) e CDK non è ancora sistematicamente formulata in donne con ipertensione e proteinuria in gravidanza. Poiché PE è associata a placenta deficiente, il peso fetale è spesso compromesso. Pertanto, la scoperta di un peso fetale normale può offrire un primo indizio per considerare la differenziale diagnosi di una malattia glomerulare, modificando così il follow-up e il trattamento e riducendo il rischio di nascita prematura successiva.

METODI: Il caso di una donna incinta è stato riportato in questo paper. 

RISULTATI: Una donna di 22 anni con un'antistoria clinica silente è stata riferita alla 25ª settimana di gravidanza per ipertensione (140/95 mmHg), proteinuria nefrotica (3.72 g/dì) e disturbi visivi; aveva un indice di massa corporea normale pre-gravidanza (BMI: 23), ma aveva guadagnato 10 kg nei mesi precedenti, e aveva riferito, negli ultimi giorni, una riduzione della diuresi. È stata ricoverata con il diagnosi di PE. I test eseguiti per valutare la salute fetale (biometria e Doppler flui) erano tuttavia normali. È stata somministrata Betamethasone per accelerare la maturazione polmonare, nel caso di un parto precoce. Nelle giornate successive, la pressione sanguigna è normalizzata senza trattamento; proteinuria è aumentata a 4.5 g/dì, ma poi rapidamente scesa a 1.01 g/dì. In base al peso fetale normale, alla parziale risposta al trattamento con steroide, e alla stabilità clinica, è stato ipotizzato un glomerulonefrite minima. La paziente è stata trattata empiricamente con steroidi orali (prednisone 37.5 mg), con completa remissione della proteinuria e della pressione sanguigna. La paziente è stata dimessa con pressione sanguigna normale; proteinuria era di 1.35 g/dì. La gravidanza è stata sana fino al parto spontaneo alla 37ª settimana e 5 giorni. Un neonato sano, adeguato per età gestazionale (3120 g, 69° centile delle curve di crescita italiane) è nato. La paziente è stata dimessa normotensiva e senza proteinuria significativa (0.26 g/dì). Il rapporto fra i marcatori antiangiogenetici s-flt-1 (soluble fms like tyrosin kynase 1) e il PIGF (angiogenic Placental Growth factor) usualmente aumentano nel caso di PE era non disponibile in routine al nostro dipartimento; le campioni di sangue sono stati conservati e analizzati successivamente; il rapporto basso (28 settimane: 7.22; 32 w: 13.46; 34 w: 6.29; 36 w: 4.24) era in accordo con una malattia renale differente da PE.

CONCLUSIONI: Il caso presentato può evidenziare l'importanza di considerare PE e CDK nella diagnosi differenziale. Il disponibilità di s-flt1 PIGF potrebbe supportare la diagnosi differenziale
between PE and glomerulonephritis, the simple considerations of foetal growth and doppler flows may guide the clinical diagnosis and management.
The risk for preterm birth (PTB) in multiple pregnancies, defined as birth occurred before 37th week of gestation, is dramatically higher than in singleton pregnancies (58% vs 11%). Preterm birth is strictly related with RDS, NEC, neonatal sepsis, cerebral palsy and neurological disorder in the newborn. The aim of our study is to identify women with multiple pregnancies at higher risk for PTB through serial measurements of cervical length (CL) in order to establish the right treatment and to improve neonatal outcome.

The study was designed as a retrospective study in which 31 twin pregnancies were enrolled with following inclusion criteria: multiple gestation, two or more CL measurements and birth performed in our Department. The population enrolled in our study has the following characteristics: 21 Bichorionics twin pregnancies and 10 monochorionics; among these twin pregnancies 30 were Biamniotics and 1 monoamniotic; 16 spontaneous pregnancies and 15 obtained with assisted reproductive technologies. 8 women were primiparous (or more) and 23 were nulliparous. 17 of these patients had other risk factors related with pregnancy, 14 of them had no other risk factors. Any patient had serial CL measurements, and they divided in four groups according to gestational age at ultrasound cervical length (CL di 20 e 25% had been considered in our study, and had been related with gestational age at delivery. We found an inverse linear correlation between risk of PTB and Δ(CL > 20%) at 28 weeks (r = 0.14).

In case of Δ(CL) ≥ 20%, the under curve area (AUC) for PTB was 87.7%, in case of Δ(CL) ≥ 25% AUC for PTB was 89.4%. Our preliminary data confirm the association between PTB and a decrease in CL > 20% e 25%. During subsequent ultrasound checks, the presence of Δ(CL) > 20% e 25% has a good accuracy in the prediction of PTB and its predictivity is higher than a single measurement of cervical length in multiple pregnancies.
INTRODUCTION

Gestational diabetes (GDM) is associated with an increased risk of adverse perinatal outcomes. Of interest, an increment rate of preterm delivery seems to be associated with Metformin treatment, even if discordant results were reported in literature. The aim of our study is to evaluate if GDM treatment was associate to preterm delivery under 37 weeks.

METHODS

A retrospective study was conducted at MBBM Foundation, Milano Bicocca University, between 2009 and 2016. We included singleton pregnancies complicated by GDM (diagnosed according to NDDG guidelines until March 2010 and to IADPSG recommendations subsequently). Exclusion criteria were multiple gestations. In our institution, diet was the first line of therapy; if glycemic target was not achieved, Metformin first, and, eventually, subsequently, insulin, were started. We evaluated if pharmacological treatment was correlated to prematurity. We also compared pregnancy and neonatal outcomes between preterm delivery (< 37 weeks) group and term delivery (≥ 37 weeks) one.

RESULTS

1704 patients were included and divided according to gestational age at delivery: 1560 women delivered at term (91.5%) and 144 delivered preterm (9.5%). No differences in maternal characteristics were found (Table). We reported similar rate of diet and Metformin treatment between the two study groups (respectively 81 vs. 78%; 18 vs. 19%). In preterm group, Insulin use was more frequent compared to term one (1 vs. 4%). Of interest in preterm delivery pregnancies, we found 8% of women in diet, 8.6% in Metformin and 22.7% in Insulin therapy. In addition, preterm group presented a higher incidence of preeclampsia (PE), and premature preterm rupture of membranes (pPROM). In both groups, vaginal delivery was most frequent, but in preterm group rate of Cesarean Section was significantly higher compared to term group. Concerning neonatal outcomes in the preterm group there were a higher rate of Neonatal Intensive Care Unit (NICU) admission, jaundice, hypoglycemia and respiratory distress syndrome. At a multivariate analysis, which considered, parity, ethnicity, GDM therapy, polyhydramnios, PE and pPROM, we found, as independent risk factors for preterm delivery, only PE and pPROM. Specifically, regarding GDM therapy, the Insulin therapy resulted an independent risk factor for preterm delivery.

CONCLUSIONS
In our population, Metformin therapy, similar to diet, was not associated to late prematurity; only a severe GDM requiring Insulin therapy was related to a quadruplicate risk of preterm delivery.
Role of group B streptococcus on perinatal outcome in pregnancy complicated by preterm delivery <34 weeks

Introduction. Group B Streptococcus (GBS) is the leading infectious cause of neonatal morbidity and mortality in high-income countries and the most common pathogen isolated from maternal and fetal tissues in midgestation spontaneous abortions. Whether GBS presence in the genitourinary tract of pregnant mothers also plays an etiological role in spontaneous preterm delivery (sPTD) is less certain, although recently published preclinical and clinical data suggest so. The aim of our study was to assess the incidence of adverse perinatal outcomes according to GBS status in a cohort of pregnancies with sPTD <34 weeks of gestation.

Material and methods. Observational retrospective analysis of all sPTD <34 weeks of gestation occurred at our tertiary university maternal-fetal medicine center (FMBBM, University of Milan-Bicocca) from January 2006 to December 2015. Patients with iatrogenic PTD (iPTD) were excluded from the analyses. Cervico-vaginal swabs, vagino-rectal swab for GBS, and urinocolture were performed in all patients at hospital admission according to our institutional protocol. Antibiotic therapy was administrated in case of pPROM or if delivery was deemed to be imminent. Assessed gestational and perinatal outcomes were mean birthweight and birthweight < 1,500 grams, mean pH, Apgar score at 5 minutes <5, neonatal death. Results. During the study period, January 2006- December 2015, 615 deliveries <34 weeks of gestation occurred at our Institution. Final analysis was performed on 180 (29.3%) cases of sPTD. GBS infection was identified in 21% (38/180) of patients. Women with evidence of GBS infection were less likely to experience pPROM and more frequently delivered neonates with smaller birthweight at lower gestational ages (Table). In addition, GBS-positive patients showed higher incidence of histological chorioamnionitis and placental villi abnormalities, although frequency of antibiotic treatment did not differ from GBS-negative women. We did not identify any difference between the 2 groups for incidence of neonatal death.

Conclusions. In patients with sPTD <34 weeks of gestation, GBS infection correlates with lower gestational age at delivery, smaller birthweight and higher incidence of histological chorioamnionitis and villous alterations. On the other side it is not directly correlated with the incidence of pPROM. We may suppose a direct association between GBS infection and placental alterations leading to preterm labour, with or without intact membranes; but further studies on specific GBS-related lesions of the placenta will be performed.
ID 36

NOME PRESENTER
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TOPIC
LA PREMATURITA'

TITOLO
The cervical sliding sign: a new ultrasound tool in the assessment of threatened preterm labor

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CONTENUTO
Objectives
to assess the impact of the cervical sliding sign (CSS) in case of threatened preterm labor (TPL)

Methods
Single centre prospective study. A non consecutive series of pregnant women between 24+0 and 36+6 weeks presenting with TPL were assessed by transvaginal ultrasound (TVU) to obtain cervical length (CL) measurement. TPL was defined as evidence of > 6 contractions/hour + CL modifications at the digital examination. The CSS was defined as the sliding of the anterior cervical lip on the posterior one under gentle pressure of the TV probe. After the initial evaluation, the time-to-delivery (TtD – days) was recorded in each case. In case of CL>30mm the patient was discharged, whilst when CL was <20mm the patient was admitted and treated (tocolysis + steroid prophylaxis). If the CL was 20-30 mm, the management depended on the fibronectin test result. The main outcomes were: delivery before 34wks, within 7days and 14 days.

Results
We recruited 58 patients for the study purpose. Of these, 15 delivered 20mm and was positive in all 4 cases with CL<10mm. In the subgroup of remaining 40 patients with CL of 10-20mm the CSS was found at TVU in 20 cases, and was associated with a higher risk of delivery <34wks (40% CSS positive vs 10% CSS negative, p<0.05), <7days (50% vs 15%, p<0.05) and <14days (65% vs 20%, p<0.05). TtD was significantly shorter if CSS+ (21.1 ± 20.2 vs 43.3 ± 33.1 days, p<0.05).

Conclusions
In case of threatened preterm labor, the CSS seems to increase the risk of preterm delivery in the subgroup of patients with CL 10-20mm
Introduction: Perinatal regionalisation networks aim to centralise highly skilled care for high-risk neonates and their mothers. This study examined how the regional policy in Liguria, Italy, had changed the management of very low birth weight preterm infants. We were particularly keen to look at the impact on back transports, namely transferring patients back to a Level II unit once they did not need to be in the neonatal intensive care unit (NICU) at the IRCCS Istituto Giannina Gaslini, Genoa, Italy.

Methods: We retrospectively reviewed our database for premature infants admitted between 2010-2016 weighing less than 1,500 grams. The data was anonymised and internal checks confirmed that no data were missing.

Results: From 2010-2016 the total regional birth rate was constant at about 10,500-11,000 births per year and the total annual transport rate, including back transports, was about 240-250 patients. We have a single level III-IV NICU in the Region and our Neonatal Emergency Transport Service was established in 1995. We recorded the total number infants born weighing < 1,500g year from 2010-2016 and determined what percentage were discharged home, transferred or died. The criteria for back transport included no infection, negative stool cultures, needing less than 25% fraction of inspired oxygen, tolerance for oral, nipple or gavage feeding and parental agreement. The exclusion criteria were needing parenteral nutrition and persistent chronic problems, including bronchopulmonary dysplasia, patent ductus arteriosus, active retinopathy of prematurity, intracranial haemorrhage and episodes of apnoea and, or, bradycardia.

In 2010-2012 our NICU accepted a high number of transferred newborn infants, due, we believe, to our previously achieved regionalisation policy and led to rapid overcrowding. We worked very hard to centralise services, but underestimated the consequences. It then took us about three years to re-organise and balance our NICU activity, with a stable back transport rate of around 10% (Table; Neonates treated by the Gaslini Institute level three NICU from 2010-2016 with a birth weight of less than 1,500 grams; n=686). We did this by: a) improving parental attitudes-back transport (3), b) working with Level II hospitals on shared decision making and guidelines c) including out-born and in-born newborns in back transport and d) involving Level II hospitals whenever possible, even when babies required more than simple convalescent care. This latter objective is on-going.

Conclusions: Our results are rewarding, but the current regional system forces us to move patients to lower level hospitals. This is quite common in Italy, as around 30% of the low level delivery hospitals handling less than 500 births a year are still active and there are more Level II beds than actually needed, while Level III-IV beds are more scarce, forcing back transport.
PREMATURITY

TITULO
Twin pregnancy and preterm birth: focus on “autophagy biomarkers” as regulators of the immune response

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CONTENUTO
INTRODUCTION
Preterm Birth (PTB) occurs in 5-18% of all pregnancies and remains the most common cause of death under the age of 5 years old. The incidence of PTB is higher in twin pregnancies than in single ones (56.6% vs 9.7%). The pathogenesis of PTB is multifactorial but it is known that an excessive inflammatory response of the placental-fetus unit and an alteration of the immune defense mechanism play an important role. Specific proteins within peripheral blood mononuclear cells (PBMCs) are involved in immune tolerance promoting autophagy to maintain intracellular homeostasis. Alterations in their biological activity are associated with a wide spectrum of human diseases. We sought to examine the relationship between maternal autophagy biomarkers and PTB in women with twin pregnancy.

METHODS
This is an observational study on women with twin pregnancy recruited from 12th to 29th week of gestation between 2015 and 2017. Women were divided into two groups, term-birth group and PTB group, according to gestational age at delivery (≥ or <37 weeks, respectively). The PTB group was further divided according to type of birth: with spontaneous onset of labor or medically indicated. PBMCs were isolated by a blood sample the day of the recruitment at Careggi University Hospital in Florence. Intracellular levels of a2V isoform of vacuolar ATPase (a2V), heat shock protein 70 (HSP70), p62 protein and extracellular levels of brain derived neurotrophic factor (BDNF) and HSP70 were assayed by ELISA test at Well Cornell Medicine in New York. Associations were analyzed by the Spearman rank correlation, Mann-Whitney and Kruskal-Wallis tests as appropriated. A p-value <0.05 was recorded and considered statistically significant.

RESULTS
Overall, 58 women were recruited in this preliminary study. The a2V concentration in PBMCs was higher in the 16 women who had a spontaneous PTB compared to the 22 women who had a delivery at term and to the 20 women with a medically indicated PTB (median 3.1 ng/ml vs 1.6 ng/ml, vs 1.4 ng/ml p = 0.01) (Table 1). The a2V concentration in PBMCs was negatively correlated with interval from sample collection to delivery in the group 1 (r= -0.555, p = 0.0258). The intracellular levels of a2V and HSP70 were negatively
correlated in group 1 (r= -0.784m, p=0.000321). No difference for the other biomarkers levels were found among the three groups.

CONCLUSION
Expression of the a2V in PBMCs is associated with altered immunity increasing susceptibility to labor induction. Measurement of a2V in PBMCs prior to 30 weeks of gestation is a sensitive predictor of PTB in twin pregnancy.
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/birthweight 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 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 cerebro-placental 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.

Conclusions: The stratification of a high risk population by using ACGV together with usual biometric and Doppler variables allows to identify a new population of fetuses that may be at higher risk for neonatal complications, independently of the size of the baby.
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 (MR), 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 MR (PMMR) 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 PMMR, respectively. The same result (78%) was obtained if CT and RX were added to the analysis. PMMR 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 PMMR alone, to 88%. In 8% of cases, PMMR added clinically relevant additional findings found at autopsy; 4) total disagreement.

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 PMMR. The autopsy remains the gold standard to identify adjunctive findings necessary to reach a final diagnosis. PMMR is a useful alternative if
autopsy is declined, particularly in cases with SNC defects or, when routinely performed, for preventing inconclusive autopsies due to brain tissue autolysis.
Introduction and aim
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 were 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.
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 placement are more likely to have the pessary removed before 30 weeks of gestation because of pPROM or premature labor.
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 analysed are pH, haemoglobin concentration (tHb), carbon dioxide (pCO2), oxygen (pO2), base excess (BE), oxygen saturation (SpO2) and lactats (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 pCO2, pO2 and SpO2 is above 0.4 (evidence of good reliability).

DISCUSSION: 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.

CONCLUSIONS: 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.
INTRODUZIONE

Il clamping dell'corda grembiuola (UCC) è definito come un attacco avviato più di 30-60 secondi dopo l'atto di parto. Il clamping tempestivo consente una trasfusione placentale che fornisce un aumento del 30% del volume di sangue al neonato, prevenendo la deficienza dell'irono nel primo anno di vita. I benefici neonatali associati a questa trasfusione placentare sono elevati indiciematologici e miglioramento cardiopulmonare. L'evidenza suggerisce che la sezione cesarea (CS), rispetto alla consegna vaginale, è associata ad un'addizione trasfusionale placentare; ciò è più evidente nelle CS programmate non in fase di parto. I dati sui fattori che influenzano la trasfusione placentare in CS e quali sia la strategia migliore per migliorarla sono mancanti. L'obiettivo del nostro studio è stato l'analisi dell'effetto del milking dell'corda grembiuola (UCM) sul Ht al neonato a 48 ore, utilizzato come indicatore di trasfusione feto-placentare, in un gruppo di CS.

METODI

Studi osservazionali prospectivi che includono tutti i singoli casi di CS in 2 ospedali comunali. I casi con contraindizioni al clamping tempestivo dell'corda grembiuola sono stati esclusi. UCC è consigliato dopo il primo respiro del neonato e almeno 60 sec dopo il parto, e UCM è indicato se si aspetta più di 60 sec. UCM consiste in 3 presse di 20 cm sul cordoncino non clampo. Analisi statistiche sono state effettuate con SPSS 24.0; p valore < 0.05 è stato considerato significativo. Per la potenza analisi abbiamo considerato una prova a due coda con livello α 0.05 e 1-β livello 0.8 e abbiamo bisogno di 25 soggetti per gruppo per dimostrare una differenza significativa il valore il Ht con una deviazione standard di 5.

RISULTATI

Raccogliamo 99 CS, 53 elective e 44 performate in parto. In tutta la popolazione di CS il tempo di clamping tempestivo dell'corda grembiuola nell'early UCC gruppo era 34±12 sec e 61± 5 sec nel delayed one. Abbiamo effettuato early UCC e conseguentemente UCM più frequentemente durante CS in labor (40%) vs elective (17%) (p=0.025). In tutta la popolazione UCM era correlato con un'altissimo Ht (61.6 ±5.8 vs 58.1 ±7.5 P=0.07) ma non significativamente, sebbene il tempo di clamping tempestivo dell'corda grembiuola dopo il primo respiro del neonato non influenzi questo valore. Abbiamo ulteriormente analizzato la sottogruppo di 53 elective CS in ordine a ridurre l'effetto confusione delle contrazioni uterine sulle trasfusione placentare, UCM era associato ad altissimo Ht (62.9±5.6 vs 58.6 ±4.3 p=0.01), e questo risultato è stato anche significativo dopo aver corretto per clamping tempestivo dell'corda grembiuola e aspettare il primo respiro al neonato nel multivariate analysis.
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.

CONCLUSION
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.
Clinical contribution of post-mortem MR after intra-uterine MR in early second trimester termination of pregnancy for CNS defects

Introduction. Intrauterine magnetic resonance (iuMR) 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 iuMR, 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 MR (pmMR) 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 iuMR accuracy compared to pmMR 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 iuMR and pmMR within one week period. PmMR 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 iuMR and pmMR was calculated, and the rate of clinically relevant additional findings provided by pmMR is reported. Results. Overall, 27 cases were included. Of these, 2 were excluded due to brain autolysis found at pmMR. 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 pmMR was 5 days. The concordance between pmMR and iuMRI was 100% for the primary diagnosis. In 6 cases (24%) iuMRI added clinically relevant additional findings to US, thereafter confirmed by pmMR. All cases were related to malformations of cortical development. In 1 case pmMR identified, in addition to agenesis of corpus callosum, the presence of abnormal cortex sulcation not identified at iuMR. All diagnosis were confirmed by autopsy.

Conclusion. 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 iuMR accuracy within the diagnostic potentially of the technique itself.
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TOPIC
MEDICINA PERINATALE

TITOLO
CLINICAL OR ECOGRAPHIC EVALUATION FOR PREDICTION OF NEONATAL WEIGHT?

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CONTENUTO
Introduction. Fetal weight estimation in pregnancy has the purpose to identify fetal growth abnormalities, associated with higher rates of neonatal morbidity and mortality; they include “large for gestational age” fetuses (LGA) and “fetal growth restriction” (FGR). 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 the 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 3394.83g (±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)

Conclusions. 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.
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 foetal cfDNA in maternal blood testing (NIPT) has highly improved the detection rate of the common foetal 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 foetal aneuploidies in 1719 patients with singleton pregnancies who delivered at the Obstetrical Clinic of Padua University, from June 1st 2016 until May 31th 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 not performed 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) Foetal cfDNA on maternal blood followed by invasive in high risk patients; 3) contingent model followed by invasive in high-risk patients (≥ 1/50), and foetal cfDNA testing in intermediate risk patients (between 1/51 - 1/300 (3rd A option) or between 1/51-1/1000 (3rd B option). Finally, based on the population data, a 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 foetal 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 (foetal 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.
OBJECTIVES: To evaluate if changes in body composition or lipidic/glycemic profile are involved in developing gestational diabetes mellitus (GDM) in overweight/obese women enrolled in an early lifestyle program.

STUDY DESIGN: Two hundred and eight women with BMI≥25 were enrolled in an interventional study at 9th–13th week, receiving a lifestyle program (hypocaloric, low-glycaemic index, low-saturated fat diet + specific physical activity recommendations). GDM was diagnosed with a 75-g 2-h oral glucose tolerance test at 16th–18th weeks (OGTT1), repeated, if negative, at 24th–28th weeks (OGTT2). The tetrapolar bioelectrical impedance analysis (BIA) measured GWG, whole and visceral fat mass (FM, vFM), fat free mass+water (FFMH2O, vFFMH2O), 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 glycemia 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 nine 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 glycemia (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 fod GDM showed higher level of fasting glycemia at first trimester (88.3±10.0 mg/dl, p=0.02) compared to negative ones. No other differences emerged.

CONCLUSION: 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 fastig glycemia at first trimester. Different cut-off of blood glucose values could be hypothesized as risk factor for GDM in overweight/obese population.
ECOGRAPHIC DIAGNOSIS OF MARGINAL AND VELAMENTOS CORDONAL 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 1060 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 < 2500g (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, corioamnionitis and retroplacental hematoma. This leads to a worse maternal and fetal outcome.
INTRODUCTION. Pregnancy is generally considered a period of low risk, compared to other phases of life, for the development of psychiatric disorders. This is due to the high levels of progesterone, known for its relaxing and soothing action. Despite this, 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 that sometimes last until the time of delivery. Aim of our study was to investigate the psychological impact of hospitalization in such cases.

METHODS. We performed a pilot study at the Obstetric Clinic of the AOU of Cagliari, aimed at investigating the impact of hospitalization in pregnant women analysing anxiety, mood and stress levels. The sample involved a cohort of 53 hospitalized women suffering of 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 of the study 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 Pre-eclampsia (n = 3), spontaneous rupture of membranes (n = 6), placenta praevia (n = 3) and other pathologies (n = 4). Regarding the emotional aspects of the pregnant during hospitalization, the analysed sample showed significant values of state 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 hospital stay correlated with a decrease in psychophysical wellbeing.

CONCLUSION: 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.
Background 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. 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 (IVH), recovery in NICU (Neonatal Intensive Care Unit), days of hospitalization, neonatal hypoglycaemia, 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 (2799 gr vs. 2463 gr, 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 significative risk factor related to induction was neonatal hypoglicemia in Group B (33.3% vs. 7.2% p=0.02). Lower birthweight and longer hospitalization were related to intrauterine growth restricted contion.

Conclusions Antenatal corticosteroid administration between 34+0 and 36+6 weeks of gestation appears to be linked to a higher risk of neonatal hypoglycaemia after birth. There was not differences between the groups about RDS.
Fetal RHD detection from circulating cell free fetal DNA in maternal plasma: validation of a commercial kit using automatic extraction and frozen DNA


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 Graofolo, 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 oncffDNA 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.

Conclusion. These findings confirm the feasibility of fetal RHD determination oncffDNA, 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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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 haemorrhage postpartum (HPP), 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 an 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% p0.02) than MAP-O. The risk of postpartum haemorrhage HPP in singleton pregnancies by oocyte donation is greater than MAP-O (45% vs 32.2% p0.01, OR 1.72). Singleton pregnancies by MAP-E had an increased risk of HPP vs. pregnancies by SC (45% vs 15.5%, OR 4.46, p1000 cc) 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) 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 ovodonation with a significantly increased risk compared to MAP-O (12% vs 1%, p<0.001, OR 12.6); for comparison to multiple MAP-O, heterologues 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, ovodonates show 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); Preterm birth ≤34 weeks (9.4% vs 1%, p<0.001, OR 7.94).

CONCLUSIONS Most women who undergo MAP-E are in advanced age, representing an high risk population of obstetric complications, particularly in multiple gestation case, in particular attention in an increased risk of haemorrhage post partum.
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.

Data of all deliveries occurring at the Buzzi Hospital in Milan between 2014 and 2016 (9405 deliveries) were prospectively entered into a specifically designed database and analyzed. Only women consistent with classes 1 to 5 of Robson Classification (6692 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.

Mean age of the 6692 women with single term deliveries was 33 yrs (15-48), mean BMI 26.1 kg/m2 (10.4-51.2), mean gestational age 39 weeks (37-42). Mode of delivery was vaginal in 5960 (oVD in 884 - 14.8%) and by CS in 724 cases (10.8%). Episiotomy rate was 21.1% (1411/6692) (98% mediolateral) and severe perineal tears (≥III degree) were observed in 76/5960 vaginal deliveries (1.3%) . UNO was detected in 356 cases. The distribution of UNO according to mode of delivery is reported in table 1. Severe perineal lacerations were not significantly associated with UNO [1/65 (1.5%) in UNO vs 355/5653 (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 true for severe perineal tears, but our numbers are small for this comparison.

oVD is significantly associated with Unfavorable Neonatal Outcomes. 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.
ID 54

NOME PRESENTER
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TOPIC
MEDICINA PERINATALE

TITOLO
Induction of labor in constitutionally small for gestational age fetuses at term of pregnancy: does gestational age impact delivery outcome?

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CONTENUTO
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 3th 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 caesarean 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-Whitney test for continuous variables, based on their distribution. A p-value <0.05 was considered statistically significant.

Results
109 pregnancies who 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 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) (Table 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.
Induzione del parto con l’uso di prostaglandine: riscontri psicologici

Introduzione
L’induzione del parto è un’opzione quando i benefici materno e fetalesi derivano da esso superano i vantaggi di attendere l’induzione spontanea del parto [1]. Questa studia ha per obiettivo di capire come l’induzione possa influire sulla felicità psichica dopo il parto. 

Metodi e materiali
Le donne visitate a domicilio per l’induzione con prostaglandine presso il reparto di Ostetricia e Ginecologia dell’Ospedale Materno-Neonatale di Monserrato (AOU Cagliari) sono state recrutate tra agosto 2016 e agosto 2017. L’Edinburgh Postnatal Depression Scale (EPDS) è stato impiegato entro 72 ore dalla nascita per valutare i risultati psicologici come l’strumento di screening più ampiamente utilizzato per la depressione post-partum [2, 3, 4 e 5]. Un rilevamento non parametrico è stato applicato, dividendo la popolazione in sottogruppi in base alla parità, numero di somministrazioni di prostaglandine, giorni tra l’induzione e la nascita, tipo di parto, disponibilità di sistemazione o trasferimento del neonato per patologia leggera o grave e valori EPDS (i risultati significativi sono circondata nelle tabelle).

Risultati
Nei mesi considerati, 273 di 1767 donne (15,45%) sono state indotte primariamente per l’odiamento della membrana > 24 ore e gravidanza postterm. Il nostro studio include 162 donne (59,34%) con un questionario EPDS completato: di queste 121 (74,7%) sono state primarie, 140 (86,4%) sono state indotte una volta, 79 (48,8%) sono state nate il giorno dopo l’induzione, 122 (75,31%) hanno avuto un parto vagina naturale di cui 94 (58,33%) spontanea e 28 (17,38%) attraverso parto operativo (vacucho); 23 (14,20%) hanno presentato un punteggio alterato all’EPDS di parto. Di tutti i neonati, 45 (27,8%) sono stati trascascati al reparto neonatale. Le tabelle 1, 2 e 3 mostrano la correlazione non parametrica tra le variabili considerate. Un’analisi statistica negativa significa che quando una variabile aumenta, l’altra aumenta di pari passo, una correlazione inversa significa che quando una variabile aumenta, l’altra diminuisce progressivamente. Per esempio, la tabella 1 mostra una correlazione negativa tra parità e giorni tra l’induzione e il parto, cioè le paritate primarie hanno più tempo dall’induzione. La variabile disponibilità di sistemazione o trasferimento del neonato non mostra alcuna correlazione significativa con altre variabili. 

Conclusioni
Nel nostro gruppo di donne primarie, le paritate primarie hanno avuto più tempo dall’induzione, sono state indotte più volte, hanno avuto una maggiore incidenza di parto operativo (AV + cesarean section=CS) e punteggi EPDS più elevati. Le modalità di parto operativo (AV) sono quelle che più si correlano ai punteggi EPDS. La disponibilità di sistemazione o trasferimento del neonato non sembra influenza i punteggi EPDS. Tuttavia, il nostro studio suggerisce di considerare queste variabili come relevanti durante il controllo del parto e da migliorare il campo clinico nel campo della maternità.
To analyse the evolution of midwife-led labor in low-risk women at term. Retrospective observational cohort of 966 low-risk pregnancies in spontaneous term labor, selected among a total of 3069 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/m²; 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. 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 (p500 ml occurred in 12% of cases (even if 85% was 1500 ml was encountered), 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 (p500 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. 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.
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.

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.

The results showed no separation among the groups except for one patient (outlier). The analysis showed that this sample has 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 exert toxic effects on the development of the cardiac tube during pregnancy.

This study has several limitations such as the small patients cohort but the results are still very 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.
The aim of this study was to evaluate the effect of mild (5th -10th percentile) and severe (<5th percentile) intrauterine growth restriction (IUGR) on maternal hemodynamic parameters in high-risk pregnant women using a multivariable analysis and adjusting for major confounding factors.

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 (5th-10th percentile) and 40 severe IUGR fetuses (< 5th percentile).

Maternal echocardiography was performed at the time of enrollment and included hemodynamic parameters of systolic-diastolic function and cardiac remodeling indices. The 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. The 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 the IUGR. The influence of IUGR on these parameters remained after the model was adjusted for hypertension (preeclampsia and gestational hypertension) and smoking.

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.
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 (≥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.

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) (table 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.
ID 60

NOME PRESENTER
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TOPIC
MEDICINA PERINATALE

TITOLO
Second trimester abnormal uterine artery Doppler as the main risk factor for preeclampsia in women with thrombophilia and previous thrombosis.

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CONTENUTO
Background: 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 was provided in 268 cases. The risk factors considered for analysis were: age, BMI, 2nd trimester uterine artery Doppler (UtA), type of prophylaxis, and previous obstetric adverse outcomes. 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.
INTRODUCTION
Cerebral-Placental 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 AND MATERIALS
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 suspicion 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 deviation for gestational age were defined abnormal. CPR was defined pathological when < 95th percentile, all for gestational age). Finally, 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 1607.5 grams (range 1277.8 gr-2273.7gr). 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.
Placental mesenchymal dysplasia (PMD) is a rare vascular anomaly of the placenta with estimated incidence of 0.02% and characterized by placentomegaly and vesicular appearance. PMD is often associated with intrauterine growth restriction (IUGR- 48%), Beckwith Wiedemann syndrome (BWS- 15%), intrauterine fetal death (IUFD- 12%) and female gender.

We report a case of 40-year-old patient, gravida 3, para 2, who was referred to our Centre at 17 weeks of gestation for a suspicion of partial mole. We performed ultrasonographic evaluation of fetal growth and anatomy, maternal-fetal Doppler velocimetry, that were normal. A placentomegaly, and vesicular appearance of a part of the placenta was found. It was postulated the hypothesis of a pregnancy initiated as twins DZ, and that a fertilization is hesitated in complete hydatiform mola and the other in a normal twin.

An amniocentesis for fetal karyotype and dosage of maternal β-human chorionic gonadotrophin (β-HCG) level and α-fetoprotein (α-FP).

Serial fetal evaluation revealed regular growth, normal anatomy and normal Doppler velocimetry of umbilical artery and uterine artery. Fetal karyotype was normal (46,XX), β-HCG and α-FP levels were normal.

The patient was admitted at 36 weeks for premature rupture of membrane. She progressed to a cesarean section delivery of a 2340 g female neonate in breech presentation. The placenta was sent to pathology and genetics for examination. The results were normal karyotype (46,XX) and histological diagnosis of mesenchymal dysplasia was made.

An indication was given to neonatal genetic analysis for BWS and abdomen ultrasound: the first was negative, the second revealed the presence of two liver lesions, which were studied with computed tomography scan. These lesions were surgically removed with histological diagnosis of infantile hemangioendothelioma.

Perinatal identification of PMD should include a differential diagnosis of partial hydatidiform mole, complete hydatidiform mole and recurrent hydatidiform mole. PMD differs from the partial mole because it does not show proliferation of the trophoblast.
The increased frequency of PMD in BWS and in the female sex has led to the hypothesis that the genes involved (VEGF-D e IGF-2) can be related to the BWS complex (11p15.5) or to the X chromosome. Etiology is still unknown, while association with IUGR and IUFD is high.

In presence of pathological placenta and regular ultrasound parameters it is necessary to acquire the karyotype and exclude the BWS, monitor sonographically pregnancy, report the possible association with childhood cancers.
A single centre observational study on intrahepatic cholestasis of pregnancy: short and long term outcomes.

Methods
A retrospective observational study was conducted at the U.O.C. of Obstetrics and Gynecology of the A.O.U. "G. Martino" of Messina, in the period between January 1, 2010 and December 31, 2016. All pregnant women with a diagnosis of IC were included. As a standard protocol, all admitted patients signed an informed consent for data collection for research purposes. The study was approved by the local ethics committee. Data of women with a physiological pregnancy, who gave birth in the same period, were collected for a control group. All the patients with IC included in the study were contacted and a clinical revaluation was proposed at the Hepatology Unit (ultrasound and elastographic examination of the liver) in order to exclude hepatic diseases.

Results
During the study period, 8,179 patients delivered at the Gynecology and Obstetrics Unit. Fifty patients were admitted with a diagnosis of IC (0.61%) and was included in the study. The trend was mostly constant. Only two patients (4%) referred an episode of cholestasis in the previous pregnancy. The age was significantly higher in the group of patients with IC (p:0.001). These women were also significantly more affected by Hashimoto’s thyroiditis and thrombophilia (p:0.064 ) and reported a significantly increased risk of gestational hypertension (p:0.009). Moreover, pregnant women with IC, compared to the control group, showed an increased risk of preterm births (>32 weeks), a neonatal weight significantly lower (p:0.018) but without serious pathology in the neonatal outcome. The therapy significantly decreased pruritus, GOT and GPT values. Pregnant women had a physiological course of puerperium, except one case of HELLP Syndrome. All the patients reevaluated in the long term follow up (range 2-7 years) did not report hepatic alterations.
Conclusions
Our data show an benign evolution of pregnancy and puerperium in the women affected by IC, probably linked to an early diagnosis and administration of therapy. It is necessary to offer a timely diagnostic and therapeutic approach to reduce adverse events at birth and prevent long term complication in the mother.
This is a case report of a rare finding of a perineal mass in a male fetus which posed a dilemma for a differential diagnosis between accessory scrotum and congenital lipoma. A male fetus at 21 gestational age was referred to our unit with a suspicion of sacro-coccigeal teratoma. The first ultrasound examination showed a 15 x 7 mm subcutaneous mass located on the perineum behind the scrotum, without sign of vascularization, suggesting it was not a teratoma. No other anomalies were detected.

This mass was echoic, looked like a second scrotum, so a differential diagnosis was put between accessory scrotum and congenital lipoma. The pregnancy was uneventful until the birth of a male of 4000g at 40 gestational age. There was no complication at birth, but the mass was removed one day after the birth, since there were signs of initial torsion. The mass was described as peduncolated, far one cm from the basis of the scrotum. The surgery was uneventful and the baby was discharged after 6 days.

The histologic exam described a benign mature lipoma, with mature adipose cells surrounded by connective tissue and covered by normal skin. There was no cellular atypia. The diagnosis of AS was ruled out by the absence of any elements of the dartos fascia underneath the skin layer. Congenital perineal lipoma is extremely rare. There are 30 cases reported and to our knowledge this is the first case prenatally diagnosed. These lesions are typically soft lobulated subcutaneous masses, round or pedunculated. Lipomas are rare in infants, even more in fetuses. More than 80% of perineal lipomas occur with other anomalies, such as accessory scrotum. Moreover these lesions, like lipomas, may be associated with external genital and anorectal malformation. An isolated perineal mass is usually benign and the standard treatment is local excision, so the prenatal counselling can be reassuring. Complications such as torsion of the mass may occur and need emergent treatment. A complete evaluation of the urogenital and anorectal tract is recommended because of associated anomalies as renal agenesis, anorectal malformations, scrotum and penile anomalies.
Caffey disease or cortical hyperostosis is a rare skeletal disorder that more commonly develops in childhood. The classical mild infantile form is characterized by cortical thickening of affected bones and acute inflammation of the contiguous soft tissues generating redness of the limbs, pain, often with pseudoparalysis, irritability, and fever.

The prenatal form of Caffey disease is rarely described: it has a more severe course characterized by extensive hyperostotic bone involvement, angulations and shortening of long bones, polyhydramnios, hepatomegaly and fetal hydrops and a high mortality rate due to prematurity and lung hypoplasia. We report a case of Caffey disease with prenatal occurrence.

A 34 years old pregnant woman was referred to our centre at 22 weeks of gestation for polyhydramnios and shortened long bones. She had two previous pregnancies in North Africa complicated by polyhydramnios with adverse outcomes: the first pregnancy ended with premature delivery at 30 weeks with neonatal death, the second with intrauterine fetal death at 25 weeks. There was no other information about them. There was no consanguinity with the partner.

The first ultrasound (US) evaluation in our centre showed a normal echogenicity of the cranial vault, normal inter-orbitary distances, dismorphic appearance of the lateral ventricles (LV), flat occiput, tight chest (CT/CA: 75%), short and thickened ribs, hypoplasia of scapulae and iliac bones, lumbosacral lordosis, prominent abdomen, short, thickened and arched long bones, long fingers, micrognathia (Jaw index 29), low implanted ears. Since abnormal LV was found, fetal MRI was performed at 22 weeks: it revealed enlarged subaracnoids spaces with thin cortex. For differential diagnosis with storage disease and skeletal dysplasia fetal blood sample: karyotype 46,XY, normal blood count, calcium 11.6 mg/dl, phosphates 7.7 mg/dl. Subsequent US follow up revealed lower CT/CA ratio (68%), and development of subcutaneous edema with progressive dilatation of the LV until 12mm. At 30 weeks a intrauterine fetal death occurred (weight 1844g). Post mortem X-ray showed a symmetrical hyperostosis of the mandible, ribs, scapulae, ilea, and long bones.
Several sets of siblings have been described with this severe lethal form of Caffey disease and in these the inheritance may be autosomal recessive, although germ line mosaicism is also possible. Dominant inheritance also occurs within the severe prenatal forms (Mutation of COL1A1). With the help of the geneticist we have reconstructed the couple's genealogical tree and we found an autosomal recessive transmission, no genetic test is available and the phenotype is constantly severe. This case underlines the importance of teamwork where practitioners work together to arrive at a diagnosis and to be able to define the risk of recurrence, prognosis and a surveillance path for future pregnancies and support opportunities in respect of cultural diversity.
Background: Therapeutic hypothermia (TH) is now standard of care for neuroprotection in neonates with moderate/severe hypoxic-ischemic encephalopathy (HIE). Amplitude Integrated Electroencephalography (aEEG) monitoring may help to evaluate changes in cerebral electrical activity during TH. Neurophysiological assessment seems to be most helpful during the first 24/48 hours after birth. Several studies indicated that amplitude-integrated electroencephalography (aEEG) is an excellent early predictor of neurological outcomes following HIE.

Objectives: To evaluate the prognostic value of aEEG time course in asphyxiated cooled infants on the neuroevolutive (NE) outcome at 18 months.

Methods: 14 term newborns admitted to our NICU with moderate-severe HIE, underwent total body TH, within 6 hours of birth and continued for 72 hours. aEEG monitoring were started as soon as possible and maintained during the whole hypothermic treatment. NE follow-up was scheduled at regular intervals to 18 months. Results: 6/14 (43%) presented minor neurological disability (motor impairment, global motor delay, moderate hemiplegia). In all cases the CFM recruitment pattern did not normalize in the first 48 hours. The aEEG background pattern at 48 hours of life was abnormal in 7/14 newborns; only 2 of them developed an adverse outcome: severe cerebral palsy (CP), while 5 they were registered motor impairment and moderate hemiplegia. In 7 infants aEEG pattern was normalized during the first 48 hours of systemic hypothermia, in these patients 6 presented an 18-month normal NE outcome motor injury, 1 global motor delay. Conclusions: An abnormal 48-hours aEEG pathway is predictive of major neurological disabilities at 18/24 months of age. The early normalization of brain electrical activity within the first 48 hours is a good prognostic indicator of normal psychomotor development. The outcome of newborns with severe neonatal suffering is still one of the most difficult questions confronting the neonatologist. The analysis of the data at our disposal confirms the data already present in the literature about the positive correlation between normalization of the aEEG pattern within 48h from the beginning of hypothermia and NE outcome at 18 months.
Ethnic analogies and differences in fetal heart rate variability signal: A retrospective study


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Introduction

CCTG is characterized by objectivity and consistency as it performs a quantitative automatic trace analysis, implementing diagnostic criteria accepted in clinical obstetric practice. The aim of this study is to analyze computerized cardiotocographic (cCTG) parameters (fetal heart rate baseline, short-term variability, Delta, long-term irregularity (LTI), interval index (II), low frequency (LF), movement frequency (MF), high frequency (HF), and approximate entropy (ApEn)) in physiological term pregnancies in order to correlate them with ethnic differences.

Methods

A homogeneous population of 696 pregnant women including 384 white caucasic women, 246 black women from sub-Saharan Africa, 45 women from South-East Asia, and 21 Latina women from South America, was enrolled in the study.

Results

Several CTG parameters have been found useful in the discrimination among ethnic groups. In particular, Delta and LTI performed better in the white group than in the black, Asian, and Latina groups. On the other hand, LF, MF, HF, and ApEn performed better in the black than in the white group.

Conclusions

In the ante-partum assessment of fetuses of different ethnic origins, both linear and nonlinear components of the FHR variability should be evaluated in order to avoid misinterpretations of the CTG trace.
Limb ischemia is a rare neonatal complication that can be the consequence of amniotic band syndrome (ABS) or can occur in monochorionic twins complicated by Twin to Twin transfusion Syndrome (TTTS).

We describe all cases observed in a population of pregnancies referred at our unit from 2004 to 2017. Part of this population were monochorionic diamniotic pregnancies complicated by TTTS defined by Quintero stage criteria, treated with Fetoscopy Laser Surgery (FLS) from 16 to 26 weeks of gestational age.

On 5180 single pregnancies referred to our unit from 2010 to 2016 there was only one case of ABS. A 25 year-old woman, gravida 1, was referred at 12 weeks of gestation with a wide amniochorial detachment and no sign of ABS. The pregnancy was followed up until 20 weeks when the lower left limb appeared involved to an amniotic band with edema but normal mobility. It was decided for an expectant management with an ultrasonographic follow up until 36 weeks when there was a deep vein thrombosis in the left lower limb of the pregnant woman. The baby was born with a cesarean section for this obstetrical complication at 39 weeks, with the birthweight of 2895 gr. The left foot was found normally ossified and oxygenated and the resolution of the band was performed in the first day of life. The right hand presented lack of distal phalanx of the IV finger and the III finger was edematous. Neonatal follow up is ongoing.

Out of the 444 FLS performed there were three single survivor twins born with limb ischemia detected only postnatally. In all TTTS twins integrity of four limbs was described with ultrasound performed before and 48 hours after laser when the patient was discharged and with MRI performed 2 weeks after the procedure. The limb ischemia affected one hand in two cases and one feet in one case: the extremity was found to be necrotic and underwent to amputation in all cases.

Limb ischemia is a rare event, which can be either iatrogenic (monochorionic twin pregnancies complicated by TTTs and treated with FLS) than spontaneous (ABS). Due to rarity of the event prenatal identification is difficult: knowledge of the complications can address neonate to specific centre for delivery.
INTRODUZIONE
Le miomomi uterini affettano 0.1-3.9 % delle gravidanze e possono causare aborto spontaneo, preterm birth, placenta previa e emorragia peripartum. I rischi maggiori sono relativi al numero e alla dimensione dei miomi e al sito placentale. In caso di preterm labor and preterm birth, è stato ipotizzato che, a causa della fibroid uteri, i miomi sono più difficili da distendere e possono presentare una ridotta attività di oxytocina e concentrazioni più alte di oxytocin. Il trattamento include un trattamento medico o chirurgico. Non esistono linee guida chiare per la miaomectomia durante la gravidanza. Alcuni autori affermano che dovrebbe essere evitata a causa del rischio significativo di morbidità. Un recente recensione (Basso et al. 2017) ha incluso 197 casi di miaomectomia in gravidanza, inclusi in 63 pubblicazioni. Reportiamo risultati materni e feto-neonatali in 7 casi di miaomectomia durante la gravidanza.

METODI
Nelle ultime 3 anni, abbiamo valutato longitudinale 7 pazienti con miomi uterini grandi, diagnosticate per la prima volta in gravidanza tra la settima e la dodicesima settimana di età gestazionale. I nostri casi includono solo perdite singole di gravidanza affette da 1 o più miomi misurati tra 12 e 29 cm; 4 pazienti avevano un singolo mioma, 3 pazienti 2 o più. Tutti i miomi erano subserosi con un vasto base di implant. Il sito del mioma era laterale destra nel caso di 4 pazienti, anteriore in 1 caso e laterale sinistra in 2 casi. In tutti i casi abbiamo eseguito una mioamectomia laparotomica tra la settima e la dodicesima settimana di età gestazionale.

RISULTATI
Rapportiamo un successo chirurgico, senza perdita fetale, parto preterm e complicanze maternhe, con un risultato generale positivo. La perdita sanguigna varia tra 200 e 450 cc, senza necessità di trasfusioni. Tutte le gravidanze hanno continuato in maniera tranquilla fino alla partecipazione, eseguita in tutti i casi via C-section a 37 settimane di età gestazionale in 1 caso, a 38 settimane in 1 caso e a 39 settimane in 5 casi. Il peso dei neonati è variato tra 2500 gr e 3450 gr (media 3183 gr). Il pH e l'Apgar score sono rimasti entro normali. Non ci sono state anomalie congenite osservate.

CONCLUSIONI
La miaomectomia durante la gravidanza è ancora sotto dibattito con linee guida non pubblicate. In base alla nostra esperienza, i casi selezionati di miomomi uterini possono essere gestiti con successo chirurgicamente durante la gravidanza per prevenire complicanze materni e fetali-neonatali come il preterm labor and/or delivery. Pre-operative detailed ultrasound evaluation è necessario per determinare il trattamento appropriato in gravidanza, per consentire la gestazione sicura.
risk assessment and to plan a correct pre-operative mapping. According to the literature, our report suggests that myomectomy during pregnancy can be a therapeutic option in strictly selected cases complicated by large/giant myomas leading to a favorable maternal and feto-neonatal outcome.
Introduction
Social integration of the migrant woman is hard to achieve in the receiving country and the pregnant state may as well be in jeopardy due to the unfavourable condition. There is evidence of major differences in perinatal outcome: pregnant women of selected ethnic groups face higher obstetric risk in comparison with native italian women and other immigrant women. Results from previous studies support the idea that sub-saharan african immigrant women form a group more often prone to adverse pregnancy outcome. This study searches for health inequalities by comparing a group of african women and a native population based on relevant indicators of materno-fetal wellbeing.

Methods
This is an observational retrospective study comparing relevant perinatal indicators in two groups of pregnant patients giving birth at the Obstetrics Department of the University Hospital of Verona: a sample of 309 women of Nigerian origin and a control group of 5,255 Italian women. Selected indicators were: maternal age at delivery, parity, rates of preterm birth, rates of low birth weight (<2500 g), mode of delivery, C-section during labor, Apgar score <7 at 5’, neonatal metabolic dysfunction (pH<7.05 and BD ≥12 in the umbilical artery), stillbirths, perineal tears. Twin pregnancies and higher order multiple gestations were excluded to avoid the bias due to their impact on birth weight and gestational age at delivery. Data were collected using Microsoft Office Access 2003 software and analyzed with the Excel 2007 program. Crude odds ratios with 95% confidence intervals were calculated according to Cornfield and Fisher exact tests. Statistical significance was set at p<0.05. For comparison of means the Student t test and the Mann Whitney test were utilized.

Results
Nigerian women were overall younger and of higher parity; they carried a significantly greater risk of preterm delivery, including births at very low gestational ages (less than 32 weeks). Indicators of fetal distress such as low Apgar score or fetal acidosis were not significantly higher but stillbirths occurred significantly more often. Mode of delivery was more frequently a C-section, either before or during labor, although the two groups shared the same rate of operative delivery. Damage to the genital tract in terms of vaginal tears compared favourably and reduced rates of episiotomy were also found resulting in a overall higher percentage of perineal integrity in the immigrant group.

Conclusion
According to our results, the sub-saharan african group showed an association with several adverse pregnancy outcomes. We share the opinion of other Authors that a direct correlation exists between the
degree of social integration and the immigrant’s health: for women, a good integration may have a protective effect upon perinatal health. Therefore adequate antenatal and intrapartum care should be implemented to improve the obstetric outcome of groups at higher risk.
Twin anemia-polycythemia sequence (TAPS) is a form of fetofetal transfusion that may occur in monochorionic twin pregnancies either spontaneously or following fetoscopic laser ablation of placental anastomoses for the management of twin-to-twin transfusion syndrome (TTTS). During prenatal life, TAPS is defined by discordance of Doppler velocimetry of the middle cerebral artery, with peak systolic velocity (PVS-MCA) ≥ 1.5 multiples of median (MoM) in one twin and ≤ 1.0 MoM in the co-twin, in absence of oligo-polyhydramnios sequence. Postnatal diagnosis of TAPS is based on intertwin hemoglobin difference ≥8.0 g/dL and at least one of the following criteria: reticulocyte count ratio >1.7 or small arterovenous anastomoses (<1 mm) at the placental surface.

The aim of this study is to analyze the management and outcome of a consecutive series of TAPS observed at a single center. A retrospective analysis of TAPS cases observed in our centre during the period 2004-2016 was performed. Management of each case was tailored to each case: four stage of severity are described according to progression of fetal anemia of donor twin. Treatment options were laser coagulation of placental anastomosis, intrauterine fetal transfusion (IUFT) of the anemic twin or, depending on gestational age (GA) and parental consensus, bipolar cord coagulation (BCC) of one twin. Perinatal outcome of each case was collected, and placental examination was performed with color-dye injection to identify type and number of anastomoses.

There were 34 TAPS, 11 spontaneous (32%) and 23 post-laser (68%), observed at a median GA of 22 weeks in both groups. No treatment was performed in all 15 cases at stage 1 (44%). For the 19 remaining cases (13 stage 2, 4 stage 3 and 2 stage 4), active management was chosen in 7 (3 stage 2, 3 stage 3, 1 stage 4) with laser (5), IUFT (1) and BCC(1). One couple decided to terminate the pregnancy. Spontaneous single fetal demise occurred in 7 out of 27 (26%) untreated cases.

It was not observed any significant difference between treated and untreated groups in rates of premature preterm rupture of membrane (28% versus 11%, p 0.39), GA at birth (30 and 31 weeks, p 0.20), or overall survival rate (10/14, 71% vs 38/54, 70% p0.80).

Postnatal confirmation of TAPS in untreated case with two livebirths was available in all cases. Neurological impairment at postnatal follow-up was found in only one untreated polycythemic twin.
Untreated TAPS has a high incidence of fetal demise. Treatment can improve perinatal outcome at more severe stages of the sequence. There is no consensus on optimal management of TAPS, according to each stage of severity and gestational age at diagnosis. Prospective multicenter studies are required.
Introduction: Gestational Hypertension (GH) remains a challenging diagnosis for the obstetricians since at first presentation as a new-onset high blood pressure after 20 weeks, it is difficult to know if a pregnant woman will develop preeclampsia (PE) or not. Aim of the present study was to retrospectively investigate pregnancy outcomes in singleton pregnancies complicated by GH in a tertiary referral Italian centre during the last four years-period; the rate of women who progress to PE and the maternal variables associated with the risk of progression were also analysed. Methods: A total of 514 pregnant women with diagnosis of GH at the admission were included. Among these women, two groups were identified: one without progression in PE (GH group, n=454) and one with progression in PE (GHPE group, n=60). In all cases, maternal age, parity, pre-conceptional BMI, mode of conception, number and type of antihypertensive therapies were recorded. Data on pregnancy outcome (gestational age at delivery, type of delivery, birthweight, birthweight percentile, Apgar at 1st and 5th minute) were collected from obstetric and neonatal records.

Results: Among the 514 women affected by GH, 454 (88.3%) did not progress to PE while 60 women developed PE. Then, in our series, the rate of progression from GH to PE was 11.7%. No difference in maternal age, parity and mode of conception was found between the two groups. A significant statistically difference in the maternal BMI was demonstrated among the two groups (GHPE 24.87 ± 6.42 vs GH 28.50 ± 7.57, p= 0.02). Antihypertensive drugs were employed in 382 patients (74.3%) while 132 (25.7%) women maintained after the diagnosis a good blood pressure’s control without therapies. In the treated group, the rate of progression was 14.7 %; on the other hand, in non-treated group the diagnosis of PE was made in 3% of cases. Regarding perinatal outcome, gestational age at delivery, mean birth weight and mean birth weight centile were significantly lower in pregnancies which progressed to PE. A Caesarean section was performed in 93.3% of the patients in the GHPE group while in the GH group 53.1% of women experienced a Caesarean section (p< 0.0001). Apgar score was lower both at 1st and 5th minute in the GHPE group in comparison to the GH one (p=0.001). No difference in the rate of SGA neonates was demonstrated among the two groups (p=0.066). Conclusion: Our data confirmed that the worsening in perinatal outcomes observed in GH pregnancies is mainly due to the progression in PE in terms of duration of pregnancy, birthweight and Apgar scores. However, similar rate of SGA neonates was found. These observations added evidence that GH may share with PE similar maternal risk factors and neonatal outcomes. For these reasons, an accurate maternal and fetal monitoring is desirable in all pregnant women with a diagnosis of a new-onset raised blood pressure with and without sudden evidence of organ dysfunction.
Dyssegmental dysplasias are rare autosomal recessive conditions first reported in 1969 by Silverman. Two forms of the condition have been identified: the severe dyssegmental dysplasia, Silverman-Handmaker (DD-SH) type and the milder dyssegmental dysplasia, Rolland-Desbuquois (DD-RD) type. Prenatal Diagnosis of these conditions has been rarely reported.

A 23-year-old, gravida 1, from North Africa was referred to our unit for a genetic counselling as a consequence of consanguinity.

Since there were not identified other risk factors they were referred for an ultrasound screening at 20 weeks.

The ultrasound scan performed showed multiple vertebral segmentation abnormalities, markedly shortened bowed long bones, a small fetal chest with short ribs, microretrogнатia (jaw-index 23%), all findings consistent with lethal skeletal dysplasia. An amniocentesis was performed to obtain FISH, karyotype, array CGH analysis that were normal and to storage fetal DNA. The couple has been informed, also with a genetic consultation, regarding the poor prognosis decided to terminate the pregnancy at 21 weeks.

Post Mortem X-ray and computed tomography scan showed poorly ossified and short head bones and iliac bodies, poorly ossified lombar and chest vertebral bodies, which were irregular in size and shape and absence of cervical vertebral bodies. The chest was small with horizontally oriented ribs.

The long bones were markedly shortened with dumbbell shape. All these findings are consistent with a particular and severe skeletal dysplasia: dyssegmental dysplasia.

On the DNA stored molecular genetics analysis of the HSPG2 gene showed a new variant, c.[3888+1G>A], p[?], detected in homozygosity that confirmed the suspicious of Dyssegmental Dysplasia Silverman-Handmaker type. The same variant was detected in heterozygosity in the HSPG2 gene of both parents.

These short-limbed skeletal dysplasias are characterized by the differences in the size and in the shape of the vertebral bodies resulting in disorganization of the axial spine. The SH subtype is an autosomal recessive caused by mutations in the heparan sulphate perlecan gene 2. This gene encodes the perlecan protein, abnormalities of which lead to disordered signaling and abnormal cartilage development. The combination of fetal ultrasound and molecular analysis can help in making a diagnosis in a family with no known history of the condition. In view of the autosomal recessive mode of inheritance, the parents are at risk for recurrence.
a one in four risk of recurrence for any further offspring. DD is diagnosable antenatally by ultrasonic recognition of the severe vertebral changes possibly as early as the first trimester. Surveillance of future pregnancies using this technique and chorionic villi sample has been offered to the parents.
CONTENUTO
Background: Agenesis (Ag) of Corpus Callosum (CC) is the most frequent brain malformation detected at fetal Ultrasound (fUS) during second trimester. Parental counseling in these diagnosis is still difficult especially when associated with Interhemispheric Cysts and gray matter anomalies, for the potential increased risk of hemiparesis and epilepsy (ranging form mild to severe clinical phenotypes).
Objective: to describe postnatal outcome of CCAg and Interhemispheric Cysts detected during fetal life.
Design/Methods: we selected patients with CCAg (partial or complete) and interhemispheric cysts detected during fetal life from our imaging database of 378 patients with midline brain anomalies scanned at Gaslini Children Hospital from January 2005 to January 2017. Inclusion criteria were fetal US or MRI diagnosis and presence of all clinical and EEG data. Presence and location of gray matter anomalies such as polymicrogyria (PMG) or nodular heterotopia (NH) were recorded. Data on perinatal history, clinical symptoms, neurosurgical intervention, presence of other associated malformations or facial dimorphisms, neurological examination, developmental and cognitive outcome, psychiatry comorbidities, EEG pattern, age of onset of seizure (if present) with drug sensibility were reported. Genetic tests were mentioned when available.
Results: Twenty-three patients (15 males, mean age at follow-up 10.7 +/-7.6 years) were selected. PMG was present in 16/23 (69%) and NH in 12/23 (52%). Three girls (3/23, 12%) received a clinical diagnosis of Aicardi Syndrome with severe developmental delay/intellectual disability and drug resistant epilepsy. Excluding Aicardi phenotype, epilepsy was detected in 8/20 patients (40%), with drug response in all cases. In this group of 20 patients, male sex was more represented (12/20, 75%) and no major neurological defects were found. Developmental delay (both on motor and verbal aspects) was observed in all cases. Cognitive outcome at last follow-up was stratified as normal in 15/20 cases (75%), borderline IQ in 2/20 cases (10%), and mild intellectual disability in only 1/20 case (5%). Psychiatric data were recorded for 15/20 patients: hyperactivity and anxiety were frequent comorbidities (8/15 cases).
Conclusions: excluding Aicardi syndrome, CCAg associated with Interhemispheric Cysts detected during fetal life may be associated with a good neurological outcome with borderline or normal cognition and no
major neurological signs in the majority of patients. Despite the presence of EEG anomalies, the occurrence of epilepsy in these cases is rare and usually responsive to antiepileptic drugs.
INTRODUCTION: Immigration in Italy is an important and widespread phenomenon. The number of newborns from migrant parents has progressively increased in the last twenty years. Problems related to mother and child health are frequent. The aim of this study was to describe the characteristics of preterm infants of foreign mothers, and to compare them with those of native mothers.

METHODS: All newborns attended in the Neonatology Unit of Hospital of Cosenza, Italy, between January 2016-December 2017 were included (4284 newborns). Pregnant immigrant women were classified in three regions (Eastern Europe, Africa, and Asia). Preterm birth (< 37 weeks) and preterm-small for gestational age (SGA) data were collected as neonatal morbidity variables. Gestational age was measured in weeks for each and this value was used to define the main study parameters: very preterm (VPT) (GA ≤32 weeks) and moderate-to late-preterm (MLPT) (GA < 37 weeks). Among these were identified SGA newborns (defined as a weight below the 10th percentile for the gestational age).

RESULTS: There were 3925 native newborns and 358 (8.3%) of immigrant origin for a total of 4283 newborns. Of the total newborn infants, 654 (15%) were preterm according to the established criteria, a percentage of 3,7% (158) of which were VPT and 11.5% (496) were MLPT. Among foreign babies were identified 212 (59%) newborns from Eastern Europe, 114 (31%) newborns from Africa, 32 newborns (8%) from Asia. The distribution of foreign preterm newborn infants in the study period was as follows: African newborns were 5,2% VP and 14% MLPT; Eastern Europe newborns were 4,7% VP and 13,6% MLPT; Asiatic newborns were 6,2% PT and 25% MPLT and Italian newborns were 3,5% VP e 11,2% MLPT. Small preterm babies comprised: 14% of African babies, 20% of Asian babies, 12,8% eastern Europe babies and 12% of Italian babies.

Infants of immigrated parents showed higher incidences of prematurity and low birth weight for gestational age. The study showed a higher risk in Asians and Africans while women from Eastern Europe had a similar rate to Italians.

CONCLUSION: The percentages of preterm infant (both VP and MLPT) were higher among immigrants than Italian newborns. Among ethnic groups, being of Asia or Africa origin was positively associated with adverse perinatal outcomes. This finding may be due to a higher incidence of maternal disease and genetic difference. In addition cultural reason, poor living conditions, less frequent prenatal care may explain these results. Strategies to improve prenatal care among immigrant women should be implemented to reduce fetal morbidities.
INTRODUCTION

Primary lymphedema is a chronic condition characterized by an excessive accumulation of protein-rich fluid, classified in congenital, praecox and tarda. Literature is poor in data concerning primary lymphedema in pregnancy. We report a case and a review of the literature.

METHODS

A 39-yo pregnant woman affected by grade II primary lymphedema showed post partum acute dyspnea, bilateral thoracic effusion of 7-8cm, anuria, mild heart failure, massive edema. At week 37 labor was induced due to pPROM and an emergency C-section was performed because of a non-reassuring CTG. A 2975g female was born showing persistent cutis marmorata without hydrops, edema or other congenital abnormalities. The pregnant woman was born prematurely with congenital hydrops caused by primary lymphedema. Genetic analysis found puntiform variations on CELSR1 gene, with missense mutation of the coded protein. The patient was at her first spontaneous pregnancy and showed bilateral swelling of upper and lower limbs, treated with conservative methods such as compressive garments and physical therapy. Symptoms were exacerbated by pregnancy and at week 33 lymphedema worsened to grade III, despite bandaging, and affected also the vulvar area. Hepatosis occurred at 35GA. Hypertensive disorders and diabetes were not found. Fetal anatomy and growth were found within normal ranges, although nuchal translucency was 2.9mm with low risk cfDNA. Invasive prenatal tests were not sought by the parents.

RESULTS

In spite of an uncomplicated pregnancy, the post partum period required treatment with Furosemide and Enoxaparin sodium. Improvements were already observed after 48h and after one week the thoracic effusion partially resolved, disappearing completely after 1 month. Both vulvar and limbs edema were treated also with manual lymphatic drainage. The neonate was closely observed and tests ruled out sepsis, hypothyroidism, genetic abnormalities and congenital malformations. Scientific literature is very poor. Brunner studied the effects of pregnancy on primary lymphedema affected women but no published cases were found concerning maternal, fetal and neonatal outcome.

CONCLUSIONS

Primary lymphedema is not an absolute contraindication to pregnancy. Preconceptional counseling is based on maternal genetic data and properly treated lymphedema. During pregnancy therapeutic routine should be continued to avoid worsening of symptoms and maternal cardiovascular activity should be closely
monitored. In puerperium attention should be given to avoid any delay or lack of therapy. Preventive measures are strongly recommended, including compressive garments, physical therapy, drainage therapy, and pharmacological therapy. Because of the increased risks, it is suggested to perform fetal nuchal translucency, advanced ultrasound scans and to offer genetic prenatal diagnosis. This is the first case published and others study are needed.
INTRODUCTION
The evaluation of the psychological burden during the prenatal diagnosis path, even in an uncomplicated pregnancy, and the analysis of factors that may contribute to a positive/negative experience of the women/couple still have many neglected areas. The aim of the study was to investigate the psychological impact of routine ultrasound (US) examination across the three trimesters of pregnancy.

METHODS
This is a prospective interventional study conducted from June 2016 to June 2017 in a single centre, IRCCS Burlo Garofolo, Trieste. Women attending the division of Fetal Medicine and Prenatal Diagnosis for routine-screening US examination in the three trimesters of pregnancy were recruited. The level of anxiety was assessed using the State-Trait anxiety inventory (STAI) through a questionnaire that was administered before and immediately after the US examination. The state anxiety (STAI-s) is the expression of the transitory unpleasant emotional response to a stressful situation, while trait anxiety (STAI-t) is the individual usual tendency to respond with anxiety to a stressful event. The study was approved by the local Ethical Committee.

RESULTS
Overall, 285 women were recruited (95, 93 and 97 in the I, II and III trimester, respectively). Before US examination, both STAI-s and STAI-t resulted clinically relevant in 29.5% and 26.7% of patients, respectively, with highest proportion for STAI-s in the first trimester (33.7%) and for STAI-t equally distributed in the second and third trimester (33.3% and 30.9%). In all cases the level of anxiety decreased significantly after the exam (p<0.001) with a more relevant reduction in subjects with a higher STAI-t before test (Figure 1). A gradual decrease in the STAI-s before examination was seen across the three trimesters with a significantly higher score in the first trimester (p=0.017; Figure 1).

CONCLUSIONS
The results of our study show that pregnant women are susceptible to high level of anxiety (STAI-t), and that routine ultrasound examination across the three trimesters of pregnancy can generate clinically significant state anxiety. Moreover, contrary to what we were expecting (the highest levels of state anxiety in occasion of the second trimester anomaly scan), it seems that women experience the highest state anxiety before the first trimester ultrasound. These data highlight that care of the mother
undergoing routine ultrasound examination should not focus exclusively on detection of fetal abnormality and wellbeing, and might be useful in improving our approach to the patient.
INTRODUCTION. Miscarriage is a frequent complication of early gestation. Till now its impact on mother wellbeing has not been thoroughly evaluated and studied. It is usual to give little importance to the psychological aspects of spontaneous abortion, since it is common thought that women who live this experience do not suffer, unlike what it is supposed for an endouterine death that occurs in the last stages of pregnancy.

Our aim was to investigate whether this event has a psychological impact on women.

METHODS. We performed a prospective study collecting 70 consecutive cases of miscarriage that were hospitalized in the Division of Obstetrics and Gynecology of the University of Cagliari. Patients gave their written consent to the study.

Clinical characteristics were collected and every patient fulfilled a questionnaire during hospital admission, investigating anxiety and depressive factors. Statistical analysis of the collected data was performed.

RESULTS. Our study showed that 34.3% of the patients had high levels of anxiety and 10% have high levels of depression.

Another important results was that the prevalence of anxiety and depression symptoms were higher in women at first pregnancy or with previous unsuccessful gestations had no other children and in older age women. Among the 70 couples in the study also showed that most of these were looking for pregnancy for some time and it was possible to observe as one of the couples in question, were looking for pregnancy for about 10 years.

CONCLUSION. Early miscarriage impact on women psychological health should not be underestimated. Women looking for a long period or that were not able to have live babies in previous pregnancies tend to feel responsible and guilty of this event, thus developing high levels of anxiety and depression. It seems clear how important could be to pay to the psychological aspects of women at diagnosis communication and in the follow-up in particular in a high-level obstetric clinic. In this regard, the role of the midwife, a professional health figure who in addition to scientific, theoretical and practical knowledge, has the empathic and communicative capacity necessary to follow the woman at crucial moments of life, could become very important.
ID 79

NOME PRESENTER
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TOPIC
MISCELLANEA PERINATALE

TITOLO
Replacing conventional G-banding karyotyping by array CGH in a selected fetal population.

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CONTENUTO
INTRODUCTION:
The detection rate (DR) of pathogenic abnormalities, previously undetectable by conventional G-banded karyotype, has increased after the introduction of array comparative genomic hybridisation (aCGH) into postnatal diagnostic testing. Therefore there is an increasing demand for the use of this technology in the prenatal setting and several groups have recommended the replacement of karyotyping with aCGH as a front-line prenatal test. However there is still a huge uncertainty about the kind of patient who could really benefit from this test. The purpose of our study was to evaluate the clinical implementation of aCGH in prenatal diagnosis, in a selected population.

METHODS:
All patient performing an invasive test from June 2016 to December 2017 and presenting the inclusion criteria were enrolled on the study. aCGH testing was offered in all fetuses where conventional karyotyping by amniocentesis or chorionic villous sampling (CVS) was indicated, and quantitative fluorescent PCR (qfPCR) was normal, if: 1) one or more structural anomalies were identified on an ultrasound scan; 2) an isolated nuchal translucency NT≥3.5 mm was found (crown-rump length within 45 and 84 mm). Exclusion criteria were: maternal age <18 yo. The samples were analyzed using the Agilent Human Genome CGH Microarray Kit 180KX4 (AMADID 022060), average spacing of 11 -13 kb oligonucleotides and its relative software, the Agilent CytoGenomics Edition 3.0.6.6 (ADM-2 algorithm; hg19 release). Conventional G-banded karyotype was always performed as control.

RESULTS:
Between June 2016 and December 2017, 340 invasive procedures were performed and 57 patients (50 amniocentesis and 7 chorionic villous sampling) presented the inclusion criteria for the study. There were 7% (4/57) samples with copy number variations (CNVs) detected by aCGH but not by conventional cytogenetics. One out four cases (1,7%) was a CNV of unknown significance (VOUS) found to be de novo. In the remaining samples aCGH findings were concordant with conventional cytogenetic results. Therefore aCGH had an additional DR of 5,2% in our series.

CONCLUSIONS:
This study indicates the ability of aCGH to identify chromosomal abnormalities which cannot be detected during routine prenatal cytotgenetic analysis. However because of the costs and because of the possibility of unclear results, we propose replacing conventional cytogenetics with aCGH only in selected cases, when a fetal abnormality or a NT above the 95th centile is found at US scan, after excluding common aneuploidies and by qfPCR.
Monochorionic (MC) twins are at increased risk of in-utero fetal death (IUFD), as a consequence of typical complications such as twin-to-twin transfusion syndrome (TTTS), selective intrauterine growth restriction (sIUGR) or even in absence of any evident cause. Single fetal demise exposes the co-twin survivor to exsanguination in the empty placental territory through vascular anastomoses, with a subsequent acute hypovolemia leading to anemia, which is responsible for multiorgan damage including cerebral injury, or death. It is assumed that the risk of cerebral injury in MC twins survivors after single IUFD is four times higher than in dichorionic ones.

The aim of this study is to evaluate the incidence of cerebral injury in a large series of single twin survivors after spontaneous death of one twin, occurred in complicated or uncomplicated MC pregnancies, and to identify ultrasonographic (US) detectable risk factors.

We present a retrospective analysis of all MC pregnancies with single fetal demise diagnosed or referred to our centre from 2004 to 2015. Survivors were investigated with detailed US evaluation of intracranial anatomy, Doppler investigation of peak systolic velocity in the middle cerebral artery (MCA-PSV) and Magnetic Resonance (MR). Data on pregnancy characteristics, postnatal brain US scan, MR and neurologic follow up were collected.

A total of 78 MC pregnancies were analyzed. Median gestational age (GA) at single fetal demise was 22 weeks; median interval between single demise and livebirth was 105 days, with a median GA at birth of 36 weeks. Prenatal MR was performed in 57 of 78 cases (73%).

Cerebral injury affected 14/78 (18%) co-twins, 2 of which were born immediately after single demise, with postnatal diagnosis of cerebral injury. Among the other 12 fetuses that were studied before birth, 11 had a prenatal diagnosis of lesion with US and MR, and in one case an intraventricular hemorrhage grade III was described only after birth, that occurred at 25 weeks.

The risk of cerebral injury was five-fold in fetuses with signs of anemia (MCA-PSV value above 1.55 MoM) and decreased with advancing GA.

Single fetal demise in MC twins is a severe event that can occur even in absence of any previous complication and exposes survivors to a risk of cerebral injury that can be diagnosed in prenatal life when referred to a tertiary center.

Cerebral injury affects 18% of co-twin survivors after single fetal demise in MC twin pregnancies.

MCA-PSV Doppler velocimetry, neurosonography and MR investigation seem to be a good predictor of cerebral injury. With signs of fetal anemia the pregnancy should be referred to a tertiary center for adequate management and counseling before any decision.
When surviving fetuses are found to be free from cerebral injury, the risk of a poor postnatal outcome is significantly low when delivery is delayed.
Introduction
The prevalence of obesity in women of childbearing age is dramatically increasing. The prepregnancy obesity and the excessive weight gain increase the risk of adverse perinatal outcomes, especially of intrauterine fetal death possibly related to placental structural changes. The aim of the study was to assess the correlation between obesity, placental findings and adverse perinatal outcomes.

Methods
We randomly selected 116 patients with prepregnancy BMI >= 30 and singleton pregnancy who delivered at the Maternity Hospital of the University of Parma from April 2016 to March 2017. The following data were collected: birthweight, incidence of SGA or LGA, arterial and venous cord pH, adverse perinatal outcomes (admission to NICU, IUFD, perinatal death). A group of non obese patients who delivered in our Maternity Hospital and in the region Emilia Romagna across the same period were selected as controls. A single pathologist performed histological analysis of the placenta in accordance with the Amsterdam Consensus Statement classification. Placental findings were compared with the ones obtained from a non consecutive series of placentae derived from a reporting population. Subgroups analysis based on maternal age (30 years) and on prepregnancy BMI (<35, >=35) were also performed.

Results
The rate of intrauterine fetal death was significantly increased in the group of obese women (2,5% vs 0,3%, p 30 years; p=0,05). The most part of placenta with malperfusion and delayed maturation were in the subgroup with BMI >= 35. Using logistic regression analysis, we found that in women with BMI < 35, the age <= 30 years protects from placental lesions (37% vs 66,7%; p=0,016). In SGA neonates placental findings were always reported as abnormal; the frequency of lesions significantly decreases with increasing neonatal percentile of weight (p=0,012).

Conclusions
Pregnancy in obese patients is significant related to the risk of intrauterine fetal death (eight times higher than the non obese group, in our study). Malperfusion and delayed maturation are more frequent in the placentae of obese women. The occurrence of abnormal placental findings seems inversely related to the birthweight and directly related to the increasing BMI and maternal age.
Maternal pregestational obesity is a significant risk factor for adverse pregnancy outcomes, such as gestational diabetes. Both these conditions can have an impact on placental development and affect maternal-fetal exchanges, compromising fetal metabolic status. The aim of the study is to investigate the influence of pre-pregnancy BMI on placental biometry and efficiency and to evaluate the role of gestational diabetes on fetal oxygenation in overweight and obese pregnant women.

METHODS
We enrolled 208 normal-weight (NW), 57 overweight (OW) and 69 obese (OB) women at the time of elective caesarian section. 10 OW pregnancies (18%) and 24 OB pregnancies (35%) were complicated by gestational diabetes (GDM). Maternal, fetal and placental data were collected. Respiratory gases, acid-base balance and lactate concentrations were measured in umbilical venous and arterial blood samples.

RESULTS
Gestational weight gain was significantly lower in OB women (NW=12.99 ± 4.48 kg; OB=8.03 ± 6.16 kg, p<0.001) and within standard recommendations (IOM: 5-9 kg). OW mothers had a weight gain during pregnancy not significantly different from NW (OW=12.11 ± 4.80), but they exceeded standard limits (IOM: 7-11.5 kg). We didn’t find significant differences about gestational age, fetal weight and fetal biometry. Placental weights were significantly higher in OB pregnancies (NW=457.67 ± 92.88 g; OB=487.60 ± 92.81 g, p<0.05), despite similar diameters and areas, and placental thickness was significantly higher in OB women, both with and without GDM (NW=1.66 ± 0.32 cm; OB NON GDM=1.94 ± 0.53 cm, p<0.01; OB GDM=2.00 ± 0.49 cm, p<0.01). Significantly lower F/P weight ratios were found in GDM pregnancies, both OW and OB (NW=7.42 ± 1.35; OW GDM=6.39 ± 1.24, p<0.05; OB GDM=6.45 ± 1.42, p<0.05). Fetuses from OB mothers were significantly more hypoxic and acidemic compared to NW fetuses (pO₂ UA: NW= 16.93 ± 8.63 mmHg; OB=14.94 ± 7.83 mmHg, p<0.05; lactate concentration UA: NW=1.69 ± 0.49 mmol/L; OB=1.99 ± 0.70 mmol/L, p<0.05). Studying the effect of GDM, also fetuses from OW GDM women showed significantly lower values of pO₂ in umbilical artery (14.08 ± 3.18 mmHg, p<0.05), and fetuses from OB GDM pregnancies the lowest pO₂ values (12.91 ± 7.00 mmHg, p<0.05).

CONCLUSIONS
Our data show that women with an early nutritional and behavioral counseling, such as OB and GDM mothers, have a better metabolic control and an optimal growth environment for the fetus. We also found that placentas from OB and GDM pregnancies are heavier and thicker, suggesting that an unbalanced pregestational nutritional status can decrease the placental efficiency in maternal-fetal exchanges. Finally,
fetuses from obese women are hypoxic and acidemic, while fetuses from gestational diabetic mothers are hypoxic, reflecting that an altered pre-pregnancy BMI can affect fetal oxygenation, and GDM can further compromise placental efficiency.

Keywords: obesity, gestational diabetes, placenta, oxygen
Umbilical and middle cerebral artery Doppler in hypertensive disorders of pregnancy: looking beyond a normally grown fetus.

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**CONTENUTO**
Introduction: Hypertensive disorders of pregnancy (HDP) include gestational hypertension (GH), chronic hypertension (CH), pre-eclampsia (PE) and eclampsia with increasing associated maternal and perinatal morbidity and mortality. In the last decade, new insights into the diagnosis and management of fetal growth restricted (FGR) at more than 32-34 weeks are emerging: the concept that bedside an apparently normal fetal growth an abnormal cerebro-placental (CPR) Doppler may suggest that there is suboptimal placental development and deprivation requiring fetal adaptive mechanisms always leading to adverse perinatal outcome. The aim of the present study was to investigate whether the fetal Doppler findings could help to identify at later gestations HDP pregnancies that have signs of poor placentation despite a normal growth. Thus, we examined the umbilical artery (UA) and middle cerebral artery (MCA) Doppler in AGA (appropriate for gestational age) fetuses of healthy and HDP pregnancies at \( \geq 32 \) weeks. Methods: A retrospective study was conducted on 75 pregnant women with HDP and 161 women with uncomplicated pregnancies as controls. UA and MCA pulsatility indexes (PI) were expressed as Z-score while the CPR in MoM. Results: Similar results in UA PI and MCA PI Z-scores and CRP MoM were found among the two populations. After dividing both groups according to the gestational age at the examination, no difference among cases and controls was detected at > 34 weeks while \( \leq 34 \) weeks a significant statistically increased in the UA PI Z-score (p=0.004) with similar decreased CPR MoM (p=0.008) was identified. Conclusions: Our data support the increased body of evidence in literature that cerebro-placental Doppler may highlight a suboptimal placental functioning despite a normal fetal growth. In our population, this is evident in HDP pregnancies at \( \leq 34 \) weeks where the Doppler examination could show fetal adaptive mechanisms before the fetal growth restriction become evident probably because the worsening maternal conditions mainly due to PE and CH lead to the delivery earlier.
INTRODUCTION
Birth weight discordance (BWD) is one of the major issues of perinatal outcome in twin pregnancies, regardless of chorionicity. Recently, both dichorionic (DC) and monochorionic (MC) twin pregnancies discordant for fetal growth have been reported to be at higher risk of intrauterine death (IUD). The aim of this study was to evaluate the relationship between BW discordance and perinatal morbidity in twin pregnancies.

METHODS
Medline, Embase, Cinahl and Clinicaltrials.gov databases were searched. Only studies reporting the occurrence of morbidity in twin pregnancies affected compared to those not affected by weight discordance were included. The analysis was stratified according to different types of morbidity (respiratory, neurological, infectious, admission to neonatal intensive care unit and necrotizing enterocolitis). Furthermore, a composite score including the occurrence of at least one of the observed outcomes in twins affected compared to those not affected by BW discordance was computed. The weight discordance cut-offs considered were ≥15%, ≥20%, ≥25%, ≥30%. Meta-analyses using individual data random-effect logistic regression and meta-analyses of proportion were used to analyze the data.

RESULTS
Twenty-two studies including 8932 twin pregnancies were included. Overall twins with BWD >20% had an increased risk of morbidity (OR: 1.80; 95% CI 1.5-2.2). Growth discordant twins had an increased risk of severe neurological morbidity (OR: 2.0; 95% CI 1.9-2.3), pH25% the overall risk of morbidity was higher, compared to those with less degree of growth discrepancy (OR: 2.4; 95% CI 1.9-3.1). Twins with BW discordance > 25% had an increased risk of severe neurological morbidity (OR: 2.4; 95% CI 1.3-2.7), pH<7,2
(OR: 2.2; 95% CI 1.8-3.4), admission to NICU (OR: 2.9; 95% CI 2.0-3.8), but not respiratory morbidity (p=0.629), NEC (p=0.827) and infectious morbidity (p=0.243).

CONCLUSION:
Weight discordance is associated with perinatal morbidity in twin pregnancies. The strength of association between BW discordance and morbidity in twins increases with increasing the cut-off of discordance and it is mainly related to neurological events and abnormal acid-base status.
ID 85

NOME PRESENTER

TOPIC
MISCELLANEA PERINATALE

TITOLO
ONDINE DID NOT BLEES THE NEWBORNS - AN EARLY ONSET OF CCHS

AUTORI
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AFFILIAZONI

CONTENUTO
#N/A
ID 86

NOME PRESENTER
Gaia Maria Anelli

TOPIC
NUOVE FRONTIERE IN MEDICINA PERINATALE

TITOLO
17-Beta Estradiol in Obese Pregnancies

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CONTENUTO
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).
Methods: venous blood was collected at elective cesarean section from 24 normal-weight (NW) and 23 obese (OB) women, eight with GDM [OB/GDM(+)] (75 gr-OGTT; FIGO guidelines). EDTA samples were centrifuged at 1500rpm x15min 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≤0.001), while basal glycaemia only in OB/GDM(+) (p≤0.001) following inclusion criteria.
Placental weight and thickness were significantly higher in both obese 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].
17-Beta Estradiol concentration [pg/mL] resulted significantly lower in OB [17593.2±5493.6] vs NW [23049.8±11810.1] (p≤0.05). When considering the presence of GDM, OB/GDM(+) [19701.9±4583.9] showed no differences compared to either OB/GDM(-) or NW, while OB/GDM(-) [16468.5±5746.6] 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) [Figure1A-B].
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.
ID 87

NOME PRESENTER
Angela Spadafranca

TOPIC
NUOVE FRONTIERE IN MEDICINA PERINATALE

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

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CONTENUTO
Introduction. Gestational Diabetes Mellitus (GDM) is associated to not 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 MedDiet 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 thickness skinfold were evaluated. All measurement were made after the 26 gestational week.

Results. GDM+ and GDM- women were similar old (34 ± 4 ys vs 37 ± 6 ys , 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).

Conclusion. 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 however 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.
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 atroventricular 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 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.

Conclusion 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.
Clinical and metabolic outcomes in pregnant women at risk for GDM supplemented with myo-inositol. A secondary analysis from 3 RCTs

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 (4g/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).

CONCLUSION: Once administered early in pregnancy, myo-inositol prevents preterm birth and macrosomia in women at risk for GDM.
INTRODUCTION: Endothelial Progenitor Cell (EPCs) and Natural Killer Cells (NKCs) can be mobilized into the bloodstream and may orchestrate vascular endothelium function and were recently advocates in the pathogenesis of preeclampsia (PE). The aim of our study was to evaluate in early pregnancy circulating EPCs and NKCs in peripheral blood in women who later developed PE compared to uncomplicated pregnancies.

METHODS: we prospectively enrolled pregnant women at 9+0-11+6 weeks of gestation who underwent peripheral venous blood sample. We included only women who later developed PE (cases) and women with uncomplicated pregnancy (controls), matched for maternal age, parity, and Body Mass Index. In these groups, we evaluated the levels of CD16+CD45+CD56+ NKCs and CD34+CD133+VEGF-R2+ EPCs in peripheral blood samples previously stored. RESULTS EPCs were significantly lower (p < 0.001), whereas NKCs were significantly higher (p < 0.001) in PE group compared to uncomplicated pregnancies during the first trimester. CONCLUSION The evaluation of EPCs and NK cells in peripheral blood during the first trimester may be considered an effective screening for the early identification of women at risk of developing PE.
INTRODUZIONE

La recente indicazione che l'uso del Doppler ultrasonografico in feti a termine senza patologie è in grado di identificare quelli con danni placentari subclinici. L'obiettivo di questo studio era valutare la relazione tra rapporto cerebroplacentrale (CPR) misurato nel parto precoce e perinatali e risultati alla nascita in un gruppo di singleton termine non complicati.

METODI

Questo è stato un studio multicentrico, prospettico, osservazionale coinvolgendo tre centri terziari. Le gravidanze a termine di basso rischio, come definito dalla assenza di qualsiasi morbidità materna e complicazioni di gravidanza e screening ecografico normale della crescita del feto nel terzo trimestre, con inizio spontaneo del parto erano incluse. I casi hanno sottoposto misurazione Doppler dell'arteria renale (UA) e dell'arteria cerebrale media (MCA) alla nascita. Tutti i risultati sono stati eseguiti durante le contrazioni uterine e in conformità ai criteri internazionali. Il CPR è stato calcolato dividendo l'indice di pulsatività MCA e UA e convertito in MoMs per adattare alla gestazione. I casi con CPR MoM ridotta, come definito da CPR MoM all'interno del decile inferiore della popolazione studiata, sono stati confrontati con quelli con CPR MoM normale. I dati riguardanti il mezzo di parto e i risultati perinatali sono state raccolte e correlate con l'analisi Doppler. I medici e infermieri coinvolti nella gestione clinica dei pazienti erano privi di conoscenza dei risultati dell'analisi Doppler.

RISULTATI

In generale, 562 pazienti sono state incluse. La frequenza di interventi obetrici per sospetto distress fetale in labor era circa tre volte più frequente tra i casi con CPR MoM ridotta (9/54, 16.7%, vs 28/508, 5.5%, p 0.004). Inoltre, è stata trovata una significativamente maggiore frequenza di risultati complessivi perinatali negativi nei neonati con CPR MoM <10th percentile (6/54, 11.1%, vs 19/508, 3.7%, p 0.012).

CONCLUSIONI

La misurazione Doppler precoce nel parto può essere un indicatore di successive interventi obetrici e risultati perinatali negativi nei feti a termine senza patologie.
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.
INTRODUCTION
Labor induction (LI) is probably the most common obstetric procedure, which is growing up not only in high-income countries, but also in many middle-income and low-income countries. A rationale approach to LI should be an elective one. In particular, it has been shown that LI in pregnancy at or beyond term compared with expectant management is associated with fewer perinatal deaths and fewer caesarean sections (CS).

METHODS
From the clinical charts of the last 4 years, we considered 1000 pregnancies in which an elective LI was performed. Elective reasons for LI included post-term pregnancies at 41 weeks + 3 days or more, and pregnancies at term with particular conditions that potentially may affect fetal health like oligoamnios (Amniotic Fluid Index, AFI < 5) or not reassuring fetal heart monitoring (criteria of Dawes and Redman not satisfied after 1 h). Other elective reasons for LI were: Premature Rupture of Membranes (PROM) out of labor at 37° week or more, Gestational Diabetes Mellitus (GDM), suspected macrosomia, Gestational Hypertension (GH) and Small for Gestational Age (SGA) babies. The rate of CS was the primary outcome considered.

RESULTS
In the group of LI, the rate of CS did not increase compared to unselected pregnant population.

DISCUSSION
As reported by other studies, LI with prostaglandin is safe for the mother and don’t worsen the rate of CS.
ID 93

NOME PRESENTER
Andrea Dall’Asta

TOPIC
NUOVE FRONTIERE IN MEDICINA PERINATALE

TITOLO
Fetal brain ultrasound tutor for interactive multiplanar navigation through the normal fetal brain.

AUTORI
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CONTENUTO
Introduction
A comprehensive assessment of the fetal brain is among the most difficult tasks of antenatal ultrasound. A specific expertise is warranted to recognize the normal sonographic aspects of the main structures and their physiological changes throughout pregnancy in the different view planes. The objective of this study was to produce an interactive and dedicated tool for the navigation of the normal fetal brain.

Methods
A series of fetal brain ultrasound volumes were acquired transabdominally in the axial, coronal and sagittal planes from normal fetuses at 20-22 wks. The volume datasets of highest quality were selected and converted into scroll-through cine loops. These were split into individual frames along the three scanning planes. An integrated cross-platform authoring tool was used to construct interactive 3D content for stand-alone use on mobile devices, based on the 3D volumes. Every frame was reviewed and the anatomic structures appearing on it were identified and labelled. Eventually, pictures were reassembled and transformed in a virtual reality (VR) object suitable for navigation.

Results
A VR object representing comprehensive sonographic views on the axial, coronal and sagittal plane of one normal fetal brain at mid-trimester was constructed for use on a mobile device. All the planes were made scrollable using the touchscreen.

Conclusion
We have produced the first fetal brain ultrasound tutor for download and stand-alone use on a mobile device. This tool may improve the recognition of the normal sonographic anatomy of the fetal brain thanks to an interactive multiplanar navigation through a VR object.
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 Ut-A 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.
Introduction: The rise 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 (odd 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.
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 seems 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.

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.

Our results indicated that rs1801133 T-allele in mothers 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).

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.
Maternal and embryo’s MTHFR genotypes influence the risk of spontaneous abortion

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This preliminary study indicates 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.
CONTENUTO

Introduction
There is no consensus as to how to distinguish and manage constitutional and pathological fetal smallness beyond 32 weeks. The objective of this study was to evaluate the maternal and fetal Doppler features at diagnosis and their implications within a selected cohort of fetuses with late onset fetal growth restriction (FGR).

Methods
We conducted a retrospective evaluation (2015-2017) of all cases of late onset FGR referred to a single tertiary Unit. Late FGR was defined by either estimated fetal weight (EFW) 95th centile or cerebroplacental ratio (CPR) 95th centile (10.0%), 2 cases of isolated UA PI >95th centile (1.3%) and 17 cases of isolated CPR <5th centile (11.4%). Raised UA PI was associated with reduced CPR in 13 cases (8.1%), 9 women showed low CPR associated with abnormal UtA PI (6.0%) and 12 patients showed full abnormal maternal and fetal Doppler evaluation (8.1%), being CPR <5th centile the most common abnormal finding (51/68 cases, 75%). Late FGR with Doppler changes was significantly associated with elective delivery (91.2% vs 62.9%, p <0.01), lower birthweight centile (p 0.027) and postnatal diagnosis of small for gestational age (0.048) but not with obstetric intervention needed to expedite delivery (p 0.10).

Conclusion
Within a selected cohort of late FGR fetuses nearly half of cases show either maternal or fetal abnormal Doppler, mostly represented by low CPR. This finding seems to increase the risk of fetal smallness but not of intrapartum complications.
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, nutritional score showed a significant negative association with placental volume (β= -0.13), but a positive association with CRL/placental volume ratio was (β =0.08, p<0.01)

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.
Background: Some studies have already investigated about the short-term favorable metabolic effects of breastfeeding in women with previous gestational diabetes mellitus (GDM). Aim: The aim of our study is to confirm whether the positive effects reported are maintained in the larger cohorts of patients with mild form of gestational diabetes mellitus (GDM) because recently diagnosed according to IADPSG criteria. Materials and methods: This retrospective study includes 97 evaluable consecutive women with prior GDM who have the follow-up oral glucose tolerance test at least 3 months after delivery. Fasting and 2-h plasma glucose values, homeostasis model assessment (HOMA-IR), total cholesterol, and triglycerides were obtained in pregnancy and during the post-partum control. Results: These patients were divided in 81 (83.5%) who lactate until 3 months and 16 (16.5%) who did not lactate. During pregnancy, there are no significant differences between the two groups for age, BMI, fasting and 2-h plasma glucose values, HOMA-IR, total cholesterol and triglycerides. At the postpartum control, we have at univariate analysis significant differences for all these parameters except total cholesterol. After adjustment for confounders we still have, in the breastfeeding group, HOMA-IR reduction (OR 0.370; 95% CI 0.170–0.805; p < .01) as significant independent variable, whose improvement is the most acknowledged important factor for the prevention of abnormal glucose tolerance later in life. Conclusion: These encouraging results confirm our determination to warmly advice the women affected by GDM to breastfeeding at least for 3 months.
ID 101

NOME PRESENTER
Antonella Federica Montalto

TOPIC
NUOVE FRONTIERE IN MEDICINA PERINATALE

TITOLO
miRNA expression for early diagnosis of preeclampsia onset: hope or hype?

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CONTENUTO
Purpose: Preeclampsia (PE) is a multi-systemic disease characterized by hypertension, proteinuria and other typical signs that can negatively affect the development of pregnancy. The outcome of the disease is strongly linked to the possibility of early diagnosis, in order to prevent the clinical manifestations.

Pathogenesis is still unknown, although abnormalities of placenta development linked to angiogenesis alterations and abnormal trophoblastic invasion seem to be involved, corroborating the epigenetic theory. Basing on these elements, this review aims to summarize the possible role of miRNAs in PE onset, both as increased or decreased expression in placenta or as maternal serum markers.

Materials and methods: We considered eligible all original articles (randomized, observational and retrospective studies), published between 2000 and 2016 in English language, about miRNA expression in placenta and maternal serum levels both in uncomplicated and PE pregnancies.

Results: Available data support a direct correlation between selective miRNAs high/low expression in placenta and maternal serum, although it is still unclear how these epigenetic changes may affect the development and outcomes of the disease.

Conclusion: Future studies should aim to identify a robust panel of miRNA markers in order to predict the onset and development of PE.
CONTENUTO
Introduction. Pregnancy is increasingly common in patients with advanced or intensely proteinuric 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 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 ecographic 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 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).

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.
ID 103

NOME PRESENTER
Stefania Palella

TOPIC
NUOVE FRONTIERE IN MEDICINA PERINATALE

TITOLO
Peripheral blood CD34+ cells as a novel and noninvasive early marker of first trimester miscarriage: results from a case-control analysis

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CONTENUTO
Purpose: To evaluate the levels of peripheral blood CD34+ cells in women who subsequently had a spontaneous miscarriage (SM).

Materials and methods: We enrolled 11 women who had SM, matching them for age, BMI and gestational age with 33 healthy pregnancies (controls). From a blood sample at 9th–11th weeks of pregnancy, we evaluated PAPP-A, free b-hCG, T (suppressor and helper), NK, B, CD34+ cells.

Results: In peripheral blood of women who had SM, PAPP-A and CD34+ cells were significantly lower (p<0.001) compared to control group.

Conclusions: CD34+ cell low level in peripheral blood is associated with increased risk of SM.
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 Luscher color test (LCT). 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 Luscher Color Test in the morning before discharge, when the newborns were 36 h old. The Luscher 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 Luscher 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 postdischarge, when mother–infant contact is almost exclusive. The Luscher Color Test resulted a test with good characteristics: it is very easy, because it simply asks to choose colors based on preference or refuse. 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 person as she really is, and not as she perceives herself or would like to be, which often many questionnaires ask.
ID 105

**NOME PRESENTER**
Angelo Sirico

**TOPIC**
NUOVE FRONTIERE IN MEDICINA PERINATALE

**TITOLO**
Pregestational diabetes impairs fetal heart rate in the first trimester of pregnancy

**AUTORI**
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**CONTENUTO**

**Objectives**
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 in controls (161; IQR 11 vs. 158; IQR 10, \( \chi^2 = 5.13, p=0.02 \)). 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.

**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.
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 (Fairburn & Beglin, 2008).

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 overweight (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.
Introduction

Despite 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 priority 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 breastmilk substitutes (BMS) (complementary feeding), while 15% did not receive breastmilk 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.

Conclusion
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.
Contenuto

Introduzione

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.

Metodi

R.I.S.POS.T.A. (Randomised Italian Sonography for Occiput POSition Trial Ante Vacuum) was a randomised controlled trial conducted from April 2014 to June 2017 and involving thirteen 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=1306) 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 ultrasound assessment of fetal position prior to vacuum would decrease this risk to 2%.

Risultati

Overall, 222 women were randomized and 221 were included in data analysis, of whom 132 (59.4%) were randomized to VE and 89 (40.6%) to VE plus US evaluation prior to vacuum delivery. 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.
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 to build 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 (Odd 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).

Conclusion: 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.
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 factor may influence significantly GDM related complications.

Methods: To evaluate which risk factor for Gestational Diabetes Mellitus might predict adverse clinical outcomes we considered 550 women with GDM, with at least one risk factor, were diagnosed after a 75 g Oral Glucose Tolerance Test (OGTT). The adverse pregnancy outcomes considered were: LGA fetus, gestational hypertension, preterm delivery, caesarean section (CS) in emergency.

Results: The most frequent were maternal age ≥ 35 years (50.6%); BMI ≥ 25 (55.4%), including obese women and family history for type 2 diabetes (45.6%). 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 the percentage of pre-term birth, gestational hypertension and LGA foetuses is more than double respect 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 (table 4). The most significant was 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 foetuses 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 was 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.
ID 111

NOME PRESENTER
Ottanelli Serena

TOPIC
NUOVE FRONTIERE IN MEDICINA PERINATALE

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

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CONTENUTO
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, 1hour and 2hour 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.
CONCLUSION: 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.
The use of computerized cardiotocography in the management of late Intrauterine growth restricted and Small for gestational Age fetuses

Background
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.

Aim
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 foetuses. 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.

Materials and 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 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 more prevalent mode of delivery in late IUGR more than in SGA; however, the SGA group registered a
higher CS rate during labour because of cadiotocographic anomalies. No significant correlation was found between STV, Apgar score and cordonal acid-base score (including pH, pCO2, pO2, HCO3 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.

Discussion and Conclusion
STV alone seems inadequate in distinguishing between SGA and IUGR or controls; this may be related to the fact that late IUGR have similar biophysical wellbeing features as 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.
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 pre-eclampsia (PE) and/or IUGR. 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 1000 champions. All models of regression returned a 100% power and a type I errors of 5%. Fetal weight estimation models, based on three-dimensional acquisition of the FTV is comparable to conventional two-dimensional (2D) sonographic measurements during the second and third trimesters of pregnancy (p<0.001). We obtain a better accuracy of fetal weight estimation before 30th weeks of gestation (r²=0.97 vs r²=0.73; F value=497 vs F value=44) in IUGR and in high-risk pregnancy for PE and/or IUGR (r²=0.97 vs r²=0.94; F value=1170 vs F value=307). Bootstrap resampling analyse the relationship between the tests confirmed their level of statistical signficance. Only in the 4.5% of the cases (5/112) it has not been possible to obtain the fetal weight from the FTV. The precision of fetal weight estimation, before 30th weeks, can be improved by adding the FTV and it could be consided a parameter in the algorithm weight to improve its diagnostic accuracy. This data may be helpful to assess fetal growth and to diagnose deviation from the normal growth.
Background 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.

Aim 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 (SaO2) 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. Birthweight was 3326 ± 492,4 gr. Gestational age was 39 ± 1,06 weeks. Hematocrit at day two of life was significantly different between the three groups (p=0.004): Htc was lower in ECC group than in the DCC group (50+4% vs. 55+6%; p=0.01) and UCM group (50+4% vs 55+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; SaO2, 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 two of life compared to ECC and increase postnatal HR. Despite uterine atony, DCC seems to support an effective placental transfusion; but 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 CUCM) are needed.
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**TITOLO**  
Vegan-vegetarian diet role in improving foetal growth and avoiding dialysis in pregnant CKD patients: a case report.

**AUTORI**  
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**CONTENUTO**

Introduction. Pregnancy is increasingly encountered in advanced CKD as an effect of improvement in materno-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 aminoacids and chetoacids 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.

Methods. A 28 years old woman with stage 4 CKD known since infancy, relatively stable since 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.

Results. 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 (Figure).

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, amniorexis and oxitocine infusion) and she delivered a healthy female baby at 33 weeks and 6 days of gestational age. The baby was adequate for gestational age (weight: 1900 g, corresponding to 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, 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.
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 who were 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. Conclusion: In conclusion, 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.
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