

# PRETERM LABOR AND BIRTH: PREVENTION, RISK FACTORS, TOCOLYSIS, STEROIDS, MAGNESIUM, PROGESTERONE, CERCLAGE, PESSARY – 006

## PERINATAL MORTALITY AND CLINICOPATHOLOGICAL FINDINGS OF PREMATURE NEWBORNS IN A GREEK TERTIARY HOSPITAL

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### INTRODUCTION

Perinatal mortality is defined as the population of stillborn fetuses and newborns that occur on delivery. Perinatal period is the period that includes fetuses weighing > 500g (22nd week of gestation) and newborns aged up to seven days. Infants born prematurely are more likely to pass away during the neonatal period (up to 28 days) and the first year of life than full-term newborns, increasing rates according to the gestational age, or reduced birth weight. The purpose of this study is the identification, classification and frequency of causes of perinatal mortality in premature infants during twenty years 1992-2012 in a tertiary Maternity Hospital in Athens

### METHODS

This is a retrospective study based on Pathology Department record and contains autopsy findings of fetuses and newborns of the period 1992-2012 in conjunction with clinical information. We excluded pharmaceutical miscarriage and those contained vague variables. The total population birth to the mentioned years in our Hospital was 23.242. We used the classification system of ReCoDe (2005) which best suited to our data.

### RESULTS

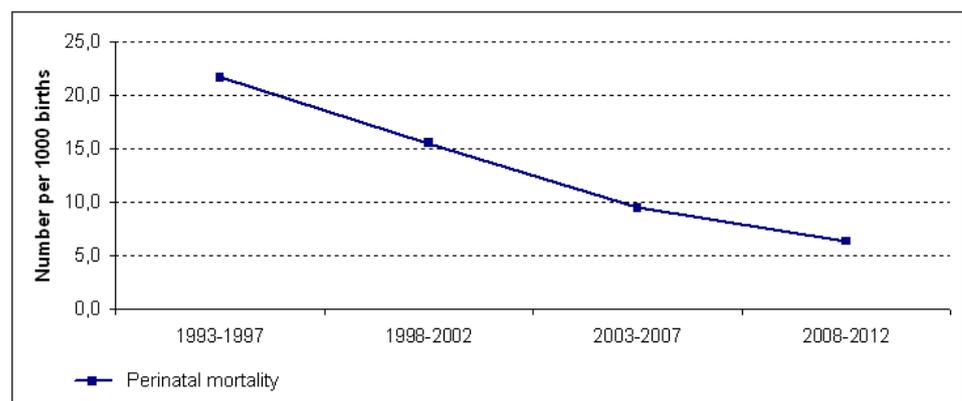
A detailed description of embryo-membranes and clinical status of the mother was performed. Finally we identified 15 newborns who had come up to the 28th day of their life, of which 12 (80%) were premature. The majority was females and the mean age of the mothers was 28 years old. 7/12 newborns dies of fetuses' problems, while 3/12 due to intrapartum pathology.

### CONCLUSION

The big percentage of premature newborns that pass away the first days of their lives comparing to fullterm newborns shows the sensitivity and the pathology of these fetuses. Pathogenesis of perinatal mortality of premature babies is often unclear, and associated with multiple pregnancies. Impressive reduction of neonatal mortality has been realized during recent years due to the developments in obstetric and neonatal intensive care, but still many improvements are needed



towards this purpose.



*Prematurity, perinatal mortality, Greece, premature newborns*

## **PRETERM LABOR AND BIRTH: PREVENTION, RISK FACTORS, TOCOLYSIS, STEROIDS, MAGNESIUM, PROGESTERONE, CERCLAGE, PESSARY – 009**

### **COMPREHENSIVE ANALYSIS OF MULTIPLE PROTEINS IN AMNIOTIC FLUID TO PREDICT THE OUTCOME OF EMERGENCY CERCLAGE: A COMPARISON WITH CERVICAL DILATATION**

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#### **INTRODUCTION**

To investigate whether pro-inflammatory cytokines, matrix metalloproteinases (MMPs) and complements in amniotic fluid (AF) can predict the extremely preterm birth (before 28 weeks) after emergency cerclage in women with cervical insufficiency and to determine if the addition of these tests improve the predictive value of cervical dilatation at presentation.

#### **METHODS**

This retrospective cohort study included 39 consecutive women with singleton pregnancy (17-26 gestational weeks) who underwent amniocentesis before receiving emergency cerclage for cervical insufficiency. Cervical dilatation was determined by visual evaluation of a sterile speculum examination. AF was assayed for five cytokines, five MMPs and C3a and C5a by using multiplex immunoassay and ELISA kits. The primary outcome measure was spontaneous preterm delivery (SPTD) at < 28 weeks.

#### **RESULTS**

SPTD at <28 weeks of gestation occurred in 54% (21/39). The women who had SPTD at <28 weeks had significantly more advanced cervical dilatation at presentation. The AF concentrations of matrix metalloproteinase (MMP)-3, MMP-8, MMP-9, interleukin (IL)-6, IL-8, monocyte chemotactic protein-1, macrophage inflammatory protein (MIP)-1 $\alpha$ , and MIP-1 $\beta$  were significantly higher in women with SPTD at <28 weeks. Cervical dilatation was significantly correlated with any of these proteins except for MMP-9 in AF. By using significant variables from univariate analyses stepwise regression analysis indicated that only cervical dilatation was selected as the best predictor of extreme preterm birth after cerclage.

#### **CONCLUSION**

Several cytokines and MMPs in AF, but not complements, can predict extreme preterm birth after emergency cerclage in women with cervical insufficiency, but may not be superior to cervical dilatation. Comprehensive analysis of multiple proteins in AF may not add predictive information to the cervical dilatation in this setting.

## **PRETERM LABOR AND BIRTH: PREVENTION, RISK FACTORS, TOCOLYSIS, STEROIDS, MAGNESIUM, PROGESTERONE, CERCLAGE, PESSARY – 010**

### **CERVICAL LENGTH AFTER EMERGENCY CERCLAGE IS THE MOST IMPORTANT PREDICTIVE FACTOR FOR SUCCESS PREGNANCY OUTCOME**

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#### **INTRODUCTION**

To determine the factors associated with success of emergency cerclage in pregnant women with single gestation.

#### **METHODS**

A retrospective study of pregnant woman who underwent emergency cerclage from 2009 to 2015 at St. Vincent's Hospital of Catholic university was performed. Inclusion criteria of the study were that there must be 1) a singleton pregnancies between 16+0 weeks and 27+6 gestational weeks, 2) no regular painful contractions or 3) no premature rupture of membranes, 4) cervical length was below 2 cm. Success pregnancy was defined as delivery after 34 weeks. Univariate and multiple logistic regression analysis were used to evaluate associated factors with success pregnancy.

#### **RESULTS**

A total 70 pregnant women with complete data were available for analysis. On univariate logistic regression test, maternal age, BMI, gestational age at cerclage, membrane bulging, sludge, cervical dilatation, cervical length at cerclage and cervical length after cerclage were significant variables associated with success pregnancy. Using multiple logistic regression, cervical length after cerclage was independent predictive variable for success pregnancy.

#### **CONCLUSION**

Among the various factors, cervical length after emergency cerclage is the most important predictor for success pregnancy.

*Emergency cervical cerclage, cervical length, single pregnancy, predictors of outcomes*

## POSTPARTUM HEMORRHAGE – 013

### OBSTETRIC HAEMORRHAGE: MATERNAL MORTALITY AND NEAR MISS – WHAT DOES OUTCOME DEFINE?

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#### INTRODUCTION

The problem of obstetric hemorrhage is an acute and urgent, as it's associated with high rates of maternal mortality. Currently audit of near miss cases in obstetrics can be regarded as a significant tool for the systematic evaluation of the quality of care.

The aim of the study was to conduct a comparative assessment of women who died and survived at a massive uterine bleeding during pregnancy, childbirth and the postpartum period in the Kemerovo region.

#### METHODS

A retrospective analytical study was conducted. Group I included 21 women who died from obstetric hemorrhage in the Kemerovo region for the period 1998 to 2010, Group II consisted of 188 "near miss" women from obstetric hemorrhage between 2010 and 2011, births in the Kemerovo region.

#### RESULTS

In contrast to the "near miss" women, patients who died from obstetric hemorrhage, more often didn't have a permanent residence - 4.8% [0,9-22,7] ( $p = 0.007$ ), were single (38.1% [20,8-59,1]), suffered from alcohol dependence, more often had B (III) (33,3%) and AB (IV) (23,8%) blood groups. Dead women more often suffered from blood disorders (13.3%), had a combination of extragenital diseases (66.6%), inflammatory gynecological diseases (64.3%), uterine fibroids (75%) and had more spontaneous abortions (33.3%) in history.

The main causes of bleeding were placental abruption during pregnancy and the early postpartum hemorrhage. 38.1% of women who died after birth had hypotonic uterine bleeding and 14.3% women had the placenta accrete.

The main problems of obstetric care in women who died from obstetric hemorrhage were non-compliance with clinical protocols (91%), delayed surgery (63%), incorrect tactics of infusion-transfusion therapy (86%).

#### CONCLUSION

Thus, women who died from obstetric hemorrhage more likely had problems of socio-economic and health status. The main causes of bleeding in these patients were hypotonia of the uterus and placenta accrete. The critical condition more often occurred in the postpartum period. The main problem of providing obstetrical care to these women was non-compliance with regional clinical protocols.

*Near miss, obstetric haemorrhage, maternal mortality*

## **PRETERM LABOR AND BIRTH: PREVENTION, RISK FACTORS, TOCOLYSIS, STEROIDS, MAGNESIUM, PROGESTERONE, CERCLAGE, PESSARY – 014**

### **PREMATURE RUPTURE OF MEMBRANES: OUTCOMES OF PRETERM PREGNANCIES AND DELIVERIES**

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#### **INTRODUCTION**

Preterm premature rupture of the membranes (PPROM) occurs in 3% of pregnancies and causes around 25-30% of all preterm deliveries. Since PPRM is associated with lower latency from membrane rupture until delivery, it is an important cause of perinatal morbidity and mortality.

Objective : To estimate the outcomes of pregnancies and deliveries, complicated by PPRM before 37 weeks of gestation depending on the length of the latency period.

#### **METHODS**

This study included 117 women with PPRM and preterm pregnancy. The inclusion criteria were singleton pregnancy, gestational age 24-36 weeks. The exclusion criteria were full term pregnancy, multiple pregnancy, pregnancy after IVF, severe preeclampsia, congenital abnormalities or serious comorbid diseases (diabetes, glomerulonephritis, arterial hypertension, hyperthyroidism). Group I included 19 women with latency period less than 2 days; Group II consisted of 55 women with latency period from 2 to 7 days; Group III consisted of 43 women with latency period more than 7 days. Gestational terms at the moment of deliveries were  $31,0 \pm 0,01$  weeks,  $32,0 \pm 0,03$  weeks and  $31,0 \pm 0,01$  weeks in groups accordingly (  $p$  I-II = 0,25;  $p$  II-III = 0,26;  $p$  I-III = 0,27 ). Statistical analysis was conducted by using the soft package Statistica v.6.0.

#### **RESULTS**

The frequency of chorioamnionitis was 10.5%; 5.6%; 18.6% respectively ( $p$  I-II = 0.079;  $p$  II-III = 0.049;  $p$  I-III = 0.089). The frequency of Caesarean section (C/S) was in Group I - 10.5%, in Group II - 15.1%, in Group III - 30.2% ( $p$  I-II = 0.075;  $p$  II-III = 0.037;  $p$  I-III = 0.049).

The general neonatal characteristics are presented in table 1.

The results of neonates' rating by the Apgar score on the 1st minute didn't differ much between the groups ( $p$  I-II = 0,89;  $p$  II-III = 0,91;  $p$  I-III = 0,97); the results of the rating by the Apgar score on the 5th minute in Group II were statistically higher than in Group III (  $p$  II-III = 0,039). The number of neonates who needed respiratory support in Group III was statistically significantly higher than in Group I (  $p$  I-III = 0,049). The average length of respiratory support was reliably observed more between newborns in Group I in comparison with Groups II and III ( $p$  I-II = 0,039;  $p$  I-III = 0,042). The average duration of the newborn's hospital stay in Group III was longer than in Group II ( $p$  II-III = 0,041). Intrauterine infection was registered in the form of conjunctivitis more often in Group III than in two other groups ( $p$  II-III = 0,049;  $p$  I-III = 0,039). Encephalitis was more often observed between newborns in Group III in comparison with Group I and Group II (  $p$  II-III = 0,039;  $p$  I-III = 0,049) accordingly. The intrauterine pneumonia in Group III registered more often than in Group II (  $p$  I-III = 0,069).

#### **CONCLUSION**

Women with PPRM and latency period more than 7 days is associated with higher rate of C/S and chorioamnionitis, higher rate of lower neonatal Apgar and intrauterine infection than women with shorter latency period.

*Preterm premature rupture of the membranes, preterm labour*

## THE PHYSIOLOGY OF LABOR/LABOR DISORDERS– 015

### INCIDENTAL CHYLOPERITONEUM AT CAESAREAN SECTION AND NEPHROTIC SYNDROME

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#### INTRODUCTION

Chyloperitoneum or chylous ascites is the collection of chyle (a milky, fatty fluid) in a space in the body, most commonly the abdomen. It occurs as a result of rupture of one or more lymphatic vessels arising from several different aetiologies including congenital, trauma, malignancy, and inflammation such as intraperitoneal infections. It occurs infrequently, only in about 1 in 20,000-200,000 patients admitted to hospital and is rarely found in pregnancy. Thus far there have only been seven cases of chyloperitoneum in pregnancy reported in the medical literature. Of these seven cases, one patient had been diagnosed with chylothorax secondary to pulmonary tuberculosis as well as underlying congenital lymphangiectasia, two patients with pancreatitis, one patient with mesenteric fibromatosis, one case related to small bowel volvulus, one patient with morbid obesity and one case in a patient with severe pre-eclampsia and placental abruption.

When chyloperitoneum is seen, investigations should be conducted into identifying the causative condition. When it occurs in isolation without an underlying condition, it should resolve spontaneously, with resolution mirroring the involution of the uterus.

#### METHODS

A case report

#### RESULTS

We present the case of a 27 year old primiparous woman pregnant with dichorionic diamniotic twins at 29 weeks gestation who had been referred to hospital by her general practitioner with elevated blood pressure, proteinuria and bilateral lower limb oedema. Antenatally she had been diagnosed with gestational diabetes mellitus (diet controlled) and gestational thrombocytopenia. She had no existing medical conditions prior to pregnancy. Her systolic blood pressure ranged from 140-155 and diastolic blood pressures ranged from 88-96 with significant proteinuria (2,299 mg/mmol). Serum albumin was 12g/L with haemoglobin 103g/L.

The patient was reviewed by a nephrologist and underwent a renal tract ultrasound as well as screening for autoimmune conditions, hepatitis and lupus. All investigations were found to be normal. She was given a diagnosis of nephrotic syndrome of unknown cause based on normal investigations and no evidence of other renal conditions. Renal biopsy was considered inappropriate during pregnancy. She was commenced on methyldopa 250mg three times daily to manage her hypertension.

At 35 +2 weeks gestation she was found to have suboptimal foetal growth on ultrasound - both foetuses had an estimated foetal weight and abdominal circumference less than the 5th centile. The decision was made to induce labour with cervical ripening via a Foleys catheter and artificial rupture of membranes. During labour, twin 1 developed recurrent prolonged decelerations on cardiotocography with poor quality contractions. The patient was counselled and opted for caesarean section over intravenous syntocinon for induction. At time of caesarean section a thin, milky fluid was noted in the abdominal cavity. Both infants were delivered live and with no complications. Triglyceride level of the milky fluid was 107mg/dL with cultures negative.

The patient was well post procedure and was discharged on the fourth postoperative day. She had no evidence of pancreatitis or other infections.

#### CONCLUSION

This is the eighth case of chyloperitoneum identified in pregnancy. The association between chyloperitoneum and nephrotic syndrome has been documented in the past but this is the first case found in pregnancy.

Postulated causes of chyloperitoneum in nephrotic syndrome include hypoalbuminaemia leading to submucosal/mucosal oedema in intestinal structures. This leads to increased permeability of mucosal cells and lymphatics allowing leakage of chylomicrons into the peritoneal cavity. In pre-eclampsia the postulated cause of chyloperitoneum is secondary to hypoproteinaemia, and a low

albumin/globulin gradient causing low intravascular oncotic pressure. Rupture of pelvic lymphatic vessels due to compression by the enlarged gravid uterus and pelvic congestion likely contributes to the ascites.

Our patient had a unremarkable caesarean section as well as post-operative course, delivering two live infants. On follow up the patient was well, asymptomatic with well controlled blood pressure.

*Preterm premature rupture of the membranes, preterm labour*

### INCIDENCE AND SIGNIFICANCE OF SALTATORY FETAL HEART RATE PATTERN DURING LABOR: A PILOT STUDY

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#### INTRODUCTION

To determine the incidence of the intrapartum saltatory fetal heart rate (FHR) pattern and to evaluate its significance for the newborn infant

#### METHODS

Intrapartum FHR tracings were reviewed in 610 consecutive women with a singleton childbirth. Continuous cardiotocography (CTG) tracings were assessed for the last 4 hours preceding delivery. The saltatory FHR pattern was defined as FHR amplitude changes of greater than 25 beats per minute with an oscillatory frequency of 6 per minute or greater for a minimum duration of 2 minutes. CTG recordings were analyzed after birth by one of us (MT). Student's t-test was used for analyze differences between continuous variables and Chi square test for differences between categorical variables. A p value <0.05 was considered statistically significant.

#### RESULTS

Among the 610 CTG tracings, 79 (12.9%) were classified as saltatory. 89.9% of saltatory patterns occurred at gestational weeks 40+0 or later. The incidence of the saltatory pattern increased with increasing gestational age. At gestational weeks 42 or more the incidence of the saltatory pattern was 24.0%. No saltatory patterns were found in preterm pregnancies (gestation less than 37 weeks). 336 (55.1%) of women were nulliparous and 274 (44.9%) of women were multiparous. Saltatory pattern occurred in 54 (16.1%) of the nulliparous women and in 25 (9.1%) of the multiparous women ( $p = 0.012$ ). The incidence of the saltatory pattern increased with the increasing duration of labor and the active pushing period. In the saltatory pattern group, the mean (SD) umbilical artery (UA) pH was 7.17 (0.09) and in the group without saltatory pattern, the mean UA pH was 7.27 (0.08) ( $p = <0.001$ ). In the saltatory pattern group, the mean (SD) UA base excess (BE) was -7.1 (3.19) meq/l and in the group without saltatory pattern, the mean UA BE was -4.8 (2.67) meq/l ( $p = <0.001$ ). In the saltatory pattern group, the incidence of very low UA pH <7.00 was 3.8% and in the group without saltatory pattern, the corresponding incidence was 0.4% ( $p < 0.001$ ). In the saltatory pattern group, 13.9% of the newborns had 1 min Apgar scores less than 7 and in the group without saltatory pattern, 4.1% of the newborns had 1 min Apgar scores less than 7 ( $p = 0.391$ ), respectively. In the saltatory group, 5.1% of the newborns had 5 min Apgar scores less than 7 and in the group without saltatory pattern, the corresponding frequency was 0.4% ( $p = 0.142$ ).

#### CONCLUSION

No saltatory patterns were found in preterm FHR tracings (gestation less than 37 weeks). The incidence of the saltatory pattern increased with increasing gestational age and with increasing duration of labor and the active pushing period in term pregnancies. The saltatory pattern occurred significantly more frequently in term pregnancies of nullipara women than in multipara women. UA pH <7.00 at birth occurred significantly more often in those with intrapartum saltatory CTG pattern than in those without saltatory pattern. The intrapartum saltatory FHR pattern was not significantly associated with the 1 or 5 min Apgar scores less than 7.

*Preterm premature rupture of the membranes, preterm labour*

## **NORMAL LABOR PROGRESS – 017**

### **THE EFFECT OF CONTINUOUS SUPPORT OF WOMEN IN LABOUR BY PRIMARY CARE MIDWIVES ON REFERRAL RATES DURING LABOUR IN THE NETHERLANDS**

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#### **INTRODUCTION**

To study the effect of continuous support during labour by independent midwives in primary care on intrapartum referrals from primary midwifery led care to obstetric led care in the Netherlands and on experiences of labouring women.

#### **METHODS**

Design: Prospective cohort study in 2014 and 2015, with historical controls.

Setting: Primary independent midwifery practices in the Netherlands.

Participants: Low risk women with an uncomplicated pregnancy and a gestational age between 37 and 42 weeks, starting labour under the care of an independent primary care midwife. Women with prolonged rupture of membranes (>24hr) without contractions were excluded.

Intervention: During the study, midwives were asked to provide labouring women continuous support according to a specific protocol. This protocol consisted of the following: 1) An open instruction for pregnant women on when to call the midwife. 2) The midwife visits the woman at home immediately after this first call. 3) The midwife discusses with the woman which type of continuous support is appropriate for her, and 4) the midwife stays with the woman from the active phase of labour on.

Indications for referral from primary care midwifery care to obstetric led care were classified into the stage of labour (first, second or third stage). Reasons for referral were collected. A decision tree in urgency of referral was made in case of more than one reason for referral. Other data collected were mode of delivery, neonatal outcomes, and experiences of the participating women.

#### **RESULTS**

43 independent midwifery practices participated in this study. Between October 2014 and December 2015 863 women received continuous support during labour of their own midwife.

Analyses are being performed at this moment.

#### **CONCLUSION**

To follow.

*Continuous support during labor, mode of delivery, interventions*

### CLINICAL PROFILE AND OUTCOMES OF CHILDREN WITH EBSTEIN'S ANOMALY: FROM FETAL DIAGNOSIS TO NEONATAL PRESENTATION

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#### INTRODUCTION

Ebstein's anomaly (EA) is a rare congenital heart disease (CHD) defined as the congenital displacement of the tricuspid valve towards the apex of the right ventricle, often associated with other abnormalities and dysrhythmias.

#### METHODS

Aim of presentation was to identify predictors of poor outcome in neonates with EA diagnosed prenatally.

Retrospectively we analyzed medical records and data of 14 neonates referred with prenatal diagnosis of EA to our center.

#### RESULTS

Among fetuses with EA 3 had severe central cyanosis, 2 a tachyarrhythmia and 4 a reversed flow through the ductus arteriosus respectively through the interatrial communication. All they have had at birth moderate to severe EA. Of them 5 had congestive heart failure, two pulmonary hypoplasia and duct-dependent pulmonary circulation and needed PGE1 infusion; all they latter needed a BT shunt with plasty of the right atrium or closure of the tricuspid valve. Five were without clinical signs of CHD. Two patients with restrictive PFO and metabolic acidosis underwent a balloon atrioseptostomy at second day of life. There were 3 deaths (21%), all occurred in neonatal period: one soon after BT shunt operation and one sudden death. At a median follow-up of two years one patient has a Glenn palliation and one tricuspid valve reconstruction with IA communication, the remaining 9 patients are symptoms free. The positive outcome was not related to the degree of tricuspid regurgitation but with the area of functional right ventricle and to the size of pulmonary artery.

#### CONCLUSION

EA is severe cardiac disease with prenatal and postnatal presentation, isolated or associated with other cardiac and extra cardiac disease. Mortality was high in patients with pulmonary hypoplasia and patients in need cardiac surgery in neonatal period.

*Ebstein anomaly, prenatal diagnosis, fetal echocardiography*

### THREE CASES OF MATERNAL MYASTHENIA GRAVIS: MANAGEMENT OF LABOR AND DELIVERY

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#### INTRODUCTION

Myasthenia gravis (MG) is an autoimmune disorder characterized by fluctuating weakness in skeletal muscles. Though MG is a relatively uncommon disorder, affected female patients tend to distribute to the child bearing age. Thus the management of maternal MG is an important issue in most perinatal centers.

Here we present three cases of MG-complicated pregnancy, of which two cases successfully underwent vaginal delivery, while one case is expecting labor induction with obstetric analgesia

#### METHODS

Case 1: A 32-year-old primipara patient with ocular MG, post thymectomy status, on no medications during pregnancy.

Case 2: A 35-year-old multipara patient with generalized MG, post-thymectomy status, on no medications since 17 years old.

Case 3: A 31-year-old primipara patient with generalized MG on PSL, TAC and AChE inhibitor, with slight exacerbation of the disease at 10 weeks of gestation, post-thymectomy status.

Since expulsive efforts are the potential stressor of MG, voluntary muscle weakness can be exacerbated during the second stage of labor. Therefore we carefully monitored the delivery course and confirmed that the duration of the second stage would be 2 hours or less in these three cases.

#### RESULTS

Case 1 experienced frequent preterm uterine contractions starting at 31 weeks of gestation and was admitted to the hospital for preterm rupture of membrane at 35+4 weeks. The cervix was dilated 4cm with the patient experiencing regular, simultaneous labor contractions. With careful monitoring, the patient's parturition took place smoothly and the total labor time was 3 hours 43 minutes, and the duration of the second stage was 34 minutes. No postpartum exacerbation of MG was noted.

Case 2 underwent vaginal delivery twice via either induction or natural labor. Both pregnancies were complicated with gestational diabetes, although there were no remarkable signs of LGA fetus. For the first pregnancy, labor induction was administered due to post-term pregnancy at 40+3 weeks. The total duration was 12 hours 25 minutes and the second stage lasted 1 hour and 51 minutes. Vacuum delivery was needed to reduce the time of the second stage. The second pregnancy proceeded otherwise uneventfully, with natural on-set of labor at 40+2 weeks. The whole parturition process proceeded smoothly and the total duration time was 4 hours 50 minutes, much shorter than the first, in which the second stage was 17 minutes long. No adverse event was noted in the postpartum period.

Case 3 is an ongoing case, and we are planning an induction in early March with obstetric analgesia to manage maternal fatigue more carefully, since an exacerbation of the disease was observed at 10 weeks of gestation. Patients with MG who undergo general anesthesia or any operation including cesarean section may be at increased risk of requiring mechanical ventilation or exacerbation of the disease. Obstetric analgesia can ease maternal fatigue on delivery and may be a choice if general anesthesia is to be avoided in a case of NREFS. Furthermore, the acute postpartum period is the time of highest risk for exacerbation. Hence a cesarean section should be performed only when strongly indicated.

#### CONCLUSION

MG-affected pregnancy can safely undergo spontaneous or operative vaginal delivery. It is important to ease the second stage of labor because maternal fatigue and voluntary muscle weakness can be exacerbated during expulsive efforts. For mild to moderate asymptomatic disease conditions, spontaneous vaginal delivery can be managed safely by careful monitoring of the maternal and fetal condition. For those who are symptomatic during pregnancy or have a moderate to severe disease condition, obstetric analgesia is a good option for circumventing the

effects of maternal fatigue on delivery, especially during the second stage of labor, and is also a good alternative to general anesthesia.

*Maternal myasthenia gravis, maternal fatigue, obstetric analgesia, spontaneous vaginal delivery*

## **PRETERM LABOR AND BIRTH: PREVENTION, RISK FACTORS, TOCOLYSIS, STEROIDS, MAGNESIUM, PROGESTERONE, CERCLAGE, PESSARY – 020**

### **EFFECTS OF MOTHER'S NATIONALITY AT BIRTH ON THE ASSOCIATION BETWEEN MATERNAL HEIGHT AND RISK OF PRETERM BIRTH IN BELGIUM**

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#### **INTRODUCTION**

Preterm birth is one of leading causes of neonatal morbidity and mortality. Maternal shorter height has been associated with increased risk for preterm birth. However, the effect of mother's nationality at birth on this association has been rarely studied. The present study aims to investigate the effect of mother's nationality at birth on the association between maternal height and the risk of preterm birth.

#### **METHODS**

This is a population based study including all single live births from 2009 through 2013 in two Belgian regions, using the linked data of birth registry and hospital medical data. Maternal height was classified into 3 categories based on the height distribution: <25th (short), 25th-75th (middle) and >75th (tall), with the middle category serving as reference. Mother's nationality at birth was used as the indicator of mother's origin including eight countries most presented in our database: Belgium, Congo, France, Italy, Morocco, Poland, Romania and Turkey. Main Outcome Measures are the Spontaneous preterm birth (<37 weeks) stratified according to mother's nationality at birth. A logistic regression model was used for examining the relationship between maternal height and risk of spontaneous preterm birth (< 37 weeks) by adjusting confounding factors.

#### **RESULTS**

The average height, demographic characteristics and the spontaneous preterm birth rate differed according to the mother's origin defined as mother's nationality at birth. The pattern of association between maternal height and the risk of preterm birth was not uniform by mother's nationality at birth. The low maternal height category was associated with a statistically significant increase risk of spontaneous preterm birth for Belgian, Italian and Polish respectively. However, this association was not observed for the women from Congo, France, Morocco, Romania and Turkey.

#### **CONCLUSION**

The association between height and the risk of preterm birth is modified by maternal nationality at birth, even for mothers from the same region of the world or same income group. The strength of the associations varied among them.

*Maternal height, mother's nationality at birth, spontaneous Preterm birth, Belgium*

# PRETERM LABOR AND BIRTH: PREVENTION, RISK FACTORS, TOCOLYSIS, STEROIDS, MAGNESIUM, PROGESTERONE, CERCLAGE, PESSARY - 021

## THE FETAL FIBRONECTIN TEST: 25 YEARS OLD, BUT IS IT CLINICALLY USEFUL?

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### INTRODUCTION

Preterm delivery (PTD) remains a leading cause of neonatal mortality and morbidity. To improve outcomes, early detection of women at risk is recommended. The fetal fibronectin is a glycoprotein released in the vaginal secretions when the first steps of labour occur. The concept of a fetal fibronectin (ffn) test, performed between 22-26 weeks, has been developed 25 years ago. This test has been studied in different clinical settings with various issues but its clinical utility raises questions. We conducted a systematic review to summarize the strengths and weaknesses of this biochemical marker.

### METHODS

A computerized search was done to identify relevant studies published in any languages. A MEDLINE search was done to identify studies published between 1990 and Oct-2015, using the keywords "fetal", "fibronectin", "test", "preterm", "labor", "delivery", "birth", "marker", "prematurity" and combinations of them. This was supplemented by a manual search of proceedings of international perinatal meetings, bibliographies of original or review articles and personal communications with authors considered as experts in this field. We selected only original studies over pregnant women with intact membranes who had been tested using the ffn test between 20-36 weeks to predict preterm delivery. The data were extracted and gathered in a 2 x 2 table. Sensitivities, specificities, positive and negative likelihood ratios for positive and negative test results (LHR+ and LHR-) were computed for each study along with their 95% CI. We have categorized and gathered studies according to the indication for which the fetal fibronectin test was studied. For each stratum, a  $\kappa^2$  test of heterogeneity was computed before summary likelihood ratios were calculated. In accordance with the limited power of this test,  $p < 0.1$  was considered statistically significant. A random-effects model was used to generate a summary estimate of likelihood ratios. Authors considered that only likelihood ratio rates  $> 10$  or  $< 0.1$  result as conclusive changes from pretest to posttest probability of a preterm delivery.

### RESULTS

The initial MEDLINE search yielded 316 citations. We excluded 2 studies because they presented duplicate data. Editorial, comments, letters without original data and meta-analysis of overviews were also discarded ( $n = 36$ ). 278 studies were considered as eligible for inclusion in this meta-analysis. Finally 181 studies, giving 415 interpretable 2 x 2 tables, met the inclusion criteria. These data were categorized in different settings according to the type of prediction studied, the type of population (asymptomatic women vs high risk with or without symptoms (preterm labour), the number of ffn test used (single or serial testing). Studies exclusively dedicated to multiple pregnancies have been categorized apart. We present here the summary estimates of LHR + and LHR - of 24 issues containing data series coming from at least 3 different studies (Table 1).

### CONCLUSION

The fetal fibronectin test has been studied in many settings to predict preterm labour. It was time to summarize the predictive characteristics of this test after 25 years of use. We present here the largest meta-analysis conducted so far considering many different clinical situations. Combining sensitivity and specificity, likelihood ratios are probably the best indicators of the predictive value of a screening test. According to the literature, only LHR +  $> 10$  and LHR -  $< 0.1$  are considered to indicate a clinically relevant test. The fetal fibronectin test failed to reach these values whatever clinical settings considered here. We point out that in populations of women in preterm labor, LHR's + are always  $< 5$  and LHR's -  $\geq 0.4$  which indicates that the ffn test applied in this crucial moment should be interpreted with caution and probably completed with other diagnostic means (i.e. vaginal ultrasound).

*Preterm birth, fetal fibronectin, meta-analysis*

## USE OF OXYTOCIN - 022

### 2 PATIENTS WITH PANHYPOPITUITARISM WHO EXPERIENCED SUCCESSFUL VAGINAL DELIVERY

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#### INTRODUCTION

Panhypopituitarism is associated with infertility and an increased risks of pregnancy complications. Hypothalamohypophysial tumor and Sheehan syndrome are the main causes of panhypopituitarism and mainly occur in women of reproductive age. We experienced two cases of panhypopituitarism-complicated pregnancy, which were successfully managed perinatally and underwent vaginal delivery.

#### METHODS

Case 1: A 38-year-old nulliparous woman underwent an operation and radiation therapy for suprasellar embryonal tumor at the age of 16 years. After the treatment, the patient developed panhypopituitarism and was treated with hydrocortisone, thyroxine, desmopressin, growth hormone, and Kaufmann therapy for amenorrhea. In vitro fertilization with intracytoplasmic sperm injection resulted in a singleton intrauterine pregnancy. At 41 +0 weeks' with artificial cervical dilation and oxytocin injection the fetus was delivered successfully (female, 4143g, Apgar score 9/9 ) by normal vaginal delivery.

#### RESULTS

Case 2: A 30-year-old nulliparous woman underwent an operation for craniopharyngioma at the age of 26 years. After treatment, the patient developed panhypopituitarism and was treated with hydrocortisone, levothyroxine, desmopressin, and Kaufmann therapy for amenorrhea. In vitro fertilization with intracytoplasmic sperm injection resulted in a singleton intrauterine pregnancy. At 40+3 weeks the fetus was delivered successfully ( female, 2985g, Apgar score 9/9 ) by normal vaginal delivery with artificial cervical dilation and oxytocin injection.

#### CONCLUSION

Both patients conceived with the aid of reproductive technology and showed a good pregnancy course. In both cases the uterine cervix was very hard (Bishop score was 1 at around 40 gestational weeks) a feature often associated with oxytocin deficiency. The combination of cervical dilation and uterotonic agent can be recommended as an alternative to conventional methods of inducing labor in women with hypopituitarism. Good outcomes can be expected if good perinatal management of the hypopituitarism is conducted.

*Panhypopituitarism, oxytocin, vaginal delivery*

## THE PHYSIOLOGY OF LABOR/LABOR DISORDERS - 023

### CEPHALOPELVIC DISPROPORTION AMONG PRIMIPARAE IN THE FIRST AND SECOND STAGE OF LABOR

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#### **INTRODUCTION**

Cephalopelvic disproportion (CPD), which is also called dystocia, failure to progress, protraction of labor etc. is one of the frequent indication of cesarean section of the primiparae. We examined CPD patients in our clinic and compared clinical characteristics between CPD in the first and second stage of labor.

#### **METHODS**

Methods: From January 2004 to December 2015, primiparae who delivered in our clinic were enrolled in this study. Exclusion criteria were breech presentation, intrauterine fetal death before onset of delivery, multifetal pregnancy, delivery before 36 weeks gestation.

#### **RESULTS**

Results: Total of 1997 primiparae were enrolled in this study. Sixty-four undertook cesarean section, of which 54 was CPD, 37 and 17 patients were in the first and second stage of labor, respectively. Maternal age, height, prepregnancy body weight, body mass index, duration of pregnancy, duration of cesarean section were not different between the two groups. Neonatal weight ( $3420\pm 428$ g vs.  $3122\pm 592$ ), height ( $51.0\pm 1.5$ cm vs.  $49.7\pm 2.0$ cm) were higher in the CPD in the first stage of labor. Blood loss was greater in the CPD in the second stage of labor. Apgar Score at one and five minutes, umbilical artery pH, base excess did not reach statistical difference.

#### **CONCLUSION**

Conclusion: Bigger babies may hinder normal progress of labor earlier.

*Cephalopelvic disproportion, cesarean section, second stage of labor, first stage of labor*

## POSTPARTUM HEMORRHAGE - 024

### USE OF CARBETOCIN AND EVALUATION OF ITS ROLE IN REDUCING THE INCIDENCE OF POSTPARTUM HYPOTONIC HEMORRHAGE

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#### INTRODUCTION

Postpartum hemorrhage is one of the most urgent problems of modern obstetrics. According to WHO data, each year 136 million women are giving birth, 287,000 of them die from preventable complications of pregnancy, delivery and postpartum period. Obstetric hemorrhage retains the leading position among all causes of maternal deaths in the world and make up 20-25% of all cases. Besides, hypotonic bleeding plays a decisive role in all hemorrhages - to 70%. This pathology is one of the most important reasons of «near miss» cases, and largely determines the structure of maternal mortality.

#### METHODS

The objective of this study is to evaluate the efficacy of Carbetocin in the prevention of hypotonic hemorrhage. We analyzed 9962 births conducted in the Perinatal center of the Rostov region (Russia) in 2014-2015.

#### RESULTS

The percentage of the controlled application of intrauterine balloon tamponade was almost similar in 2015 compared to 2014 year (1.5% vs. 1.9%). For prophylaxis of hypotonic hemorrhage Carbetocin was administered to 24 (0.46%) patients (with multiple pregnancy, with two and more scars on the uterus, with placenta previa and other patients from the group of high perinatal risk) in 2014 and to 463 (9.7%) patients in 2015. Frequency of hypotonic hemorrhage was 2.2% in 2014 (114 cases) and 1.5% (72 cases) in 2015. Hysterectomy due to hypotonic hemorrhage was performed in 11 patients in 2014 (0.21%) and in 6 (0.12%) patients in 2015. It has also become possible to reduce the total amount of blood loss in 2015 compared to 2014: hemorrhage with 20-30% loss of total blood volume was detected in 40 cases (35%) in 2014 and in 21 cases (29.5%) in 2015; hemorrhage with 30-40% loss of total blood volume was detected in 25 cases (22%) in 2014 and in 13 cases (18%) in 2015; hemorrhage with more than 40% loss of total blood volume was detected in 17 cases (15%) in 2014 and in 6 cases (8%) in 2015.

#### CONCLUSION

Thus, the use of Carbetocin in the practice of Perinatal center lead to the decrease of hypotonic hemorrhages, hysterectomies and to the decrease of total blood loss volume.

*Postpartum hemorrhage, hypotonic hemorrhage, carbetocin, "near miss", hysterectomy, intrauterine balloon tamponade*

## UMBILICAL CORD PH AND BLOOD GASES - 025

### THE UMBILICAL CORD BLOOD IMMUNOLOGICAL PARAMETERS IN CASES OF PLACENTAL INSUFFICIENCY

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#### INTRODUCTION

The gestational process regulation involves the functional system mother-placenta-fetus formation, which includes the immune and endocrine systems adaptation to pregnancy (V. Serov, 2005; M. Lomunova, 2007). After installing the immunological symbiosis between mother and fetus, the system becomes extremely resistant for adverse effects. While the local level immune status research is important part of early diagnosis, as it allows predict pathology perinatal outcomes. The aim of this study is investigation of oxidative metabolism and immune status indicators of the umbilical cord blood in cases of placental insufficiency (PI).

#### METHODS

The base group material - newborns umbilical cord blood of 30 postpartum women with placental insufficiency. The control group - 30 patients with physiological pregnancy. The placental insufficiency was diagnosis by pregnant women clinical observation according to sonography and dopplerometry of utero-placental-fetal blood flow. Indicators of blood Acid-Base Balance were measure on blood gases, electrolytes and metabolites analyzer GEM PREMIER 3000. Lymphocytes subpopulations was tested by direct membrane immunofluorescence flow cytometer BD FACS Calibur using a panel of monoclonal antibodies to the lymphocyte surface antigens (BD Biosciences, USA). IRI (immuno-regulatory index) was determined by the ratio of CD4 + / CD8 + cells and apoptotic index for CD95 + / CD25 +. The cells functional properties was assessed by the activation markers localization of the CD25 + and CD95 + by double phenotyping. The newborns status from PI group was significantly lower according to Apgar score than in the control group as in 1, and at 5 minutes. Postnatal adaptation period for all children of control group proceeded without peculiarities. The base group of newborns have the hypoxic genesis disorders of the central nervous system, fetal malnutrition of I-II degree, the risk of intrauterine infection, newborns hemolytic disease. In case of severe PI with prenatal hypoxia were identified ischemic attacks, hemorrhagic syndrome, I-II degree malnutrition fetal.

#### RESULTS

In the PI group there found the decrease of lactoferrin level, the tendency to reduce of the pH, pO<sub>2</sub> and hemoglobin levels in umbilical cord blood. The quantity of HbCO increases in 2-5 times, NO up to 2 times (p < 0.001). Results of lipid peroxidation system investigations in PI cord blood indicates the peroxidation process intensification and antioxidant protection retardation. The study of umbilical cord blood lymphocytes subpopulations in cases of placental insufficiency find out a significant increase of CD3 + CD19-, CD4 + CD8-, CD8 + CD4-, CD16 + CD3 +, CD56 + CD3-, CD19 + CD3- quantity, increasing the number of activated T-, B - and NK- cells by HLA-DR (p < 0.05), decrease the number of CD25 + CD3 + and CD3 + CD95 + cells, as well as the immuno-regulatory index (IRI, p < 0.05). Apoptosis index in comparison with control was the same. The lymphocytes functional properties testing revealed the increase localization of CD25 + (early activation marker responsible for the processes of cell proliferation) on CD3+ CD19-, CD4 + CD8-, CD8 + CD4-, CD16 + CD3 + CD56 + CD3 + lymphocytes, which indicates proliferative activity increasing of mature T- helper-inductor, suppressor-cytotoxic T-lymphocytes, as well as an increase in natural killer cell function both phenotypes at PI (p < 0.05). Localization of CD95 + marker, which mediating apoptosis was significantly increased at PI group compared with control (p < 0.05). This was the case of mature T-, suppressor-cytotoxic T- and natural killer cells CD16+ CD56+, indicating that these cells are ready for death (p < 0.05).

## **CONCLUSION**

The study revealed significant differences between the control group data from the indicators obtained from the placental insufficiency in umbilical cord blood, changes in indicators of oxidative metabolism and immune system quantitative parameters. These changes shows the adaptation metabolic processes violations, imbalance of subpopulation composition and functional properties indicators of umbilical cord blood lymphocytes, pathology of immunoregulatory mechanisms in the PI mother-placenta-fetus system and the necessity of appropriate correction. Identified changes can be regards as the criteria for adverse pregnancy outcomes.

*Placental insufficiency, umbilical cord blood, lymphocytes subpopulations, lymphocytes functional properties*

## **PRETERM LABOR AND BIRTH: PREVENTION, RISK FACTORS, TOCOLYSIS, STEROIDS, MAGNESIUM, PROGESTERONE, CERCLAGE, PESSARY- 026**

### **HEMOSTASIS IN PREGNANT WOMEN WITH SUBCHORIONIC HEMATOMA IN THE I TRIMESTER**

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#### **INTRODUCTION**

Subchorionic hematoma (SCH) is the most common reason of bleeding in the first trimester of pregnancy. SCH, diagnosed by ultrasound in the first trimester, can be found in 4-22% of all pregnancies.

#### **METHODS**

The objective of this study is to evaluate the haemostatic parameters in pregnant women with SCH in the I trimester. Hematological studies were performed in clinical diagnostic laboratory of Rostov-on-Don Perinatal Center on a "Sysmex"-1500 automated analyzer. Haemostasis was analyzed in 194 pregnant women (115 with subchorionic hematoma and 79 - without SCH).

#### **RESULTS**

The concentration of fibrinogen in patients with SCH was  $3.24 \pm 0.74$  g / l, in patients without SCH -  $0.8 \pm 3.14$  g / l ( $p > 0,05$ ), the international normalized ratio (INR) -  $1.0 \pm 0.098$  in patients with SCH;  $0,99 \pm 0,06$  in patients without SCH ( $p > 0,05$ ), activated partial thromboplastin time (APTT) was  $31,2 \pm 4,1$  and  $31,2 \pm 3,7$  respectively ( $p > 0,05$ ). The concentration of D-dimer in patients with SCH was  $533,0 \pm 226,6$  ng / ml; in patients without SCH  $360,5 \pm 179,0$  ng / ml ( $p = 0,000038$ ); average level of soluble fibrin-monomer complexes (SFMC) was 4,1 (3,0-11,0) mg% in patients with SCH, in patients without SCH - 3.3 (2.0-4.5) mg% ( $p = 0.000003$ ). Regression analysis showed an association between increased values of SFMC and D-dimer and presence of SCH ( $p = 0.000084$  and  $p = 0.003948$ , respectively).

#### **CONCLUSION**

The results of our study have shown that detachment of the chorion with formation of subchorionic hematoma, is accompanied by an increase in D-dimer level, that indicates activation of fibrinolysis in response to activation of fibrin formation. Based on the data analysis, we can conclude about violation of plasma - coagulation hemostasis as a consequence, but not as a cause of gestational pathology. Despite the small gestational age and small period of gestation, and minimal local changes – partial chorionic detachment with formation of retrochorial hematoma – these gestational complications are reflected in the increase of coagulation potential of the hemostasis system.

*Subchorionic hematoma, 1 trimester, bleeding, coagulation, D-dimer*

## THE PHYSIOLOGY OF LABOR/LABOR DISORDERS - 028

### THE DELIVERY MODE OF GASTROSCHISIS BABY : TWO CASE REPORTS

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#### INTRODUCTION

Gastroschisis is a full-thickness abdominal wall defect, usually to the right of the umbilical cord insertion, that allows the small bowel and other viscera to extrude from the abdominal cavity and float freely in the amniotic sac, exposed to the amniotic fluid, until delivery. Gastroschisis is relatively common occurring in approximately 1 in 4000 to 6000 live births (1), with recent evidence suggesting that this incidence is increasing.<sup>2</sup> Furthermore, clustering of gastroschisis cases among younger women has been reported (3,4). Conflicting opinions are found as to the preferred mode of delivery. Some authors recommend elective cesarean section (CS) to prevent avulsion trauma to the intestines and compression and retrograde infection in the birth canal; others reject elective. Here, we present two cases of pregnancy with gastroschisis baby with different mode of delivery and outcome which managed in our tertiary hospital.

#### METHODS

Two primigravidas with previously diagnosed with gastroschisis baby who were in labour. We report two case comparing their method of delivery and outcome : vaginal delivery vs caesarean delivery

#### RESULTS

Case 1: A 17-year-old primigravida was referred from a district hospital. US: 26 wga pregnancy, EFW 970 grams, and anterior abdominal wall defect of the fetus, diameter 11 mm, bowel loops were seen herniating into the amniotic cavity and were floating without any covering membrane and AFI 4 [Fig 1]. On 35 wga, due to contraction, by vaginal delivery, born baby boy, 2300 grams-weight, 49 cms-length, and APGAR score 5/6, Ballard's score correspondent to 36 wga. The bowel loop herniating through abdominal wall defect and looks viable but edematous [Fig 2]. The pediatric surgeon put Bogota bag [Fig 3]. Further care was continued in NICU. The baby was hospitalized for 28 days before died due to MODS. Case 2: A 19-year-old primigravida came to our emergency unit due to contractions since 2 days. She was referred from private hospital due to NICU fully occupied. She had no any US examination before. Her first US was in the private hospital, where the fetal anomaly was recognized. Obstetrics exam showed fundal height 31 cm, head 4/5, his 2x/10/20' and FHR 140 bpm, portio was smooth, opened ostium, fluor negative, fluxus negative, and valsava negative, portio was soft, axial, thickness 2 cm, intact amniotic membrane, and head on Hodge II. US: singleton live head pres, BPD 89 mm, HC 218 mm, AC 322 mm, FL 69 mm, EFW 2920 grams, AFI 15, anterior abdominal wall defect, 4.1 cm in diameter, with herniating of bowel loops into amniotic cavity, without any covering membrane. By C-section, born baby girl, 2900 g, 46 cm, AS 7/9, with clear amniotic fluid [Figure 5]. There was bowel herniation, viable without edema. Right after the baby was born, the baby was sent to operating theatre by pediatric surgeon, and they performed ileostomy due to distal ileum-ascending colon atresia and primary closure of the abdominal wall [Figure 6]. The baby was cared in intensive care with improving condition and be discharged 3 days later.

#### CONCLUSION

In our cases, the outcome of gastroschisis baby delivered by C-section seems has better outcome compare to vaginal delivery in term of morbidity and mortality. Nevertheless, many factors could influence the overall outcome regardless mode of delivery. Thus, the management of each case should be tailored made.

*Cesarean section, vaginal delivery, gastroschisis*