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## ABS 1

### CALVARIAL AGENESIS AND APLASIA CUTIS CONGENITA: A CASE REPORT

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#### INTRODUCTION

Aplasia cutis congenita (ACC) is an uncommon anomaly characterized by the absence of a portion of skin mostly in the scalp, and less commonly on the trunk or extremities, while agenesis of the cranial bones and parietal bones in particular are very rare. We present a very rare case of a newborn with both of these anomalies.

#### CASE REPORT

A healthy term baby girl (38 weeks), vaginal-delivered in Tegal General Hospital, Apgar Score 5/8/10, birth weight 2,440 grams was admitted to Cipto Mangunkusumo Hospital at the age of 8 days. The baby was conscious with normal vital signs and receiving full oral feeds. No clinical sign of infection was observed. There was an absence of the scalp and the skull bones. Skin was present only up to the supraorbital region and just above the ears. The defect was covered by a reddish, vascular, very thin, parchment-like membrane and hairless. There were other skin defects on her abdomen through the back, and also on her right thigh. All the lesions are atrophic, membranous, fibrotic alopecic scar, with erythematous edge. She had no obvious neurological deficits, examinations of other systems were within normal limits. Head CT scan revealed absence of the bones with normal ventricles. The patient was discharged with better epithelialization on scalp and good general condition, after 67 days of conservative treatment by local application of saline dressings, advance wound care and systemic antibiotics with routine follow up every 1 week to hospital.

#### CONCLUSIONS

Calvarial agenesis, specifically associated with ACC, is a very rare case. The prognosis of ACC

is usually excellent, but if it is associated with calvarial agenesis, the prognosis is dependent on the severity of the calvarial agenesis. Although it is usually incompatible with life and associated with brain anomalies, we present a very rare case of a newborn with these anomalies who was sustained to life by conservative treatment instead of having a surgical repair.

## ABS 2

### NEUROCUTANEOUS MELANOSIS IN A NEWBORN

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#### INTRODUCTION

Neurocutaneous melanosis (NCM) is known as a rare phakomatosis characterised by large or numerous pigmented congenital nevi associated with leptomeninges melanin-containing deposits. NCM can be asymptomatic or present as variably severe and neurological impairment sometimes resulting in death. Prevalence is estimated at 1/50,000-1/200,000. The incidence of symptomatic NCM appears to be approximately a third to half of these cases. When the CNS is affected, the most commonly reported findings include: melanocytic accumulation in the brain, enhancement of thickened leptomeninges in brain and spine, associated brain malformations. We report a case of a newborn presenting at birth with a giant congenital melanocytic nevus and multiple nevi, and no neurological symptoms. Biopsy of the nevus confirmed the presence of melanocytic cells without signs of malignancy.

#### CASE REPORT

The newborn was born at 38 weeks by normal delivery. Apgar scores resulted 10/10 respectively at 1 and 5 min. Physical examination at birth revealed a giant nevus covering the abdomen. Multiple nevi were on the face, scalp, back, proximal and distal extremities (**Fig. 1**). Neurological examinations were within normal limits. Biopsy of the nevus was performed at 1 week of age; it confirmed the presence of melanocytic cells without signs of malignancy. In order to investigate the brain and spine, MRI was required. The examination was performed on a 1.5-T magnet. MRI showed



**Figure 1 (ABS 2).** Neurocutaneous melanosis in a newborn. Multiple nevi are on the face, scalp, back, proximal and distal extremities.

hyperintensities on T1-weighted images. This was interpreted as myelination, but it could have been deposits of melanin. On the basis of the presence of the giant and multiple congenital melanocytic nevi, these findings could be interpreted as melanin deposits and the diagnosis of neurocutaneous melanosis was made.

#### CONCLUSIONS

The patient is followed by a neurologist and a dermatologist. The giant congenital nevus should be treated by dermabrasion to decrease the risk of melanoma. In our country we have no opportunities for this treatment.

#### ABS 3

#### TLR2/TLR6 HETERODIMER-MEDIATED INNATE IMMUNE RESPONSE IN CORD BLOOD IMMUNE CELLS

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#### INTRODUCTION

The prematurity of neonatal innate immunity, which is mediated via toll-like receptors (TLRs), is illustrated by both increased susceptibility of infants to infection and a tendency toward more severe outcomes than in healthy adults. However, the details of TLR-mediated neonatal innate immunity are not fully understood. Here, we investigated TLR2/TLR6 heterodimer-mediated immune responses differences between human neonates and adults, focusing on the cytokine profiles of monocytes, dendritic cells (DCs), and monocyte-derived DCs (MoDCs) in cord and adult blood.

#### METHODS

Purified monocytes, DCs, and MoDCs were stimulated with either of TLR2/TLR6 heterodimer ligands: zymosan or macrophage-activating lipopeptide 2 (MALP2). After 12 hours of cell cultures with zymosan or MALP2, IL-8, IL-6, TNF, IL-1 $\beta$ , and IL-10 concentrations were analyzed in culture supernatants.

#### RESULTS

MALP2 stimulation gave comparable inflammatory cytokine profiles in the monocytes and DCs, whereas inflammatory cytokine production in cord blood was significantly elevated in MoDCs compared with the effects in adult blood. In contrast, zymosan



stimulation gave comparable inflammatory cytokine profiles in the monocytes, DCs, and MoDCs of cord and adult blood.

#### CONCLUSIONS

TLR2/TLR6 heterodimer-mediated innate immune responses are different depending on the types of ligands. Our results indicate that zymosan-mediated TLR2/TLR6 signaling may be more useful for developing a neonatal vaccine adjuvant compared to MALP2.

#### ABS 4

##### PRADER-WILLI SYNDROME IN OUR HOSPITAL. ARE WE DIAGNOSING AND TREATING EARLY?

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#### INTRODUCTION

Prader-Willi syndrome (PWS) is a genetic illness due to absence of paternally expressed genes at 15q11.2-q13 through paternal deletion (65-75%), maternal uniparental disomy 15 (20-30%), or an imprinting defect (1-3%). Patients show important morbidity with synthoms starting in the neonatal period (intrauterine growth retardation [IGR], hypotonia, characteristic phenotype...) and later onset of obesity, short stature, scoliosis, strabism and neurodevelopmental delay. Growing hormone (GH) treatment is described to improve these patients, more significantly so when started at an early age.

#### METHODS

A retrospective study was conducted by reviewing medical records of children diagnosed with PWS included in the genetic service database of our hospital between July 2000 and February 2016. We used data base from the 2010 Spanish growth studies by Carrascosa et al. We used a calibrated stadiometer and weight balance.

#### RESULTS

We studied 11 patients (8 female). 4/11 had a personal history of IGR, 3/11 were preterm and 7/11 had been admitted to hospital in the neonatal period. Median age at diagnosis was 510 days (18 months). Most patients, 10/11 (90.9%), had severe hypotonia

at birth and 7/11 had genetic tests performed in the neonatal period. The rest were diagnosed later, in pediatric neurology and endocrinology. Most (10/11) of our PWS patients had a peculiar phenotype, obesity (9/11) and neurodevelopmental delay (8/11) during growth. We found cryptorchidism in 2/3, strabism in 4/11 and scoliosis in 4/11. 9/11 patients received GH, starting at a median 3 years of age (2-9), with a median decrease of body mass index of -1.47 standard deviations (SD) (-3.40 ; -0.15) and a median increase in height in 1.4 SD (0.88 ; 2.16) in the first two years of treatment. GH was stopped in two children due to secondary effects. Genetically there were 3/11 (27.2%) deletions, 5/11 (45.4%) maternal uniparental disomy and 2/11 (18.1%) imprinting defects.

#### CONCLUSIONS

Most of our patients had neonatal hypotonia and a characteristic phenotype, suggesting a genetic early diagnosis. GH treatment improved both height and obesity in our. An early diagnosis is important to start treatment, rehabilitation and to make genetic counseling. In our patients we had more maternal uniparental disomy and less deletions than described in the literature.

#### ABS 5

##### RISK FACTORS ASSOCIATED WITH PRE-NATAL EXPOSURE TO “SHABU”

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#### INTRODUCTION

In recent years, the use of crystal methamphetamine, known as “shabu”, has been noted in our country. It is associated with populations at risk of social exclusion, and especially to the Philippine community. Philippines lead the consumption of “shabu” in Southeast Asia, playing an important role in the trafficking of this substance. Prenatal exposure to methamphetamines is associated with effects on fetal growth (lower gestational age and low birth size), withdrawal syndrome and changes in behavior during childhood.

#### OBJECTIVES

1. To establish risk factors for the suspicion of prenatal exposure to crystal methamphetamine

**Table 1 (ABS 5).** Maternal, obstetric and neonatal characteristics of all cases of prenatal exposure to “shabu”.

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9
<b>Maternal origin</b>	Philippine	Philippine	Philippine	Philippine	Philippine	Philippine	Philippine	Philippine	Philippine
<b>Pregnancy control</b>	None	Poor	None	None	None	None	Poor	None	None
<b>Social history</b>	Yes	Yes	No	No	No	No	No	Yes	No
<b>Gestational age (weeks)</b>	37 <sup>+2</sup>	39	38	37	37 <sup>+2</sup>	<b>34<sup>+4</sup></b>	38 <sup>+5</sup>	37	<b>35</b>
<b>Birth weight (g) (percentile)</b>	<b>2,205 (p3)</b>	3,835 (p95)	3,135 (p65)	3,055 (p63)	2,560 (p17)	2,864 (p95)	3,160 (p41)	<b>1,860 (&lt; p3)</b>	2,318 (p45)
<b>Birth size (cm) (percentile)</b>	<b>45 (p2)</b>	48 (p20)	48 (p35)	49 (p60)	46 (p7)	48 (p91)	49 (p31)	<b>42 (&lt; p3)</b>	46.5 (p67)
<b>Birth head circumference (cm) (percentile)</b>	33 (p36)	34 (p44)	33 (p38)	32 (p20)	32 (p17)	33 (p79)	34.5 (p53)	<b>29.5 (&lt; p3)</b>	33.5 (p81)
<b>Methamphetamine detection in urine (mother/newborn)</b>	+/+	+/+	+/+	+/+	+/+	+/-	?/+	?/+	+/+
<b>Methamphetamine hair test (mother)</b>	?	+	?	?	+	+	?	?	+
<b>Newborn outcome (morbidity)</b>	Normal	Normal	Normal	<b>Meconium aspiration syndrome</b>	Normal	Normal	Normal	Benign sleep myoclonus	<b>Complex brain anomaly</b>
<b>Custody withdrawal</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

(“shabu”); 2. to describe possible effects of the substance on the newborn; 3. to detect social problems in the mother and family.

#### METHODS

Prospective descriptive study. Description of the 9 cases detected of infants born to “shabu” consuming mothers in our hospital, from June 2013 to March 2016. Collection and registration of maternal, obstetric and neonatal characteristics of all the cases.

#### RESULTS

**Tab. 1** shows the maternal, obstetric and neonatal characteristics of all the cases. Our cases had the following risk factors in common: Philippine origin, uncontrolled pregnancy, “shabu” consumption (not always declared), social problems (not always detected before the present pregnancy) and a poor social support network. None presented with withdrawal symptoms nor altered neonatal neuro-behavior. However, 2/9 were preterm, 2/9 had low birth weight and low birth size, 1/9 had microcephaly, 1/9 had benign sleep myoclonus and 1/9 had a severe complex brain malformation. Moreover, the detected serious social problems led to the withdrawal from custody in 8/9 cases.

#### CONCLUSIONS

We must be alert to a pregnant Philippine women, with a poor social environment, and consider the possibility of “shabu” consumption, to be able to act

as soon as possible to avoid prenatal exposure and to increase social support.

#### ABS 6

#### VITAMIN D STATUS IN PREGNANT WOMEN AND NEWBORNS IN LA RIOJA AREA IN SPAIN

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#### INTRODUCTION

The interest on vitamin D nutrition during pregnancy has been increasing because of widespread reports of a high prevalence of low vitamin D status in pregnant women in high-latitude areas. Low vitamin D levels have been related to adverse events both in mother and child (preeclampsia, hypocalcaemia, rickets and a higher incidence of infections).

#### METHODS

461 pregnant women plasma samples were analyzed between January and June 2015. 25(OH)D, calcium, phosphorous, magnesium and parathyroid hormone (PTH) levels were measured in the third trimester of pregnancy and in cord blood at birth. Clinical

history data were collected and a nutritional survey was made on maternal vitamin D and calcium intake and degree of sun exposure.

## RESULTS

25OHD was analyzed in 461 gestations: mean 12.08 ng/mL (range 4 -33.10), calcium 8.81 mg/dL. Mean 25(OH)D value in cord blood was  $12.27 \pm 6.60$  ng/ml. Vitamin D deficiency (25(OH)D < 20 ng/dl) was present in 88.1% of pregnant women and newborns. We found a statistically significant relationship between maternal vitamin D levels and month of delivery ( $p = 0.023$ ) and country of origin ( $p < 0.001$ ). Moreover, we found differences between different vitamin supplementation during pregnancy (4.72 ng/mL). Only in 46.40% of women vitamin D and calcium intake was considered adequate (1,000 mg/day) and its relationship with maternal vitamin D levels was statistically significant ( $p < 0.001$ ). We did not find any association between 25OHD levels during pregnancy and birth somatometry, type of delivery or preterm birth. Maternal and cord blood vitamin D levels were statistically related ( $p < 0.001$ ).

## CONCLUSIONS

The prevalence of vitamin D deficiency in pregnant women and consequently in their offspring was very high after the winter months. Calcium and vitamin D intake during pregnancy are inadequate in our area so it is necessary to develop health promotion programs in this way. Further studies are necessary to determine optimal vitamin D intakes for pregnant and lactating women as a function of latitude and race.

## ABS 7

### NEONATAL RESUSCITATION TRAINING COURSES. TRAINEES' PERCEPTION

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## INTRODUCTION

Neonatal Resuscitation Training Courses (NRTC) improve clinical management of resuscitation and have a positive impact on patient outcome. NRTC can also offer valuable information for trainers.

## OBJECTIVE

To analyse the changes in trainees' perception related to reanimation tasks after the course.

## METHODS

Prospective observational study of 11 NRTC (4.5 theoretical hours and 8.5 practice hours). The courses

were based on guidelines of the Spanish Neonatal Society. Trainees filled out a survey and they rated the perceived difficulty of the techniques and resuscitation sequence, before and after the course. Score: from 0 (no difficulty) to 3 (maximum difficulty). A score of 2 was considered to indicate high difficulty.

## RESULTS

181 trainees participated (**Tab. 1**): 21 pediatricians-neonatologist, 60 pediatric residents, 49 midwives, 39 nurses and 12 anesthesiologists. 104 (57.4%) trainees had performed resuscitation maneuvers in the delivery room before the course, the most common of them being positive pressure ventilation (PPV). However, only 53 trainees (29.2%) had previously attended NRTC. Perception of high difficulty (score  $\geq 2$ ) before the course was recorded for the following items: developing a correct sequence, intubation, chest compression, umbilical vein canalization, and leading a simulation case. The perception of difficulty in both the sequence and all techniques used in resuscitation decreased significantly after the course. However, intubation and leading a simulation case maintained a score  $\geq 2$ .

## CONCLUSIONS

NRTC were effective in reducing the perceived difficulty of the techniques and resuscitation sequence. In our experience, the evaluation of the resuscitation tasks by trainees may help to improve training programmes.

**Table 1 (ABS 7).** Trainees' perception before and after a neonatal resuscitation training course (NRTC). Score from 0 (no difficulty) to 3 (maximum difficulty).

Trainees' perception (sequence and techniques) n = 181	Before the course (0-3)	After the course (0-3)	p
Initial stabilization (30")	0.98	0.43	< 0.001
Assessment of heart rate	1.19	0.87	< 0.001
Assessment of breathing	1.29	0.84	< 0.001
Indication to initiate stabilization	1.69	0.96	0.011
Correct sequence	2.07	1.49	0.013
Techniques	2.45	1.63	< 0.001
Leading a simulation case	2.7	2.08	< 0.001
Ventilation	1.54	0.97	< 0.001
Intubation	2.63	2	< 0.001
Chest compression	2.03	1.05	< 0.001
Umbilical vein canalization	2.55	1.52	< 0.001
Correct epinephrine dose	1.6	0.74	< 0.001
Compression/ventilation coordination	1.95	0.97	< 0.001

## ABS 8

## METABOLOMIC PROFILE IN NEWBORNS MIRRORS THAT OF THEIR MOTHERS IN PREGNANCY

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## INTRODUCTION

Pregnancy is characterized by multiple complex metabolic processes to allow proper fetal development and ensure adequate postnatal energy stores. Maternal metabolism in the last phase of pregnancy conditions postnatal adaptation and neonatal development. Little is known about the complex interactions between maternal and fetal metabolism during this critical life stage. Metabolomics technology, measuring multiple metabolites directly from biological systems, offers potential to discover changes in maternal metabolism in pregnancy and their relation to the newborn metabolic status. We test the hypothesis that metabolomic status in newborns at birth depends upon the metabolomic profile of their mothers in the last phase of pregnancy.

## METHODS

Urine samples were collected from 7 healthy pregnant women three weeks before delivery and from their healthy term newborns within 48 hours after birth. Urines were analyzed using proton nuclear magnetic resonance (<sup>1</sup>H-NMR) spectroscopy and NMR urine spectra were evaluated through Principal Components Analysis (PCA) on mean centered and Pareto scaled data.

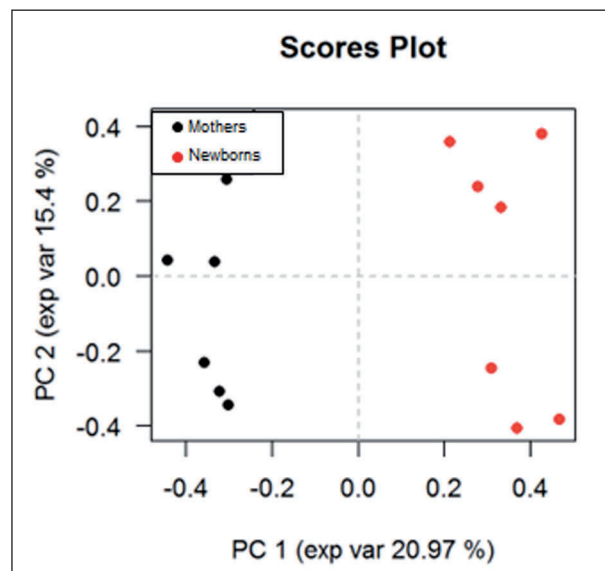
## RESULTS

The first component of the PCA analysis (PC1) showed two distinct metabolic groups: pregnant women and newborns (Fig. 1). A significant correlation was found between urine metabolic profiles of newborns and those of their mothers, as shown through the scores of the second component (PC2) of the PCA analysis (Fig. 2).

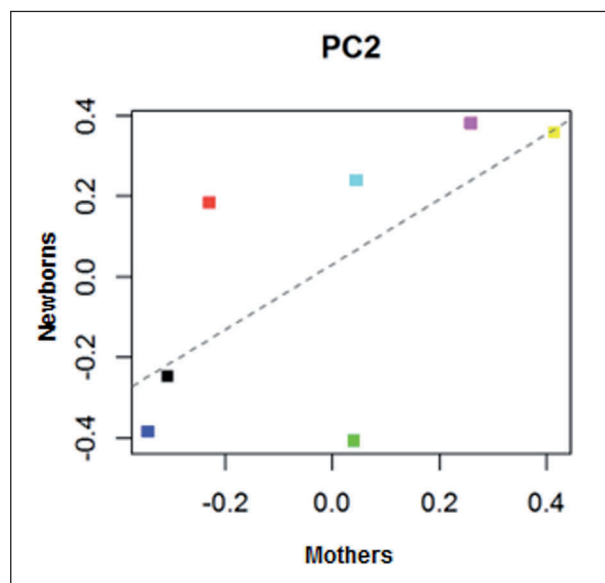
## CONCLUSIONS

Urine metabolomic profiles of newborns at birth are significantly related with that of their mothers in the

last phase of pregnancy. Metabolomics in newborns mirrors that of their mothers. Since the newborn metabolic profile reflects the flux of nutrients and other metabolites between the maternal and placental-fetal unit metabolomic approach appears to be crucial to understand the effects of maternal biochemistry, physiology and lifestyle behaviors on fetal programming and infant outcomes.



**Figure 1 (ABS 8).** The first component of the PCA analysis (PC1) showed two distinct metabolic groups: pregnant women and newborns.



**Figure 2 (ABS 8).** A significant correlation was found between urine metabolic profile of newborns and those of their mothers, as shown through the scores of the second component (PC2) of the PCA analysis.



**ABS 9****INTRAUTERINE MECONIUM PERITONITIS DUE TO SIGMOID PERFORATION OF UNKNOWN ETIOLOGY IN A 29 WEEKER: MANAGEMENT AND OUTCOME. A CASE PRESENTATION**

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**BACKGROUND**

*In utero* bowel perforation is a rare condition of the fetus, with an incidence of 1 in 3,000-35,000 births. Etiology can be atresia, volvulus, ischemia or other anatomical disorders. This condition can lead to meconium peritonitis.

**METHODS**

The authors present the case of a premature newborn suspected with anasarca fetalis with ascites, diagnosed postnatally with meconium peritonitis.

**CASE REPORT**

G.M. was born at 29 gestational weeks, with a birth weight of 1,450 g, via emergency cesarean section due to ultrasound findings of ascites and fetal distress. Apgar scores were 1 at 1 min, 7 at 5 min. Resuscitation was performed at birth with application of positive pressure ventilation after intubation, surfactant administration in the first 20 min of life. After initial stabilization the infant was transferred to the NICU of the hospital, where abdominal ultrasound revealed the presence of intraabdominal liquid. Due to the massive abdominal volume and elevated diaphragm, ventilation was difficult and ultrasound-guided paracentesis was performed, resulting in meconial aspirate. During emergency laparotomy, meconium peritonitis due to sigmoid colon perforation of unknown etiology was diagnosed and colonostomy was performed. Enteral feeding with expressed mother's milk was started on day 4 of life; extubation was possible at 10 days of life. The infant received total enteral feeding after 16 days of life and reanastomosis was performed at 3 months. No bowel resection was needed. Postoperative outcome was good without major complications. The newborn was included in our follow-up program as a premature.

**CONCLUSIONS**

Rare surgical emergencies in fetuses need prompt multidisciplinary decision making and action in order to save infants' lives. Prematurity can

influence the outcome but risks and benefits should be considered when fetal distress is present and the fetus is at a viable gestational age.

**ABS 10****THE RESULTS OF NEWBORN HEARING SCREENING BY MEANS OF TRANSIENT OTOACOUSTIC EMISSIONS – HAS ANYTHING CHANGED OVER 10 YEARS?**

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**INTRODUCTION**

Universal newborn hearing screening (UNHS) has become the standard of care in many countries. The aim of this study was to evaluate the results of UNHS in Poland after ten years from the program initiation in 2003.

**METHODS**

There were 5,601 babies examined by means of otoacoustic emissions in 2003 and 6,827 in 2013 in the Womens' University Hospital in Poznan, Poland.

**RESULTS**

Risk factors (RFs) were identified in 739 (13.2%) infants from 2003 cohort and in 772 (11.3%) from 2013 group (significant decrease;  $p < 0.05$ ). The most frequent RFs in 2013 were: ototoxic medications, treatment in neonatal intensive care unit (NICU) and prematurity  $< 33$  weeks of gestation. In 2003, the most frequent RFs were ototoxic medications, prematurity and low Apgar score; a less frequent RF was treatment in NICU. The number of infants with RFs and positive OAE was 51 (6.6%) in 2013 vs. 183 (24.8%) in 2003 ( $p < 0.05$ ), respectively. The number of infants without RF and with positive OAE result was 36 (0.6%) in 2013 compared to 173 (3.6%) in 2003 (RR = 10.69) and compared to those with family history (RR = 7.5), congenital malformations (RR = 6.7) and low APGAR score (RR = 5) in 2003. We found that bilaterally positive OAE test was most predictive of the final diagnosis. The number of false positive tests at the 1<sup>st</sup> level of screening is significantly lower now than 10 years ago.

**CONCLUSIONS**

The prevalence of most risk factors for hearing deficit has significantly changed over 10 years. The



number of false positive test results has significantly decreased thanks to better staff training. Bilaterally positive OAE test was most predictive of the final diagnosis, irrespectively of the presence of risk factors.

## ABS 11

### NEONATAL GASTRIC PERFORATION: A REPORT OF ONE CASE IN OUR NICU

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#### INTRODUCTION

Neonatal gastric perforation (NGP) is a rare, serious and life threatening issue. There are various theories that have been proposed to explain its etiology. Although historically it has often been described as spontaneous, some cases are not and can be of traumatic, ischemic or other origin. Its high mortality rate makes it necessary to formulate an early diagnosis and to provide immediate surgical intervention.

#### CASE REPORT

We present the case of one of our patients admitted to our Neonatal Intensive Care Unit (NICU) of Navarre, Spain. Preterm girl baby (31<sup>+5</sup> GA), first twin from a bicorial biamniotic pregnancy, birth weight (1,370 g). Emergency cesarean section was performed because the dynamics of delivery started and the first baby was in breech presentation. Corticosteroid therapy had been previously administered to the mother (2 doses). APGAR score test was 8 and 9 for first and fifth minute of life, respectively, and no neonatal resuscitation was needed. No prolonged rupture of membranes. Unknown *S. agalactiae* vaginal colonization. Since her admission, our patient did not need ventilatory or haemodynamic-renal support. The first blood test performed did not show signs of infection. Caffeine treatment was started. A nasogastric tube was placed and continuous enteral nutrition was started (30 cc/kg/day) with good tolerance and meconium emission within first 24 hours of life. On the second day of life, abdominal distention was observed, accompanied by vomit and bilious gastric drainage from enteral tube. NPS, intravenous nutrition and antibiotics (ampicilin and gentamicin) were started according to the clinical findings and the positive

results of PCR and procalcitonin performed at this moment. 24 hours later, although the baby was globally well, the abdominal distention was more intense, therefore a plain abdominal X-Ray was performed showing an evident pneumoperitoneum. Our patient was assessed by the Pediatric Surgical Team and an exploratory laparotomy was performed, in which a small anterior stomach perforation was demonstrated and repaired with simple stitching. Metronidazol antibiotic was added. Subsequently, the clinical evolution was favorable, and enteral nutrition was restarted one week later.

#### CONCLUSIONS

The incidence of NGP appears to be approximately 0.15-7% of all gastrointestinal perforations in neonates and it is a rare condition. Early diagnosis is difficult due to its nonspecific signs (abdominal distention, pneumoperitoneum, respiratory distress, vomiting, lethargy, distended scrotum, cyanosis, fever, bloody stool, feeding intolerance, etc.). Mortality rates vary from 22 to 100%. Perforation is more common along the greater curvature of the stomach, although it can occur anywhere. The etiology and prognostic factors are still widely debated. Although the most common injury is caused by vigorous nasogastric tube insertion, there are several variables that have been implicated as possible contributing factor: premature birth, nasal ventilation, stress at birth, gastric tube insertion, asphyxia, corticosteroid administration, chorioamnionitis, anatomic abnormalities of the stomach. Regarding spontaneous NGP (SNGP) (10-16% of gastric perforations), it is more common in preterms, hypoxic and low-birth-weight, black male babies. In SNGP, increased intragastric pressure secondary to mechanical obstruction or aerophagia has been postulated as an etiology of NGP (resulting from immaturity and poor neurologic control in the newborn, with uncoordinated vomiting from dilated stomach), but its mechanism is still unclear. SNGP mostly occurs between 2 and 7 days of life. The most common features of SNGP are abdominal distention and pneumoperitoneum. In all cases, factors associated with severe sequelae or prognoses are: male sex, hyponatremia, leucopenia, acidosis, delayed surgery, persistent postoperative thrombocytopenia, lower birth weight, peritonitis. The incidence of concomitant gastrointestinal tract anomalies are frequent (around 40-55%): ischemic bowel, necrotizing enterocolitis (NEC), intestinal malrotation, duodenal web, jejuna stenosis, hiatal hernia, Meckel's diverticulum, gastroschisis, congenital diaphragmatic hernia, esophageal atresia,

etc. Early diagnosis and immediate intensive care management and prompt surgical intervention can improve prognosis and outcomes. It is necessary to inspect the small intestine carefully whenever a NGP is repaired. In case of SNGP, differential diagnosis should be done with these pathologies: intestinal atresia, meconial ileus, Hirschprung disease, NEC, pneumothorax. In conclusion, the only apparent contributor factors related to our patient were the nasogastric tube insertion and the prematurity history. It has to be emphasized that the early diagnosis and intervention over our preterm patient with NGP explains its satisfactory evolution. When a preterm infant presents with sudden pneumoperitoneum, gastric perforation should be ruled out.

## ABS 12

### INCIDENCE OF TRANSIENT HYPERTHYROTROPINEMIA AND ASSOCIATED FACTORS IN PRETERM INFANTS AT KING CHULALONGKORN MEMORIAL HOSPITAL

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#### INTRODUCTION

Preterm infants have a higher incidence of abnormal thyroid function than term infants. Previous studies showed high incidence of transient hypothyroxinemia among preterm infants. However, we found transient hyperthyrotropinemia common in our institute.

#### OBJECTIVES

To determine the incidence of transient hyperthyrotropinemia in preterm infants of gestational age  $\leq 32$  weeks, and to identify associated factors.

#### METHODS

We retrospectively reviewed medical records of preterm infants gestational age  $\leq 32$  weeks born between June 2014 and December 2015 at King Chulalongkorn Memorial Hospital, Bangkok, Thailand. Demographic data, conditions at birth, diseases in neonatal period, along with thyroid screening test (TSH  $\pm$  FT4) done at the age of 7-14 days and 2-4 weeks afterward were recorded.

#### RESULTS

There were 148 infants in this study, 55 were diagnosed with transient hyperthyrotropinemia.

80 had normal thyroid screening test and 13 had other abnormal thyroid conditions. The incidence of transient hyperthyrotropinemia among preterm infant in this study was 37%. When compared with infants with normal thyroid screening test, the infants with transient hyperthyrotropinemia had lower gestational age and birthweight, higher proportion of maternal preeclampsia, severe respiratory distress syndrome, presumed neonatal sepsis, patent ductus arteriosus, bronchopulmonary dysplasia, apnea of prematurity, feeding intolerance and longer duration of mechanical ventilation and hospital stay (p-value  $< 0.05$ ).

#### CONCLUSIONS

Preterm infants gestational age  $\leq 32$  weeks have a high incidence of transient hyperthyrotropinemia. This condition may be associated with lower gestational age and neonatal illnesses.

## ABS 13

### EXTRA-ABDOMINAL UMBILICAL VEIN VARIX IN EXTREME PREMATURE INFANT

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Umbilical vein varix is known to be associated with a high incidence of fetal anomalies. Extra-abdominal umbilical vein varix is very unusual, and difficult to diagnose by prenatal ultrasound. We present a case of umbilical vein varix in infant born at 24<sup>+</sup> weeks of gestational age (GA) with birth weight of 615 grams. Prenatal ultrasounds did not reveal any umbilical vessels anomalies. Immediately after delivery abnormal presentation of umbilical vessels were noted. Placental pathology confirmed presence of several varices over the umbilical vein. Broviac line was inserted for central access at the age of 4 days and maintained until infant was 32 weeks of GA. No other vascular abnormalities were detected.

## ABS 14

### PATIENT CENTRED MEDICINE: THE “WOMAN AND CHILD HOSPITAL” ORGANIZED ON INTENSITY OF CARE A NEW AND LEADING OPPORTUNITY IN VERONA, ITALY

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## INTRODUCTION

At the Verona University Hospital, which accounted for more than 3,500 births and 6,000 Pediatric hospital admissions in 2015, a new “Woman and Child Hospital” will be inaugurated in Spring 2017. Two hundred seventy inpatient beds, outpatient services and an area of 27,000 square metres for care, research and teaching activities will be incorporated in the new building complex.

## METHODS

The new structure was designed according to a principle based on different levels of intensity of care. It represents an organizational model that can promote innovation in the performance of various activities, in which the severity of illness determines the level of care. In this model three levels are considered: a) high intensity, for intensive and semi-intensive inpatients; b) medium intensity, mainly for medical or surgical inpatients; c) low intensity, for post acute patients.

## RESULTS

The “Woman and Child Hospital” will consist of: a) a platform for Pediatric and obstetric-gynaecologic emergency and for labour-delivery areas, closely connected with surgery, radiology and general emergency departments; b) two distinct but interconnected buildings, one containing the hospitalization and teaching activities area, whilst the other will accommodate the outpatient and day service area. This new organizational model is structured according to homogeneous areas, which provide patient care on the basis of severity-instability of the clinical case and the complexity of the level of care needed.

## CONCLUSIONS

The main goal of the present project is to provide personalized and continuous assistance, where patients are placed at the very centre and grouped on the basis of homogenous needs. This model aims to overcome boundaries between specialized units, in order to promote the integration and optimization of existing resources, specifically through appropriate design of spaces, effective integration among healthcare professionals and implementation of clinical care pathways.

## ABS 15

### ASSESSMENT OF DIFFERENT METHODS IN PROCEDURAL PAIN RELIEF IN NEWBORNS

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## INTRODUCTION

Newborns are often exposed to painful procedures and it is imperative to reduce neonatal pain and its consequences. This is possible using relief methods, already proven as effective. Our aims are to assess and compare the efficacy of procedural pain relief and to verify if the type of puncture modulates the pain response.

## METHODS

An observational, analytic and prospective study included newborns admitted to the Neonatal Intensive Care Unit (NICU) of Braga Hospital (HB), between July and November of 2015. Three methods for pain relief were used: breastfeeding, sucrose and non nutritive suction (NNS), or NNS alone. The N-PASS scale was used to assess pain before and after the punctures (venipunctures or heel punctures-for glucose measurement or inherited metabolic disease screening). The same doctor carried out all assessments. The research was approved by the Ethics Committee for Life and Health Sciences, University of Minho, Hospital de Braga.

## RESULTS

34 newborns were enrolled in the study and a total of 63 punctures were observed. In HB the most frequently used method is sucrose and NNS (51%) over NSS alone (30%) and breastfeeding (19%). A multiple comparisons of Kruskal Wallis showed that higher pain scores were recorded in the NNS alone group than in the breastfeeding group ( $p < .001$ ). Sucrose and NNS groups also showed higher scores than the breastfeeding group ( $p = .04$ ). Finally, NNS alone showed higher pain scores than sucrose and NNS ( $p = .018$ ). Venipuncture had higher pain scores than heel puncture for glucose measurement ( $p = .017$ ).

## CONCLUSIONS

The most frequently used pain relief method in HB is sucrose and NNS, followed by NNS alone and by breastfeeding. Breastfeeding was more effective than the remaining methods. The procedure of pain relief must change in HB. The pain felt in venipunctures was higher than in heel lances for the purpose of glucose measurement.

## ABS 16

### FOLLOW-UP OF CONGENITAL DIAPHRAGMATIC HERNIA (CDH) PATIENTS IN A HIGH-

## VOLUME CENTER: MORBIDITIES AT 2 YEARS OF AGE

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### BACKGROUND

Survival rates for patients with congenital diaphragmatic hernia (CDH) have improved. After hospital discharge they may present long term sequelae. Our aim is to describe the morbidities and their relationship with perinatal characteristics in a cohort of survivors at 2 years (y) of age.

### METHODS

Perinatal data and clinical evaluation at 2 y of all the patients included in our CDH post-discharge follow-up program were retrospectively analyzed. Respiratory, nutritional and neurologic morbidity, as well as Bayley score and hearing assessment, were classified as normal or abnormal.

### RESULTS

Between 2006 and 2013, we treated 128 CDH patients, of which 95 patients survived (74.2%). 82 patients (86.3%) had at least clinical evaluations until 2 y. At 2 y, 30.5% of patients had respiratory problems, 23.2% needed bronchodilators and inhaled steroids and 2 patients still needed oxygen. Growth failure was present in 24 patients (29.3%), 10 had gastroesophageal reflux (GER) and 4 patients still suffered from oral aversion. Neonatal respiratory severity was predictive of pulmonary morbidity; gestational age ( $32.5 \pm 3.5$  vs  $37.9 \pm 2.6$ ,  $p$  0.005), orogastric tube (100% vs 2.8%,  $p$  0.003) and oxygen at discharge (100% vs 8.8%,  $p$  0.011) were predictive of need for oxygen at 2 y. Respiratory severity, orogastric tube at discharge and a lower gestational age were related to growth failure and GER; nevertheless, oral aversion was only linked to length of intubation (**Tab. 1**). Furthermore, the existence of pulmonary sequelae at 2 y was predictive of nutritional morbidity. Neurodevelopment was assessed in all patients and 82.9% of them had a normal evaluation, being neonatal respiratory severity predictive of this outcome. 61.7% of the patients had a Bayley score assessment, and this was abnormal in just 1 patient. 71.9% of all the cohort underwent hearing assessment, but only 2 patients had sensorineural hearing loss which seemed to be related to birth weight only (1,907 vs 2,898,  $p$  0.035).

**Table 1 (ABS 16).** Relation between neonatal variables and pulmonary/nutritional morbidity at 2 years.

	Pulmonary problems			Asthma Treatment			Growth retardation			Gastroesophageal reflux			Oral aversion		
	Yes	No	p	Yes	No	p	Yes	No	p	Yes	No	p	Yes	No	p
Patch	76	42.1	0.004	78.9	44.4	0.010	83.3	39.7	<0.001	90	47.2	0.020	100	50	0.118
Prolonged diuretic treatment	48	33.3	0.207	63.2	30.1	0.010	58.3	29.3	0.010	50	36.1	0.482	75	35.9	0.149
Prenatal treatment	47.4	27.5	0.115	64.3	25	0.010	42.9	28.6	0.244	66.7	27.9	0.050	25	33.3	1.000
"Liver-up"	45	36.2	0.497	34.6	53.3	0.190	66.7	26.1	0.002	80	31.6	0.010	100	35.9	0.054
Oxygen at discharge	16.0	1.8	0.030	21.1	1.6	0.010	20.8	0	0.002	30	2.7	0.010	25	5.1	0.226
HFV	52	28.1	0.040	63.2	26.9	0.004	62.5	24.1	<0.001	70	30.6	0.030	50	34.6	0.612
Nitric oxide	56	22.8	0.003	57.9	25.4	0.010	58.3	22.4	0.002	60	29.2	0.073	25	33.3	1.000
Orogastric tube at discharge	26	7.1	0.123	26.3	6.3	0.028	29.2	3.4	0.002	50	5.6	0.001	50	8.9	0.058
ECMO	4	5.3	1.000	5.3	4.8	1.000	12.5	1.7	0.073	20	2.7	0.071	0	5.1	1.000
Oxygen treatment (days)	47.8 ± 147.2	15.8 ± 19.6	0.311	60.9 ± 170.6	15.3 ± 18.8	0.288	57.7 ± 153.2	13.3 ± 16.3	0.200	106.6 ± 231.1	14.7 ± 17.1	0.267	43.8 ± 23.4	24.1 ± 83.1	0.641
Intubation length (days)	13.8 ± 11.5	12.1 ± 13.8	0.622	15.6 ± 12.5	11.8 ± 14.1	0.272	22.9 ± 19.0	8.5 ± 8.2	0.002	29.3 ± 20.1	10.3 ± 10.9	0.015	35 ± 20.3	11.5 ± 12.5	<0.001
Gestational age (weeks)	37.1 ± 1.6	38.3 ± 3.1	0.080	36.7 ± 2.6	38.2 ± 3.1	0.050	36.3 ± 2.6	38.4 ± 2.6	0.002	37.9 ± 2.6	36.1 ± 3.5	0.043	36.1 ± 4.3	37.9 ± 2.7	0.226
Birth weight (grams)	2,772 ± 566	2,923 ± 647	0.319	2,763 ± 551	2,911 ± 645	0.369	2,559 ± 478	3,008 ± 633	0.003	2,903 ± 638	2,691 ± 493	0.317	2,615 ± 712	2,890 ± 621	0.392
Length of hospital stay (days)	54.2 ± 49.8	39.7 ± 29.7	0.106	62.3 ± 54.9	38.7 ± 28.4	0.080	32.8 ± 20.3	71.6 ± 52.5	0.002	75.7 ± 36.0	39.8 ± 35.5	0.004	89.5 ± 19.3	41.8 ± 36.5	0.012
Pulmonary morbidity at 2 years	-	-	-	-	-	-	54.2	20.7	0.003	60	0.26	0.060	50	29.5	0.582

Qualitative variables are expressed as percentages and quantitative variables are expressed as mean and standard deviation. ECMO: extracorporeal membrane oxygenation; HFV: high frequency ventilation.



**CONCLUSIONS**

CDH patients frequently have sequelae at 2 y, especially pulmonary and nutritional morbidity, being neonatal severity a good predictor of these complications. Thus, CDH patients must have a specific multidisciplinary follow-up program in order to facilitate early recognition and treatment of these problems, this way improving their quality of life.

**ABS 17****THE PRACTICE OF PICA DURING PREGNANCY**

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**INTRODUCTION**

Pica is the craving and purposive consumption of non-nutritive substances including geophagy (dirt), amylophagy (raw starches), and phagophagy (ice). Health care professionals regard pica as a curiosity but it is a cultural universal: a practice repeated from time immemorial and in all cultures. It can pose health consequences to mother and fetus including heavy metal toxicity, hyperkalemia, iron deficiency anemia; prematurity, low birth weight, perinatal morbidity respectively. Pica is seldom addressed at prenatal visits and is an understudied and unquantified contributor to maternal/child morbidity.

**METHODS**

Originally we used the snowball method to recruit but few people came forward. We returned to Ethics and requested using social media (Facebook) to assist in recruitment. In 3 weeks we anonymously discussed pica with 30 people. On line we used previously piloted demographic and semi-structured questionnaires to obtain information about self-history, the substances ingested and frequency and perceptions and feelings. Using a thematic approach three researchers separately studied the transcripts from interviews and on line down loads.

**RESULTS**

Five themes emerged: craving; coefficient of fracture; justification and poor substitution. The description of the pica cravings was reminiscent of a state of addiction. The attributes of the substance were crucial in the satisfaction of cravings and the ensuing calm. The substance had to have a mouth feel of grittiness and a sensation of fracture or cracking. Ice, dirt and raw rice were most frequently

used. Ethnic groups shared clay sources over social media. Many previously witnessed pica in family members.

**CONCLUSIONS**

Little is known about the practice of pica, but it poses an unknown effect on the health mother and fetus. We need to include it in prenatal visits and to understand it as a behavior that could be modified or possibly extinguished should it threaten maternal/child health.

**ABS 18****FUNCTIONAL MORPHOLOGY OF TISSUES IN CHILDREN WITH COMPLETE BILATERAL CLEFT LIP AND PALATE**

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**INTRODUCTION**

Cleft lip and palate (CLP) is a severe pathology. Its treatment involves multigrade plastic surgical corrections, resulting in the closure of the wound and formation of scar tissues, which can negatively affect the growth of facial and oral tissues. Nowadays the morphogenetic study of facial cleft-affected tissues is of great significance, in order to understand the etiological morphopathogenesis of this embryonally determined pathology and post-operation tissue remodeling potential. The aim of this research was to study specific signaling molecules in the cleft-affected tissues, as well as the determination of those factors which essentially characterize morphopathogenesis of bilateral cleft lip and palate in the ontogenetic aspect.

**METHODS**

Oral mucosa tissue samples were obtained from patients with CLP. 46 patients were included in this study: 22 children had complete bilateral (CB) CLP, 24 children had complete unilateral (CU) CLP. Control material was obtained from upper lip frenuloplasty. By means of immunohistochemical method we studied and analyzed gene protein MSX1, IRF6, PAX9, RYK, vascular endothelial growth factor (VEGF) and relative amount of transforming growth factor beta-3 (TGFβ3) immunoreactive cells. Data were analyzed with the Bonferroni correction method.

**RESULTS**

In all cases and in the most severe type of the cleft (CB CLP), we found a statistically significant decrease in transcription factors IRF6, MSX1 and PAX9, growth factor TGFβ3 and VEGF in the soft tissues ( $p < 0.05$ ). It was conclusively proved that morphological tissue changes were more severe in patients with bilateral clefts. During repeated operations, we identified in the same patients a statistically significantly increased MSX1, TGFβ3 and a statistically significantly decreased VEGF expression ( $p < 0.05$ ).

**CONCLUSIONS**

In CB CLP patients, the presence of few MSX1, IRF6 and PAX9-containing cells in oral soft tissue is related to decreased cell proliferation, differentiation, migration, restoration, as well as programmed cell death prevention, determining a severe cleft type. Complete CB CLP-affected tissues have a characteristically increased MSX1, TGFβ3 and decreased VEGF expression in ontogenesis, which indicates to the dominating role of these factors in regulating cleft-affected tissue compensatory abilities after repeated operations.

**ABS 19****DIETARY PATTERN OF PREGNANT WOMEN IN URBAN GREECE**

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**INTRODUCTION**

Pregnancy is a nutritionally demanding period, accompanied by considerable tissue and fetal organs development. Specific nutritional deficiencies could cause adverse birth outcomes and have been implicated in preterm birth, low birth weight, intrauterine growth restriction, congenital defects and long-term neurodevelopmental delay of the offspring. Thus, it is essential to examine the dietary habits of pregnant women and design possible interventions before and during pregnancy.

**METHODS**

Adult women of various socioeconomic status, who exclusively breastfed their offspring, were interviewed at 1<sup>st</sup> day postpartum about the weekly consumption of different food categories during pregnancy.

**RESULTS**

A total of 260 women were interviewed, the majority of whom (76%) consumed all types of meat (beef, chicken, pork and turkey) at least twice a week. In addition, fruits, vegetables and full fat dairy were consumed daily in high portions by most of them (70%, 73% and 80% respectively). Furthermore, only 9% consumed legumes at least 3 times per week, according to the national guidelines and 16% consumed fish and seafood more than twice weekly. A remarkable proportion of 13% totally excluded either fish or meat from their diet. It is also noticeable, that none of the women drunk more than 1 glass of alcohol per week, yet approximately 63% admitted consuming chocolate and/or coffee almost daily, against the national guidelines.

**CONCLUSIONS**

A remarkable percentage of pregnant women did not follow the national proposed food standard guidelines. This could potentially compromise their health and the well-being of their offspring. Therefore, it is essential that pregnant women are advised prenatally, so that they can easily adopt an appropriate diet during pregnancy.

**ABS 20****COMPLICATIONS DUE TO ANOMALOUS POSITIONING OF THE UMBILICAL VEIN CATHETER**

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**INTRODUCTION**

Umbilical vein catheterization is a common procedure in the neonatal care units (NICU), although not without risks. Anomalous positioning of umbilical venous catheters (UVC) is quite frequent so radiological assessment is important to recognize the misplacements, as they can be involved in serious complications for the patient. This study aimed to analyze the prevalence of non-infectious complications and its relation to the location of UVC in newborns.

**METHODS**

Neonates who had undergone umbilical vein catheterization were retrospectively studied. We reviewed clinical and radiological history of patients admitted to La Fe Hospital between 2013 and 2014.

Sociodemographic variables were collected and data regarding the location, days of catheter and complications were analyzed in each case.

## RESULTS

649 patients were admitted to the NICU. There were 433 umbilical vein catheterization in the unit. 5.5% had complications, most of them resulting in patients with intrahepatic localized catheters in the first placement (70%). Statistically significant differences in the complication rate in relation to the initial location of the catheter were found in case of intrahepatic ( $p = 0.01$ ) localization. Not statistically significant differences were found in relation to days of catheterization and complications ( $p = 0.738$ ). The most common complications were liver haematoma (45.8%) and venous thrombosis (37.5%); 1 patient died due to a chemical peritonitis secondary to intrahepatic collection.

## CONCLUSIONS

Our data suggest that the correct position of UVC significantly decreased the percentage of complications due to the anomalous position of UVC. A close monitoring of the placement of the catheter is mandatory to reduce these complications.

## ABS 21

### INNOVATIVE COMPUTER APPLICATION OF SIMULATION HEMODYNAMICS NEOCARDIOSIM™

### TO ENHANCE UNDERSTANDING AND PRACTICAL SKILLS IN CARDIOVASCULAR NEONATOLOGY

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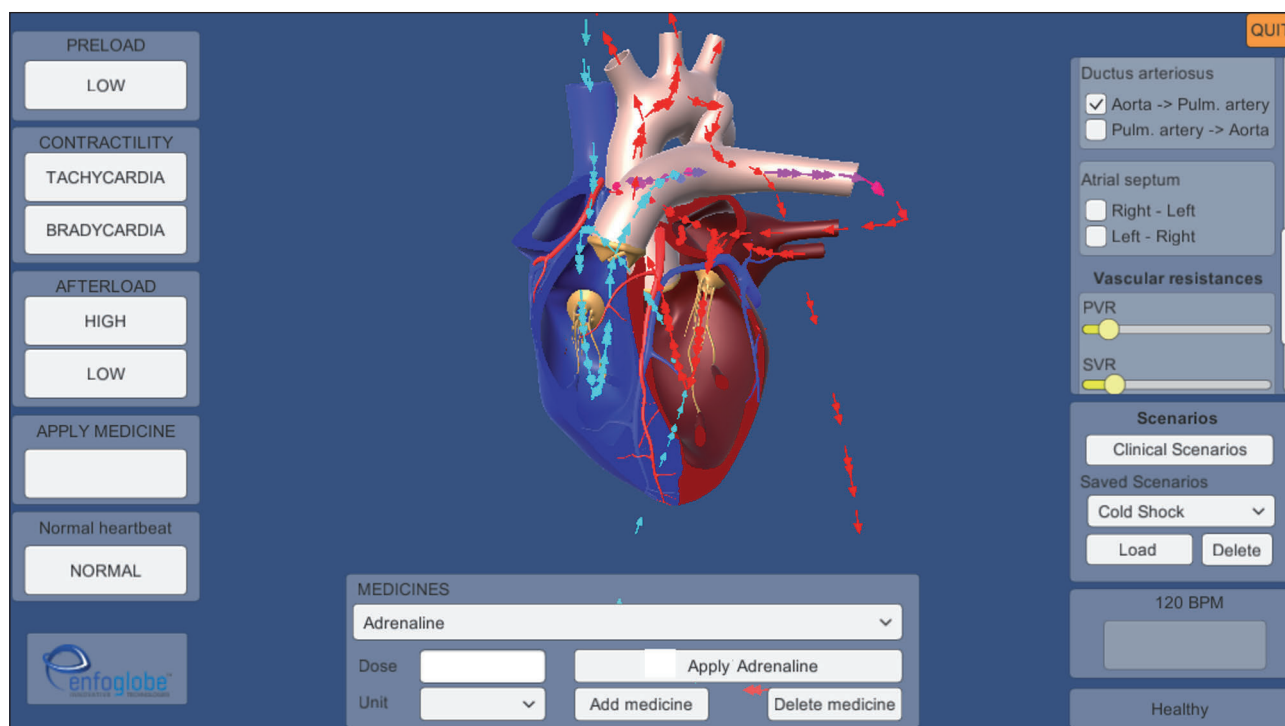
<sup>3</sup>Enfoglob Poland

## INTRODUCTION

Recent increased use of functional echocardiography in neonatal units resulted in greater interest in cardiovascular pathophysiology among neonatologists. Innovative methods of enhancement of understanding of practical hemodynamics have been sought.

## METHODS

A 3D model of the heart and circulation has been created based on the current knowledge of neonatal hemodynamics. The computer application by Enfoglob™ presents different clinical scenarios i.e. shock and hypotension, patent ductus arteriosus, persistent pulmonary hypertension, hypoxic ischemic encephalopathy. Manual computer simulation of hemodynamic situations with modification of volume and direction of vascular and shunt blood



**Figure 1 (ABS 21).** The computer application by Enfoglob™ presents different clinical scenarios.

flow, preload, heart rate, contractility, afterload and pulmonary and systemic vascular resistance parameters by user is proposed (**Fig. 1**).

#### CONCLUSIONS

This preliminary report presents a novel computer application of neonatal hemodynamics simulation for purposes of teaching to neonatologists, intensivists and medical students, as well as for explicable description of clinical situations to parents. Introduction of NeoCardioSim™ in neonatal education, translational research and daily clinical practice warrants further investigation.

#### ABS 22

### OVARIAN TUMOR ASSOCIATED WITH PREGNANCY

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#### INTRODUCTION

Adnexal masses during pregnancy are very rare. A lot of these masses are simple luteal cysts, which disappear after 16 weeks of gestation, but 1/3 of those who persist are mature cystic teratomas, also known as dermoid cysts.

#### CASE REPORT

In this paper, we report the case of a 24-year-old Caucasian woman, gravida 1, para 1, monitored in the last trimester of pregnancy, who presented severe abdominal pain towards the end of her third trimester (last 5 weeks), and 4-5 days of absence of the intestinal transit. The painful symptomatology was resistant to the administration of tocolytics and analgesics. Surgical evaluation did not indicate emergency exploratory laparotomy. At 40 weeks of gestation, cesarean section was indicated, due to acute fetal bradycardia at the onset of labor. During surgery, at the inspection of the peritoneal cavity, the operating team discovered a dermoid cyst on the left ovary, of 9/7 cm in diameter, torsed at 360 degrees around its vascular pedicle, with multiple adhesions on the omentum and peritoneum. Left adnexectomy was performed with favorable post-surgery evolution.

#### CONCLUSIONS

Pregnancy and the post-partum period increase the risk of torsion of ovarian tumors, the risk of torsion

being even more frequent if they are represented by dermoid cysts (15% of cases).

#### ABS 23

### CHANGING PATIENT SAFETY CULTURE IN NEONATAL INTENSIVE CARE UNIT

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#### INTRODUCTION

Patient safety (PtS) is the core of quality of health care. Safety in neonatal intensive care units (NICUs) is our interest as it has influence on morbidity, mortality, and long term quality of life of the neonates. Medical errors are common in NICU and result in harm to patients.

#### AIMS

The wider objectives are to promote safe health care practices and prevent inadvertent harm to patients through contribution to learning/training of health care workers (HCWs) on PtS and promotion of a culture for PtS.

#### METHODS

- Initially, a survey was carried out to evaluate the current situations.
- We developed PtS standards for NICU.
- We updated the participating NICUs workforce through development of cohesive shared education & training workshops in the scope of PtS.
- We developed NICU patient safety courses for medical staff, nurses and nonmedical staff as well as leadership and scientific research.
- We developed manual for events report and policy agreement.
- We implemented the Egyptian Neonatal Safety Training Network (ENSTN) web page for reports of events data.
- We are working on the establishment of electronic alerts and indicators.
- We are now developing 10 guidelines & clinical pathways for NICUs and booklets for parents.

#### CONCLUSIONS

Safety culture in NICUs depends on a system approach to promote reporting of adverse events, focused on learning from errors. Fostering such culture is a continuous process that needs cooperation of all HCWs and support from health care system.



**ABS 24****DIABETES INSIPIDUS IN A VERY-LOW-BIRTHWEIGHT PRETERM INFANT WITH INTRAVENTRICULAR HAEMORRHAGE – CASE REPORT**

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**INTRODUCTION**

Central diabetes insipidus (CDI) is a condition associated with a dysfunction of hypothalamic–pituitary axis and, consequently, impaired synthesis or secretion of vasopressin. This condition is extremely rare in preterm neonates.

**CASE REPORT**

A male neonate, born after 5<sup>th</sup> pregnancy, second birth, born vaginally at 24 weeks of gestational age, with 790 g body weight at birth. Apgar score was 1, 1, 1 and 3 points at 1, 3, 5 and 10 minute of life, respectively. Umbilical cord pH was 7.33 and 7.0. The patient was intubated in the labor ward and artificially ventilated. External cardiac massage was administered, as well as 4 doses of adrenalin. Following resuscitation, the patient was admitted to the NICU (Neonatal Intensive Care Unit) of the Neonatology Clinic in Poznan. Cranial ultrasound scan performed on 3<sup>rd</sup> day of life revealed hemorrhage into lateral ventricles of the brain, with grade III severity on the right side and grade II severity on the left. During hospitalization, hypernatremia was observed (maximum level: 167 mmol/l at day 38) with polyuria (8 ml/kg/h; plasma osmolality: 324 mOsm/l, urine osmolality: 149 mOsm/l). Renal function parameters were normal (creatinine: 0.95 mg/dl, urea: 37.1 mg/dl) and levels of cortisol, aldosterone and plasma renin activity were in normal ranges. No decreases in Na<sup>+</sup> levels were observed when supply of liquids was increased to 200 ml/kg of body weight and supply of Na<sup>+</sup> was reduced. Based on the results of additional tests, CDI was diagnosed. Oral desmopressin therapy was introduced at a dose of 4.2 µg/kg per day in two doses, which normalized diuresis and results of laboratory tests (Na<sup>+</sup> 138 mmol/l, plasma osmolality 280 mOsm/l, urine osmolality 418 mOsm/l). Cranial MRI scan was performed and revealed that pituitary gland was correctly positioned, with no signal in the posterior pituitary lobe visible in T1 weighted

images, which evidenced lack of neurohypophysis. At 151 days of life the infant was discharged to the Department of Pediatric Endocrinology, Poznan University of Medical Sciences.

**CONCLUSIONS**

Although CDI is rare in neonates, it can lead to serious consequences, so it is important to diagnose it in early stages and administer appropriate therapy. It is necessary to take CDI into consideration as a potential cause of hypernatremia. As we presented it can be associated with intraventricular hemorrhage, which is common especially in preterm infants. In the case we presented we achieved positive results of therapy with oral desmopressin. There are no official standards of pharmacotherapy of CDI in neonates, so this case report and other similar ones can be helpful in the future to make clear treatment guidelines.

**ABS 25****RISK FACTORS FOR ADVERSE EVENTS FOLLOWING IMMUNIZATION IN PRETERM NEWBORN INFANTS**

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**INTRODUCTION**

There are significant delays in the vaccination schedule realization among preterm newborn infants.

**OBJECTIVES**

Description of the frequency and kinds of adverse events following immunization (AEFI) in preterm newborn infants. Establishment of preterm infants group, who will be distinctively susceptible to the adverse events occurrence.

**METHODS**

Demographical and clinical data and AEFI occurrence after DtaP, HIB and pneumococcal vaccination among preterm newborn infants during first hospitalization were prospectively collected with the use of electronic data form between 1<sup>st</sup> June 2011 and 1<sup>st</sup> June 2015.

**RESULTS**

The analysis was conducted on 138 patients. The groups were divided according to maturity (I: ≤ GA 28 w and GA 29–36 w). There were no statistically

**Table 1 (ABS 25).** Adverse events following immunization (AEFI) in the two groups.

Clinical event	GA ≤ 28 weeks n = 73	GA > 28 weeks n = 65	Overall n = 138	Statistical significance of differences (p-value)
Local reaction	0 (0)	0 (0)	0 (0)	-
Increased body temperature > 38°C	1 (1)	0 (0)	1 (1)	0.999
Disorders of activity NIPS scale ≥ 3 pts.	7 (10)	6 (9)	13 (9)	0.943
Apnea	5 (7)	1 (2)	6 (4)	0.213
Necessity of respiratory support	2 (3)	1 (2)	3 (2)	0.999
Desaturations	2 (3)	1 (2)	3 (2)	0.999
Necessity of the supply of caffeine	1 (1)	0 (0)	1 (1)	-

Data are presented as n (%).

significant differences between the groups in AEFI occurrence (**Tab. 1**). Following vaccination apnoea was developed by 6 newborns (4%), mainly in ≤ GA 28 w group; activity dysfunctions were developed by 13 newborns (10% of the total group). Development of apnoea following vaccination in ≤ GA 28 w group positively correlated with the time of non-invasive ventilation and late infection occurrence. There were no statistically significant demographical or clinical risk factors for the development of activity dysfunctions following vaccination.

#### CONCLUSIONS

Term vaccination in clinically stable, preterm newborn infants is a safe medical procedure. Proper medical schedule for vaccination seems essential for the infant's safety. Extremely early born preterm infants requiring long respiratory support and following a secondary infections are highly susceptible to respiratory dysfunctions and should be vaccinated in hospital environment.

#### ABS 26

#### IMAGING OF NECK MASSES IN THE NEONATE

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#### INTRODUCTION

Neck masses occurring in the neonatal period and early infancy consist of vascular tumors, vascular malformations, benign and malignant soft tissue tumors, and other developmental lesions. Although some lesions can be diagnosed on clinical grounds, others can only be diagnosed by imaging. Beyond diagnosis, imaging plays a significant role in evaluating the location and extent of a lesion for possible intervention.

#### METHODS

Retrospective study of 8 cases of neonates with masses of the neck. Ultrasounds (US) were performed in all patients, computed tomography (CT) in 3 cases and magnetic resonance imaging (MRI) in 4 cases.

#### RESULTS

Cervical teratoma was found in 4 cases, neuroblastoma in 2 cases, cystic lymphangioma in 2 cases. Prenatal diagnosis was performed in 2 cases. Fine-needle biopsy confirmed diagnosis in the two cases of neuroblastoma.

#### CONCLUSIONS

Imaging is essential for accurate diagnosis and pretreatment planning of neck masses. US are often used for initial evaluation. CT provides additional information with regard to the extent and internal composition of the mass. MRI may be needed in some cases for preoperative assessment.