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ABS 1

THE GREEK FINANCIAL CRISIS AND ITS INFLUENCE ON TRIPLET PREGNANCIES: THE EXPERIENCE OF A TERTIARY CENTER

G. Mitsiakos¹, D. Gialamprinou¹, E. Papacharalampous¹, E. Babacheva¹, I. Chatziioannidis¹, F. Chatzigrigoriou², A. Karagkiozi², G. Grimbizis², V. Soubasi¹

¹Second Department of Neonatology and NICU, Aristotle University of Thessaloniki, "Papageorgiou" Hospital, Thessaloniki, Greece

²First Department of Obstetrics and Gynecology, Aristotle University of Thessaloniki, "Papageorgiou" Hospital, Thessaloniki, Greece

INTRODUCTION

In the last decades triplet pregnancies, though spontaneously infrequent, have increased by 400% in western countries. This boost is mainly attributed to very costly Assisted Reproductive Technologies (ARTs). Since 2010, Greece has been suffering from a severe financial crisis (FC). Adverse health outcomes have been reported but studies on perinatal health with special focus on triplet pregnancies are scarce. In the present study, we aimed to investigate the impact of the FC on the incidence and perinatal outcomes and complications of triplet pregnancies (TPs) during the early and established crisis period.

MATERIALS AND METHODS

Data regarding TPs, concerning neonates hospitalized in our NICU between April 2004 - December 2017 were studied retrospectively. The study period was divided into 3 sub periods: the period before the FC (2004-2010, period A), the early period of the financial crisis (2011-2013, period B) and the period of established FC (2014-2017, period C). Birth records of all TPs were reviewed for maternal (mode of conception, delivery mode) and neonatal (gender, birth weight, gestational age) variables. All possible perinatal and antenatal complications (RDS, sepsis, NEC, ROP, BPD, PDA, PVL, IVH) were also recorded.

RESULTS

Over the study period of 14 years, there were 76 triplet deliveries, which were equivalent to 218 triplet neonates per 7,447 hospitalized live births. The

number of triplets born throughout the 3 examined time periods was 134 per 3,611 hospitalized neonates (3.7%), 63 per 1,557 neonates (4.0%) and 30 per 2,279 neonates in total (1.3%), respectively. IVF was reported as the predominant way of conception accounting for 37 out of 48 TPs in period A, 15 out of 21 TPs in period B and 8 out of 10 TPs in time period C. The mean time of hospitalization was 29.5 days in period A, 25.9 days in period B and 20.8 days in period C. The mortality rate of triplet neonates in period A was estimated at 6.7% (9/134 neonates) while the overall NICU mortality was counted 3.7% (134/3,611 hospitalized neonates). The respective mortality rate of triplet neonates in the other 2 periods was 6.3% in period B (compared to 3.33% overall mortality of the NICU) and 16.6% in period C (compared to 3.01% overall mortality of the NICU in the same time frame). Demographic characteristics, morbidity and mortality of neonates for the 3 study periods are shown in **Tab. 1**.

Table 1 (ABS 1). Demographic characteristics, morbidity and mortality of neonates for the 3 study periods.

	Before FC (2004-2010)	Early FC (2011-2013)	Established FC (2014-2017)
Total hospitalized neonates	3,611	1,557	2,279
Number of triplet pregnancies	48	21	10
Number of triplet neonates	134 (3.7)	63 (4.0)	30 (1.3)
Mode of conception (IVF/ICSI/SC/II)	37/1/4/6	15/1/2/0	8/0/2/0
GA ^a (days)	223 (17)	224 (21)	217 (21)
BW ^a (g)	1,545 (440)	1,630 (437)	1,433 (448)
CS ^b	48 (100)	21 (100)	10 (100)
Gender (M/F)	74/70	31/28	17/13
Prenatal cortisol ^b	47 (98%)	17 (94.5)	8 (80)
RDS ^b	67 (50)	33 (50.8)	9 (30)
IVH ^b	5 (4)	1 (1.5)	2 (6.6)
Sepsis ^b	27 (20)	17 (23.8)	3 (10)
NEC ^b	4 (3)	3 (4.7)	0
PDA ^b	0	3 (4.7)	1 (3.3)
ROP ^b	4 (3)	1 (1.5)	1 (3.3)
PVL ^b	1 (0.7)	2 (3.0)	0
BPD ^b	5 (4)	3 (4.7)	2 (6.6)
Days hospitalized ^a	29.5 (20)	25.9 (15.6)	20.8 (17.4)
NICU mortality ^b	134 (3.7)	52 (3.33)	70 (3.01)
Triplets mortality ^b	9 (6.7)	4 (6.3)	5 (16.6)

FC: financial crisis; IVF: *in vitro* fertilization; ICSI: intracytoplasmic sperm injection; SC: spontaneous conception; II: intrauterine insemination; GA: gestational age; BW: birth weight; CS: cesarean section; RDS: respiratory distress syndrome; IVH: intraventricular haemorrhage; NEC: necrotizing enterocolitis; PDA: patent ductus arteriosus; ROP: retinopathy of prematurity; PVL: periventricular leucomalacia; BPD bronchopulmonary dysplasia; NICU: neonatal intensive care unit.

^a Mean (standard deviation); ^b n (%).

CONCLUSIONS

Although IVF remains the principal mode of conception among TPs, the incidence of TPs remained similar before the FC and in the early period of the FC but it decreased during the established FC. It is also noteworthy that the percentage of triplet neonates among hospitalized neonates during the period of established financial crisis showed an almost threefold decrease compared to the previous 2 time periods.

ABS 2**SHOULD WE START A NATIONWIDE SCREENING PROGRAM FOR CRITICAL CONGENITAL HEART DISEASE IN TURKEY? A PILOT STUDY**

D. Dilli¹, V. Doğan², B. Mutlu Özyurt³, A. Özyurt⁴, N. Hakan⁵, S. Bozabalı⁶, İ. Caner⁷, H. Olgun⁸, A. Zenciroğlu¹, S. Karademir², H. Aydın⁹, M. Koç⁹

¹Neonatology Department, Health Science University, Dr. Sami Ulus Research and Application Center, Ankara, Turkey

²Pediatric Cardiology Department, Health Science University, Dr. Sami Ulus Research and Application Center, Ankara, Turkey

³Neonatology Department, Mersin Maternity and Children Hospital, Mersin, Turkey

⁴Pediatric Cardiology Department, Mersin Maternity and Children Hospital, Mersin, Turkey

⁵Neonatology Department, Muğla Sıtkı Koçman University, Muğla, Turkey

⁶Pediatric Cardiology Department, Muğla Sıtkı Koçman University, Muğla, Turkey

⁷Neonatology Department, Atatürk University, Erzurum, Turkey

⁸Pediatric Cardiology Department, Atatürk University, Erzurum, Turkey

⁹Cardiovascular Surgery Department, Health Science University, Dr. Sami Ulus Research and Application Center, Ankara, Turkey

INTRODUCTION

Nowadays, screening for critical congenital heart disease (CCHD) is conducted in many developed countries. In this study, we investigated the feasibility of CCHD screening test by pulse-oximeter in different regions of Turkey, before implementation of a nationwide screening program.

METHODS

This was a prospective multicentered screening study performed in four different geographical regions (East Anatolia, Central Anatolia, Mediterranean and Aegean regions) of Turkey, between December 2015 and January 2017. The babies with a gestational age ≥ 34 week were eligible for the study. Preductal and postductal oxygen saturations

(SPO₂) and perfusion indices were measured using Masimo Radical-7 in early postnatal days. The results were evaluated according to the algorithm recommended by the American Academy of Pediatrics. Additionally, a PI value less than 0.7 was accepted as being significant.

RESULTS

A total of 4,383 babies were screened during the study period. Thirty-two babies were excluded due to prenatal diagnosis of CHD. In 4,351 newborns, mean gestational age and birthweight were 38.4 ± 1.2 week and $3,230 \pm 452$ g, respectively. Mean screening time was 31.3 ± 12 hour and prematurity rate 18% (n = 787). The mean values of preductal and postductal measurements were SpO₂ (%): 97.3 ± 1.8 , PI: 2.7 ± 1.4 vs SpO₂ (%): 97.7 ± 1.8 , PI: 2.3 ± 1.3 , respectively. Test positivity rate was 0.91% (n = 40). Echocardiography (ECHO) was performed on 309 (7.1%) babies due to clinical findings (n = 269), test positivity (n = 32) and test positivity + clinical findings (n = 8). Non-critical CHDs were detected in 251 babies (5.7%), and CCHD in 6 (0.13%). CCHD diagnoses were: pulmonary atresia (n = 1), aortic coarctation (n = 2), transposition of the great arteries (n = 1), and total anomalous pulmonary venous return (n = 2). In these babies, the mean values of preductal and postductal measurements were SpO₂ (%): 91 ± 6.3 , PI: 1.7 ± 1.3 vs SpO₂ (%): 92.1 ± 4.3 , PI: 1.7 ± 1.0 and lower than in the other babies (p < 0.05, for all measurements). Sensitivity and specificity of the screening test were 83.3% and 99.1%, respectively.

CONCLUSION

We observed that CCHD screening test by pulse oximeter could be performed effectively by all neonatologists from the different regions of Turkey. For early detection of CCHD, we suggest the implementation of a national screening program for CCHD in our country.

ABS 3**THE ASSOCIATION OF PLATELET COUNTS WITH THE DEVELOPMENT AND TREATMENT OF RETINOPATHY OF PREMATURITY**

D. Szpecht¹, A. Choręziak², I. Pawłowska², A. Chmielarz-Czarnocinska³, J. Gadzinowski¹, M. Szymankiewicz¹, A. Gotz-Wieckowska³

¹Department of Neonatology, Poznan University of Medical Sciences, Poznan, Poland

²Poznan University of Medical Sciences, Poznan, Poland

³Department of Ophthalmology, Poznan University of Medical Sciences, Poznan, Poland

INTRODUCTION

Thrombocytes deliver and regulate the activity of several key angiogenesis factors, including vascular endothelial growth factor (VEGF). By that means, platelets may restrict neovascularization in retinopathy of prematurity (ROP), acting as VEGF scavengers. The aim of the study was to examine the role of platelet counts and thrombocytopenia (platelet count below 100 G/L) in the pathogenesis of ROP. A further aim was to determine the critical time of their occurrence and to assess their influence on ROP that requires multistage treatment.

METHODS

The retrospective study of 163 preterm infants diagnosed with ROP was performed, comparing 76 patients who required treatment (cases; mean gestational age: 25 ± 1.72 weeks, weight: 830 ± 206 g) with 87 patients with ROP that resolved spontaneously (controls; 28 ± 2.07 weeks, $1,125 \pm 352$ g). Laser retinal photocoagulation ($n = 47$), injection of VEGF inhibitor ($n = 5$) or both ($n = 24$) were used as treatment methods. Further analysis concerned the patients treated: 52 patients in whom a first line treatment was sufficient to stop ROP progression and 24 patients who required re-treatment. Peripheral blood platelet count measurements from several time intervals and platelet transfusions were abstracted.

RESULTS

A statistically significant difference was found in the occurrence of thrombocytopenia ($p = 0.015$) and median platelet counts ($p = 0.008$; cases median 325 G/L, controls median 401 G/L) before the diagnosis of ROP (mean 32.9 weeks of postmenstrual age, PMA). There was no significant association with thrombocytopenia on the day of birth ($p = 0.844$), before 31 PMA ($p = 0.332$) and with platelet transfusions ($p = 0.402$) and ROP occurrence. The ROC curve analysis showed that the value of platelets above 232 G/L may stimulate spontaneous resolution of ROP. Multivariate logistic regression analysis suggested that the risk of ROP development increased with the number of days with thrombocytopenia (OR: 1.097; 95% CI: 0.99-1.21, $p = 0.052$). Among the cases, statistically significant difference between patients treated only once and patients that required re-treatment was found in platelet counts before the diagnosis of ROP ($p = 0.017$; median 371 G/L; 242 G/L, mean 32.7 PMA); platelet count before the first intervention

($p = 0.013$; median 345 G/L; 262 G/L, mean 34.8 PMA) and the number of transfusions (mean number of transfusions, patients once treated vs. re-treated 0.48 vs 1.17, $p = 0.042$). There was no significant difference between these groups in occurrence of thrombocytopenia on the day of birth ($p = 0.767$) or before 31 PMA ($p = 0.077$).

CONCLUSIONS

The results of the study confirm the association between ROP development and its severity with thrombocytopenia. While there were no differences in the occurrence of thrombocytopenia right after the birth, its occurrence before the diagnosis of ROP seems to be significant for ROP development. Moreover, higher platelet counts before diagnosis may promote spontaneous resolution of ROP.

ABS 4

ARE THERE ANY FACTORS PREDICTING THE REQUIREMENT OF EXCHANGE TRANSFUSION IN HOSPITALIZED NEONATES WITH SEVERE HYPERBILIRUBINEMIA?

E. Benderlioglu¹, B. Atasay², E. Okulu², G. Tunc², E. Kose³, O. Erdeve², S. Arsan²

¹Department of Pediatrics, Ankara University School of Medicine, Ankara, Turkey

²Division of Neonatology, Department of Pediatrics, Ankara University School of Medicine, Ankara, Turkey

³Sakarya University Training and Research Hospital, Sakarya, Turkey

INTRODUCTION

Exchange transfusion (ET) is a long-established universal, efficient and reliable treatment of severe hyperbilirubinemia for the prevention of bilirubin-induced neurologic dysfunction and neonatal mortality. This clinical procedure is not entirely risk free. The aim of the study is to evaluate the factors predicting the requirement for ET in hospitalized neonates with bilirubin levels above the ET thresholds.

METHODS

Infants who were admitted to a tertiary neonatal intensive care unit with severe hyperbilirubinemia (TSB ≥ 25 mg/dL) between January 2015 and August 2017 were enrolled in the study. Patients were grouped as Group 1 who underwent ET, and Group 2 who recovered without ET. The clinical and demographic characteristics, treatment modalities and laboratory findings of the groups were reviewed retrospectively.

RESULTS

One-hundred and four neonates were enrolled the study. The mean TSB level was 24.6 ± 4.1 mg/dl, 62.5% of the patients were male, 41.3% was born by cesarean section. Eleven percent of the patients were discharged from the maternity clinic before 24-hours of age, and 62.8% of the patients were admitted after five days of life. ET was performed in 19 (18.3%) patients (group 1). The underlying etiologies were hemolytic disease (29.8%), dehydration and breast milk jaundice (28.8%), prematurity (26.9%). There was no difference between the groups in regard to demographic and clinical characteristics. TSB was higher in group 1 than in group 2 (28.6 ± 5.3 mg/dl vs. 23.7 ± 3.3 mg/dl, $p < 0.001$). The TSB value in 24 neonates (37.5%) who presented with hemolytic jaundice was below 25 mg/dl and in 7 neonates (17.5%) it was above 25 mg/dl ($p = 0.03$). Patients who were older at admission were more likely to have severe hyperbilirubinemia ($p < 0.001$). The ratio of bilirubin to albumin was found to be higher in group 1 ($p < 0.001$). The infants with higher TSB values in group 1 had lower serum albumin levels at admission than group 2 ($p = 0.029$). The cut-off value for group 1 was 26.43 mg/dL. The probability of exchange transfusion above this cut-off value (AUC = area under curve) is 80.6% (CI: 0.670-0.942, $p < 0.001$) with 80% specificity and 73.7% sensitivity. The positive and negative predictive values were 45.2% and 93.2%, respectively. The most common complications associated with ET were thrombocytopenia (94.7%) followed by hypocalcemia (11.7%).

CONCLUSIONS

In our study, the incidence of ET was high (18.3%). The TSB level and the ratio of bilirubin to albumin were among the factors that increased the risk of ET. Since almost all of the infants with hemolytic jaundice were hospitalized before discharge from the maternity clinic and received phototherapy early, hemolytic disease was not found to be a risk factor for ET. To identify the newborns at risk for severe hyperbilirubinemia and ET, policies should be created to analyse the blood group of pregnant women, and parents should be informed about appropriate feeding and jaundice before discharge from maternity.

ABS 5

CHARACTERIZATION OF LUNG TISSUE OF NEWBORNS WITH BRONCHOPULMONARY DYSPLASIA (BPD)

M. Pilmane, Z. Vitenberga

Institute of Anatomy and Anthropology, Riga Stradins University, Riga, Latvia

INTRODUCTION

BPD shows impaired alveolarization and alveolar growth. Besides inflammatory (IL1) and anti-inflammatory (IL10) cytokines, factors stimulating growth may also play a role in the development of BPD. For instance, homeobox protein B3 (HOXB3) gene encodes transcription factors in embryogenesis. Nestin and sonic hedgehog (Shh) are proteins with an extensive regulatory role in organogenesis. Thus, the aim of our work was to detect the appearance and distribution of cytokines and lung growth stimulating factors in children who died from respiratory distress syndrome.

MATERIALS AND METHODS

Lung material was acquired during the autopsy of 10 infants aged 1-90 days with BPD in accordance with the Ethical Committee regulations of RSU. Seven children were diagnosed with pneumonia, 6 showed immaturity, 5 had received prolonged lung ventilation. HOXB3, Nestin, Shh, IL1 and IL10 were detected by use of biotin-streptavidin immunohistochemistry. The numbers of immuno-reactive cells were evaluated semi-quantitatively.

RESULTS

Inflammation and subepithelial oedema were seen in the bronchial and lung tissue. Two cases showed islands of stratified squamous epithelium instead of respiratory epithelium. BPD tissue included atelectatic alveoli, undeveloped lung tissue and prominent lymphocyte infiltration. Alveolar macrophages developed massive conglomerates in the alveoli. Few to a moderate number of bronchial epitheliocytes showed IL1, but a moderate number was positive for IL10. IL1 was detected in mast cells and chondrocytes. A moderate number of chondrocytes was positive for IL10. Also, a few alveolocytes showed IL1, while few to a moderate number of cells were positive for IL10. Alveolar macrophages were positive for both IL1 and IL10, but glands contained mainly IL10. We found higher numbers of HOXB3 cells ranging from few to abundant; moreover, lower numbers of nestin and Shh positive cells were counted, ranging mostly from occasional to numerous. In summary, mostly numerous positive cells were detected in the epithelium, connective tissue and cartilage of bronchi and bronchioles; however, in most cases few positive cells were found in lung alveoli. Statistically significant ($p < 0.05$) strong positive correlations between HOXB3 ($r_s \geq 0.7$), nestin (r_s

≥ 0.7) and Shh ($0.9 > rS \geq 0.7$) positive cells in the epithelium of the bronchial and alveolar tree were calculated.

CONCLUSIONS

The inflamed bronchial epithelium affected by BPD contains mainly IL10 and less IL1, proving the correct expression of local cytokines. The presence of IL1 in the cartilage seems to be an individual response to the inflammation, suppressed by rich IL10 expression. Atypical presence of IL1 in mast cells indicates probably presence of an allergic component. Limited cytokine expression in the alveolar macrophages proves the disorganization of common lung immunity. The main source of HOXB3, nestin and Shh is the lung epithelium. Overall, less HOXB3, nestin and Shh positive cells in the alveoli suggest deficiency of these factors in BPD, thus indicating their involvement in the maturation of the lungs.

ABS 6

CYTOMEGALOVIRUS PREVALENCE IN NEWBORNS IN THE POSTNATAL WARD OF A TERTIARY HOSPITAL, W. GREECE

I. Giannakopoulos¹, I. Christopoulou¹, A. Nourloglou¹, S. Kalogeropoulos², G. Dekavalas², G. Dimitriou¹

¹Neonatal Unit/Postnatal Ward, University Hospital of Patras, Patras, Greece

²Obstetric Department, University Hospital of Patras, Patras, Greece

BACKGROUND

Cytomegalovirus (CMV) is the most common congenital viral infection in the developed world with an overall birth prevalence of 0.2%. Sensorineural hearing loss and neurodevelopmental disabilities are the most devastating consequences.

AIM

The aim of our study was to identify those newborns who were in danger of congenital infections caused by CMV and investigate the management of these cases and their possible consequences.

MATERIALS AND METHODS

Clinical data from obstetric medical records were retrieved from January 2017 to 31 May 2018. We checked CMV status in all pregnant women during the first and the second trimester of pregnancy and consequently their newborns' medical records.

RESULTS

During the period under investigation, there were 1,600 deliveries, 56% were caesarean sections (electives and emergencies). 7/1,600 (0.43%) of

pregnant women had positive CMV IgM during pregnancy. 4/7 had CMV IgM positive in the first trimester, 2/7 in the second and one was a pregnancy without medical monitoring and was tested prior to delivery. 1/7 of the babies was late preterm and the others were term babies. All were appropriate for their gestational age and had a normal transition period. In 2/7 avidity was $> 30\%$ and 5/7 had an avidity $\leq 30\%$ but none $< 20\%$.

All the newborns were serologically tested immediately after delivery and all had negative CMV IgM and positive CMV IgG. All babies had AABR check and they passed, and only the late preterm baby had to be re-checked at term age. Their retina examination was normal, as were the cranial ultrasounds. All of them reached the neurodevelopmental milestones during the first six months of life. All babies had a PCR test in urine and blood, which was negative for CMV.

CONCLUSION

Although the prevalence of CMV infection in pregnant women in W. Greece was higher than in the average for developed countries, there were no newborns with congenital infection. A possible explanation is that infection had occurred prior to conception or it was a reactivation of an existing maternal infection.

ABS 7

EPIDEMIOLOGICAL STUDY OF ECHOGENIC INTRACARDIAC FOCI

A. Kontogeorgou, T. Boutsikou, M. Kollia, G. Kafalidis, E. Kokkou, S. Karamichalou, I. Tsigkouli, N. Iacovidou, Z. Iliodromiti

Department of Neonatology, National and Kapodistrian University of Athens, Aretaieio Hospital, Greece

INTRODUCTION

Echogenic intracardiac foci are common prenatal findings, as they are found in approximately 4% of fetuses during routine antenatal ultrasound examination. They are usually solitary foci in the left ventricle and they have no particular clinical significance. However, finding multiple echogenic foci or detecting them in pregnancies with risk factors for fetal heart disease increases the relative risk of aneuploidy or congenital heart disease. The aim of our study was to search for a possible correlation between the presence of echogenic cardiac foci and specific demographic and perinatal parameters.

METHODS

We recorded retrospectively and analysed all the cases of newborns that were antenatally diagnosed with echogenic cardiac foci and were born in our hospital in a year.

RESULTS

Echogenic intracardiac foci were detected in 4% of the cases studied (n = 36) the majority of which were in male infants (61% of cases). Fetal echocardiogram was performed in most cases and revealed that the left ventricle was the most common location, while in 22% of cases more than one focus was found. In addition, in a significant proportion of the cases studied, pregnancy was complicated by hypothyroidism (40%) or gestational diabetes mellitus (11%). Furthermore, in 44% of the cases included in the study, women smoked before and/or during pregnancy, while in half of the cases maternal age was > 35 years. Finally, postnatally there was an audible murmur in 16% of cases in the first 24 hours after birth, while 30% of them remained audible even at the 4th day of life. In all cases, pediatric cardiology counselling was recommended but none of them revealed congenital heart disease.

CONCLUSIONS

The presence of prenatal echogenic cardiac foci is usually a finding without clinical significance. However, special caution and further pediatric cardiology assessment is required in cases of pregnancies with risk factors for fetal heart disease.

ABS 8**SELENIUM STATUS IN SGA NEWBORNS**

T. Bizerea^{1,2}, R. Stroescu^{1,2}, C. Angelescu^{1,3}, O. Mărginean^{1,2}, C. Ilie^{1,3}

¹“Victor Babes” University of Medicine and Pharmacy, Timisoara, Romania

²First Pediatric Clinic “Louis Turcanu” Children’s Clinical and Emergency Hospital, Timisoara, Romania

³Clinic of Obstetrics, Gynecology and Neonatology, “Pius Brânzeu” Emergency County Hospital, Timisoara, Romania

INTRODUCTION

Adaptive physiological changes during pregnancy lead to an increase in pro-oxidant and antioxidant activity. Oxidative stress occurs when antioxidant mechanisms are overcome, and it exerts a negative effect on fetal growth and development. Seleno-compounds such as glutathione-peroxidase and thioredoxin-reductase are endogenous antioxidants that play a key role in the defense against oxidative stress.

AIM OF THE STUDY

The aim of the study was to identify a correlation between the serum and urinary selenium levels and the neonatal mechanisms of response to intrauterine hypoxia and subsequent oxidative stress.

MATERIALS AND METHODS

A prospective case-control study was conducted over a 3-month period (1st of January - 31st of March 2017), at the Clinic of Obstetrics, Gynecology and Neonatology of the Emergency County Hospital Timisoara. The study group, consisting of 10 small for gestational age (SGA) neonates, was matched 1:1 for gestational age with appropriate for gestational age (AGA) newborns, representing the control group. After obtaining written consent from the caregivers, venous blood samples of 2 mL were collected at birth from the umbilical cord and 5 mL of urine were collected using sterile urine collecting bags in all neonates included in the study. Selenium concentration was determined using atomic absorption spectrometry.

RESULTS AND DISCUSSIONS

Mean serum selenium concentrations were lower in SGA neonates compared to the control group (34.41 µg/L versus 45.87 µg/L). Neonates from the study group also had significantly lower levels of urinary selenium compared with controls (24.1 µg/L and 34.9 µg/L respectively).

CONCLUSIONS

Selenium concentration in both serum and urine is decreased in SGA infants and depends on intrauterine exposure to hypoxia and subsequent oxidative stress.

ABS 9**ULTRASONOGRAPHIC DIAGNOSIS OF RENAL ABNORMALITIES IN THE PRENATAL AND POSTNATAL PERIOD**

S.M. Stoicescu^{1,2}, D. Ciobanu², L. Ghiculescu², A.G. Marinescu²

¹University of Medicine and Pharmacy “Carol Davila”, Bucharest, Romania

²The National Institute for Mother and Child Health “Alessandrescu Rusescu”, Polizu Maternity, Neonatology Department, Bucharest, Romania

INTRODUCTION

Prenatal maternal ultrasonography can detect kidney abnormalities at an incidence of 0.3-0.5%. Hydronephrosis is the most frequently found, in almost 80% of the cases. Of these cases, approximately 75% are confirmed after postnatal

ultrasonography. Other kidney abnormalities frequently discovered, but at a lower incidence are: multicystic dysplastic kidney, unilateral absence of kidney, posterior urethral valve, ureteropelvic junction.

OBJECTIVES

To describe kidney abnormalities detected by ultrasonography in the prenatal and postnatal period

MATERIALS AND METHODS

We analyzed the data collected from 58 newborns, diagnosed with kidney problems, who were born in our clinic in the period 12.01.2015-20.12.2017. The indicators we followed were: prenatal ultrasonographic screening, gestational age, birth weight, sex, type of abnormality and need for surgical intervention.

RESULTS

All the newborns we analyzed were full-term, with gestational ages between 37 and 41 weeks and birth weight appropriate for gestational age. The majority of them were males (66%). Most cases were grade I hydronephroses (65.6%), while the rest included grade II (18.9%), grade III (10.3%) and only 6.8% were grade IV hydronephrosis. Also, in the majority of cases only one kidney was affected (86%). Prenatal ultrasound screening was performed in 86% of the cases, but in only 12% of them was a suspicion raised. Only 5 cases were sent to surgery and nephrology evaluation during their stay in the maternity ward and of these, in only one case surgical treatment was indicated. We also detected: unilateral renal agenesis (8.6%) and multicystic dysplastic kidney (7%).

CONCLUSION

In the majority of cases, prenatal maternal screening by ultrasonography is applied, but the detection rate of hydronephrosis remains very low. Still, in the absence of symptoms and clinical signs, postnatal ultrasonography remains the most accurate method for the diagnosis and follow-up of congenital hydronephrosis and its complications and also for other kidney abnormalities. Therefore, it is an important tool for the prevention of chronic renal failure in later childhood or adulthood.

ABS 10

ALCOHOL CONSUMPTION DURING PREGNANCY – IS THE MATERNAL SELF-REPORT RELIABLE?

I. Janczewska¹, J. Wierzba², M. Wiergowski³, M. Biziuk⁴, M. Wozniak⁴, M. Cichon-Kotek²

¹Department of Neonatology, Medical University of Gdansk, Gdansk, Poland

²Department of Pediatrics, Hematology and Oncology, Medical University of Gdansk, Gdansk, Poland

³Forensic Toxicology Laboratory, Forensic Medicine Department, Medical University of Gdansk, Gdansk, Poland

⁴Department of Analytical Chemistry of Gdansk University of Technology, Gdansk, Poland

INTRODUCTION

Fetal alcohol spectrum disorders (FASD) are a collection of physical and neurobehavioral disabilities caused by prenatal alcohol exposure (PAE). Many cases of FASD are missed in the newborn period, because obtaining accurate data about how many pregnant women drink can be difficult. Individuals tend to deny to themselves and to others that they use alcohol due to the social stigmatization of drinking during pregnancy. Based on the self-report data, the prevalence of PAE in Europe ranged from 0% (Spain) and 9.7% (Poland) to 28.5% (United Kingdom). Researchers have shown an association between low socioeconomic status (SES), older age, being unmarried, unemployed and high prevalence of PAE. Identifying mothers at risk facilitates diagnosis of the child. Proper and early diagnosis of FASD allows affected children to receive more intensive follow-up and appropriate service. It can decrease the risk of secondary disabilities. A new approach to finding objective data on PAE focuses on the analysis of ethanol metabolites in biological tissues, such as fatty acid ethyl esters (FAEEs), present in meconium. Detection of FAEEs in meconium has been proposed as a screening method for PAE, revealing maternal drinking from about the 20th gestational week.

METHODS

An anonymous questionnaire was distributed among mothers of neonates hospitalized in the well-baby nursery of the Neonatology Department of the Medical University of Gdansk in Poland from 1st November 2017 to 28th February 2018. The questionnaire covered alcohol consumption before and during pregnancy, socio-demographic factors and women's awareness of the harmful effects of alcohol on the fetus.

RESULTS

The study population consisted of 113 new-mothers, 4 of whom (3.5%) reported alcohol use during pregnancy. Maternal characteristics are shown in **Tab. 1**. Of the entire studied group, 95.6% of women stated high or sufficient awareness of the harmful effect of alcohol on the fetus, 97.3% reported good/very good

SES. Women who admitted drinking alcohol during pregnancy were highly educated, married or in relationships, living in a big city, without history of smoking before pregnancy. They were more likely to be unemployed (housewives). They reported high or sufficient awareness of the harmful effects of PAE.

In Poland drinking and other risk behaviors during pregnancy are criticized by society, therefore women are not willing to reveal alcohol use. High awareness of the deleterious effects of PAE could prevent the mothers from reporting their alcohol use during pregnancy, as they fear social stigmatization.

Table 1 (ABS 10). Maternal characteristics of the study sample (n = 113).

	Alcohol consumption in pregnancy		Total n (%)
	Yes n (%)	No n (%)	
Age	n = 4 (3.5)	n = 109 (96.5)	n = 113
18-24	0	11 (10.1)	11 (9.7)
25-30	3 (75)	33 (30.3)	36 (31.9)
31-35	1 (25)	45 (41.3)	46 (40.7)
> 35	0	20 (18.3)	20 (17.7)
Education	n = 4	n = 109	n = 113
> High school	4 (100)	77 (70.6)	81 (71.7)
High school	0	23 (21.1)	23 (20.3)
Middle school	0	9 (8.3)	9 (8.0)
Occupational status	n = 4	n = 109	n = 113
Employed	2 (50)	78 (71.6)	80 (70.8)
Own business	0	15 (13.8)	15 (13.3)
Housewife	2 (50)	14 (12.8)	16 (14.2)
Student	0	2 (1.8)	2 (1.7)
Civil status	n = 4	n = 109	n = 113
Married	3 (75)	77 (70.6)	80 (70.8)
Cohabiting	1 (25)	28 (25.7)	29 (25.7)
Divorced/single/with parents	0	4 (3.7)	4 (3.5)
A place of residence	n = 4	n = 109	n = 113
Village	0	21 (19.2)	21 (18.6)
Town < 100,000	0	16 (14.8)	16 (14.2)
Town 100,000-400,000	1 (25)	21 (19.2)	22 (19.5)
Town > 400,000	3 (75)	51 (46.8)	54 (47.7)
Smoking before pregnancy	n = 4	n = 109	n = 113
Yes	0	35 (32.1)	35 (31.0)
No	4 (100)	69 (63.3)	73 (64.6)
Smoking in this pregnancy	0	5 (4.6)	5 (4.4)
Drinking before pregnancy	n = 4	n = 109	n = 113
Yes	3 (75)	94 (86.2)	97 (85.8)
No	1 (25)	15 (13.8)	16 (14.2)
Awareness of harmful effect of alcohol on fetus	n = 4	n = 109	n = 113
High	1 (25)	27 (24.8)	28 (24.8)
Sufficient	3 (75)	77 (70.6)	80 (70.8)
Low	0	4 (3.7)	4 (3.5)
No awareness	0	1 (0.9)	1 (0.9)
Socioeconomic status (SES)	n = 4	n = 109	n = 113
Very good and good	4 (100)	106 (97.2)	110 (97.3)
Middle	0	3 (2.8)	3 (2.7)

CONCLUSIONS

A remarkably low frequency of alcohol use during pregnancy was found. Self-report is likely to miss some women at risk. The combination of self-report and biomarker screening can be incorporated into routine neonatal care to determine fetal alcohol exposure. It may help to identify neonates at risk of FASD, allowing them to access early treatment to reach the best possible neurological development.

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ABS 11

CEREBRAL OXYGENATION MEASURED BY NEAR-INFRARED SPECTROSCOPY IN PHYSIOLOGIC CONDITIONS: A PILOT STUDY

R. Gumulak, Z. Uhríkova, M. Zibolen

Department of Neonatology, Jessenius Medical Faculty in Martin, Comenius University in Bratislava and University Hospital in Martin, Slovak Republic

INTRODUCTION

Near-infrared (NIRS) technology is a modern non-invasive, continuous feasible technology based on modification of the Beer-Lambert law used as a tool to establish the status of tissue oxygenation levels in real time. Changes in cerebral oxygenation values (cStO₂) can be an important tool in the process of evaluation, early detection, and later early medical intervention in severe diseases typical of the neonatal period of human life. Currently, a number of devices with more advanced technological aspects and easier to use have become commercially available and can be used in ordinary day practice in neonatal units worldwide. They differ as to wavelengths and mathematical algorithms used to translate light attenuation.

METHODS

Device MASIMO® ROOTM, which combines NIRS and pulse oximetry, was used to establish physiological values of cStO₂ in term, eutrophic neonates. NIRS probes were placed on the left (lcStO₂) and right (rcStO₂) frontal area to provide continuous, real-time monitoring NIRS data. Preductal arterial saturation (preSaO₂) was provided by a probe placed on the right arm. Cerebral

fractional oxygen extraction (left cFOE and right cFOE) is the ratio of oxygen consumption to oxygen delivery. CFOE was calculated using the formula $FOE = (SaO_2 - cStO_2 / SaO_2)$. Measurements were obtained between 65 and 74 hours of the newborns' life, with a duration of 15 minutes each.

RESULTS

A total of 19 neonates were enrolled in the study (n = 19). Median of left CFOE was 0.24 (CI 0.223-0.268) at 1 minute, 0.23 (CI 0.211-0.266) at 8 minutes and 0.24 (CI 0.194-0.265) at 15 minutes of life. Median of right CFOE was 0.29 (CI 0.239-0.306) at 1 minute, 0.25 (CI 0.218-0.294) at 8 minutes and 0.26 (CI 0.206-0.277) at 15 minutes of life. There is no statistically significant difference between overall left and right StO₂ values.

CONCLUSION

Several studies using different NIRS devices have described the importance of establishing reference StO₂ and FOE values. NIRS has been shown to be a very effective tool, which can potentially reduce damage to the vulnerable term/preterm brain. However, the current technology still has important limitations and pitfalls.

ABS 12

COLONIZATION OF NEONATES BORN TO MOTHERS COLONIZED WITH GBS, BY EAR AND NASOPHARYNGEAL SWABS IN A GREEK MATERNITY HOSPITAL: PRELIMINARY DATA

N. Iacovidou¹, M. Kollia¹, I. Tsigkouli¹, R. Sokou¹, Z. Iliodromiti¹, P. Volaki¹, M. Dramountani², S. Baka², T. Boutsikou¹

¹Neonatal Department, Aretaieio Hospital, National and Kapodistrian University of Athens, Greece

²Microbiology Department, Aretaieio Hospital, National and Kapodistrian University of Athens, Greece

INTRODUCTION

Group B *Streptococcus* (GBS) affects 0.5-3 newborns/1,000 live births and remains the most common cause of neonatal sepsis. GBS colonization of the maternal genital tract leads to colonization of 40-60% of neonates, but only 1-2% develop the invasive disease. The implementation of GBS antenatal screening and intrapartum antibiotic prophylaxis (IAP) resulted in the reduction of early onset sepsis. However, this strategy may lead to further medicalization of labor and increase maternal-fetal exposure to the adverse effects of

unnecessary administration of antibiotics. The Greek Society of Perinatal Medicine adopted (2015) and applies the revised GBS Prevention guidelines from CDC 2010.

METHODS

We recorded prospectively, for 6 months, all GBS-colonized pregnant women (on vaginal or rectal swab at 35-37 weeks of gestation) who subsequently delivered at our institution. We studied neonatal colonization and perinatal outcome. For this purpose, ear and nose cultures were obtained in the first 24 h after birth from those neonates. The algorithm for secondary prevention of early-onset GBS disease among newborns (CDC Guidelines, 2010) is used in our Department.

RESULTS

Twenty-seven out of 365 women who delivered during this period (colonization data were not available on all mothers) had a history of positive GBS culture (23 had positive vaginal swab, 3 rectal swab and 1 urine). 15 women received IAP and 8 women received antibiotics orally during pregnancy. 4 out of 12 women who did not receive IAP should have, according to the indications for IAP. Seven women delivered vaginally (26%) and 20 via caesarean section (74%). No prolonged rupture of membranes was recorded. All neonates were born at term (median GA 39⁺⁴ w) and with normal birthweight (median value 3,340 g). Twenty-seven cultures from body surfaces (ear and nose), 6 rectal and 4 blood cultures were negative for GBS. Two ear cultures had *Sphingomonas paucimobilis*, but the repeated ones were negative. None of those neonates received antibiotics and vital signs were within normal range for GA. No signs of early neonatal sepsis were noticed. During the study period, one neonatal death was recorded. A 30-year-old Romanian woman was admitted to our Unit due to cervical insufficiency with positive laboratory markers of infection. A female neonate was born via vaginal delivery at 28 w, with BW 1,240 g, and died a few hours after birth. The histological examination reported evidence of chorioamnionitis and FIRS. Amniotic fluid and placenta cultures were GBS positive.

CONCLUSION

These are preliminary results and our sample size is small. Although the colonization rate of neonates born from GBS positive mothers is low, the incidence of this neonatal death highlights the fact that screening may be implemented at an even earlier stage during pregnancy. *Sphingomonas paucimobilis* is a causative agent of infection in

immuno-compromised patients but we consider it to be colonization.

ABS 13

GLUCOSE LEVEL UPS AND DOWNS – SHOULD WE PERFORM A BLOOD CULTURE?

R. Santa¹, M. Cucerea¹, Zs. Gall¹, M. Simon²

¹ Neonatal Department, Emergency Clinical County Hospital of Târgu Mureş, Târgu Mureş, Romania

² Pediatric Department, Mureş County Hospital, Târgu Mureş, Romania

INTRODUCTION

Unlike adults, imbalances in carbohydrate metabolism in neonates are associated with a clinical condition, rather than with a specific disorder of glucose metabolism. It is hard to define a significant hypoglycemia and hyperglycemia in this period as an exact numerical blood glucose concentration due to variability in clinical response. Therefore, this number requires interpretation within the clinical context, and although symptoms are nonspecific, they may mimic other pathologies which can be contributing factors as well. Among other pathologies, sepsis should be considered if symptoms persist with adequate glucose supply. The aim of this study is to identify sepsis as an underlying pathology in newborns diagnosed with glucose metabolism disorder.

METHOD

A comparative retrospective observational study was conducted among patients admitted to our intensive care unit in 2013. Collected data included demographics, gestational age, birth weight, blood glucose concentration, white blood cell count and differential, leukocyte index, C-reactive protein and cultures.

RESULTS

From the total of 205 eligible cases, 184 (89.75%) newborns had blood glucose level between 40 mg/dl and 150 mg/dl, 21 (10.24%) were found to be hypoglycemic or hyperglycemic. The incidence of sepsis was higher among patients with imbalanced glucose metabolism 11 (52.38%) compared with normoglycemic infants 71 (38.59%). However, the difference between the two groups was not statistically significant ($p = 0.245$), due to the small sample size of the second group. We also observed that 90.9% of the newborns who had sepsis and hypoglycemia or hyperglycemia presented imbalance of glucose level at the onset of a new infection.

CONCLUSION

A significant change in blood glucose level may be a presenting sign of a sepsis. Physicians caring for hyperglycemic and/or hypoglycemic newborns with previously normal glycemic status and no change in glucose infusion rate should consider infectious etiology.

ABS 14

INDICATION AND FREQUENCY OF ERYTHROCYTE TRANSFUSION IN PRETERM NEONATES

I. Franciuc^{1,2}, M. Surdu^{1,2}, I.G. Caeridin², L. Fratiman²

¹Faculty of Medicine, "Ovidius" University, Constanța, Romania

²Neonatology Department, Clinical Emergency County Hospital, Constanța, Romania

INTRODUCTION

Pathophysiologically, anemia is the inability of circulating red blood cells to meet the oxygen requirement of tissues. In the newborn, erythropoiesis can cause low levels of hemoglobin/erythrocyte count without causing clinical consequences. The definition of pathological condition (anemia) and the need for therapeutic intervention (erythrocyte transfusion) should therefore be based on information on the status of newborn oxygenation, not just on hemoglobin or hematocrit, a fact that influences the current recommendations for newborn erythrocyte transfusion. Anemia of prematurity is a normocytic, normochromic anemia that affects most newborns with gestational age below 32 weeks and is poorly influenced by iron or vitamin administration. The gold standard for the treatment of anemia in the preterm newborn is erythrocyte transfusion, but this presents risks, especially hemodynamic risks and transmission of infections. Therefore, prophylactic measures which contribute to reducing the number of transfusions, such as stimulating erythropoiesis and preventing/limiting blood loss, are also included in the current recommendations.

METHODS

We studied all premature infants born at less than 32 weeks' gestation, who were discharged home during 2017 in our maternity. 32 neonates were included, 21 male, 11 female, separated into two groups: GA 30-31 weeks (n = 18) and GA < 30 weeks (24-29 weeks, n = 14). We compared the two groups in regard to the number of transfused neonates, number of transfusion events per neonate,

age, need for respiratory support and hemoglobin levels at the time of transfusion. We also evaluated phlebotomy losses.

RESULTS

Mean birth weight was 1,606 grams for the first group and 1,107 grams for the second group. Mean hemoglobin at birth was 15.56 g/dl and 15.73 g/dl, respectively. 11/18 neonates were transfused in the first group with an average of 2.54 transfusion events per transfused neonate. In the second group, 12/14 neonates were transfused, on average 3.75 transfusions per treated neonate. Hemoglobin levels at the time of transfusion were not influenced by the chronological age of the infant, but were slightly impacted by the need for more aggressive respiratory support (11.6 g/dl in ventilated infants, 11.63 g/dl in infants on nasal CPAP versus 10.31 g/dl in infants on free-flow oxygen and 10.2 g/dl in infants with no supplemental oxygen).

CONCLUSIONS

Although our protocols for transfusion at this moment recommend lower hemoglobin thresholds for transfusion, we tend to transfuse above those levels based mainly on clinical signs and symptoms. We need better standardized procedures both for use of cord blood and for monitoring phlebotomy losses. EPO administration may benefit selected patients.

ABS 15

PERINATAL OUTCOME OF NEONATES BORN TO MOTHERS COLONIZED WITH *GROUP B STREPTOCOCCI* IN A GREEK MATERNITY HOSPITAL

S. Baka¹, T. Boutsikou², M. Dramountani¹, M. Boutsikou², I. Michaliadis¹, M. Kollia², P. Volaki², R. Sokou², E. Kouskouni¹, N. Iacovidou²

¹Microbiology Department, Aretaieio Hospital, National and Kapodistrian University of Athens, Athens, Greece

²Neonatal Department, Aretaieio Hospital, National and Kapodistrian University of Athens, Athens, Greece

BACKGROUND

Group B Streptococcus (GBS) is a leading cause of morbidity and mortality in neonates and infants through vertical transmission from a colonized mother. GBS has also been implicated in cases of preterm delivery and stillbirth. As a result, screening of all pregnant women and intrapartum antimicrobial prophylaxis for the colonized ones is

recommended. This study aimed at correlating the perinatal outcome with maternal colonization in a cohort of pregnant women examined antenatally at our institution.

MATERIALS AND METHODS

A group of 226 pregnant women were screened for GBS colonization during a one-year period at our institution at 34-37 weeks of gestation. Vaginal and rectal swabs were collected from all subjects. 182 (80.5%) of the screened women delivered at our institution, so data regarding perinatal outcome were collected retrospectively from the archives of the Department of Neonatology NKUA.

RESULTS

Sixteen out of 226 women were GBS positive (7.1%). Thirteen out of 182 women who delivered at our institution were GBS positive. Most of them were Greek (n = 105, 57.7%). 44% of all women and 46% of GBS positive women delivered vaginally. Eight women had positive vaginal cultures only (61.5%), one had (0.08%) only the rectal culture positive and four (31%) had both cultures positive. All isolates were penicillin, ampicillin, cefotaxime, ceftriaxone and vancomycin susceptible, whereas the resistance profiles for erythromycin, clindamycin and tetracycline indicated high percentages, 56.3%, 62.5% and 87.5% respectively. Ten out of thirteen women received antibiotics orally during pregnancy but only 5 of them received the indicated intrapartum antibiotic prophylaxis (IAP). All newborns born from GBS positive mothers were born at term and had birthweight exceeding 2,500 g. None of them had any clinical manifestation of early onset sepsis and only one received antibiotics prophylactically. Perinatal outcome is depicted in **Tab. 1**.

CONCLUSIONS

The present study identified a relatively low GBS prevalence in the population studied. Vaginal together with rectal swabs can improve detection rates. The significant decreased susceptibility to clindamycin and erythromycin raises concern since it interferes with treatment options, especially in penicillin-allergic patients. These results emphasize the need to monitor the epidemiology of GBS

resistance to antimicrobials. Favorable neonatal outcome might be attributed to the small sample size and further studies are required on our maternal population.

ABS 16

PRELIMINARY DATA OF THE NATIONAL REGISTRY ON TREATMENT OPTIONS AND TIMING IN PATENT DUCTUS ARTERIOSUS: INTERPDA TRIAL

E. Okulu¹, O. Erdeve¹, H. Kaya², I. Gokce², Z. Arslan³, N. Demirel³, S. Ertugrul⁴, G. Buyukkale⁵, M. Cetinkaya⁵, D. Armangil⁶; INTERPDA Study Group

¹Division of Neonatology, Department of Pediatrics, Ankara University School of Medicine, Ankara, Turkey

²Division of Neonatology, Department of Pediatrics, Inonu University School of Medicine, Malatya, Turkey

³Department of Neonatology, University of Health Sciences, Etlik Zubeyde Hanim Maternity Training and Research Hospital, Ankara, Turkey

⁴Division of Neonatology, Department of Pediatrics, Dicle University School of Medicine, Diyarbakir, Turkey

⁵Department of Neonatology, University of Health Sciences, Kanuni Training and Research Hospital, Istanbul, Turkey

⁶Neonatal Intensive Care Unit, Yuksek Ihtisas University, Koru Hospital, Ankara, Turkey"

INTRODUCTION

Regarding the management of patent ductus arteriosus (PDA) in preterm infants, no consensus has been reached on which PDA to treat, when to treat, or how to treat. A prospective, multicenter (22 units) trial has been conducted to compare the effects of conservative approach and early medical treatment options on ductal closure, surgical ligation, prematurity related morbidities and mortality in Turkey.

METHODS

Infants with 24^{0/7}-28^{6/7} gestation weeks were enrolled, and their PDA management data were recorded through an online registry system.

RESULTS

Among 497 enrolled infants (with mean gestational age of 26.8 ± 1.3 week and mean birthweight of 926 ± 232 g), 31% (n = 155) had no PDA, whereas 19% (n = 94) had small PDA and 50% (n = 248) had moderate-to-large PDA. 31% (n = 107) of infants with PDA were managed conservatively in contrast to 69% (n = 235) who received treatment at a mean age of 4.6 ± 4.4 days. Preferred treatment

Table 1 (ABS 15). Perinatal outcomes.

Neonatal outcomes	All women (n=182)	GBS (+) women (n=13)
Gestational age (median)	39 ⁺¹ w	39 w
Birthweight (median)	3,320 g	3,300 g
Antibiotics	2	1
Positive CRP	9	0

options were ibuprofen (oral, 36%; iv, 35%) and paracetamol (iv, 23%; oral, 6%). 23% (n = 25) of conservatively managed infants required rescue treatment during hospitalization. The rates of sepsis, necrotizing enterocolitis, retinopathy of prematurity, bronchopulmonary dysplasia and the length of hospitalization were similar between conservatively managed and treated infants ($p > 0.05$), and no difference with treatment drugs was observed. Infants who were medically treated had higher surgical ligation ($p = 0.029$) and home oxygen treatment ($p = 0.002$) rates, whereas conservatively managed infants had a higher mortality rate ($p = 0.000$).

CONCLUSION

Early medical treatment of PDA could not decrease the rate of surgical ligation, but mortality was higher in conservatively managed infants.

ABS 17

POINT-OF-CARE DEVICE FOR MEASURING BLOOD AMMONIA – IS IT RELIABLE FOR DETECTING NEONATAL HYPERAMMONEMIA?

K. Ben Ameer¹, F.Z. Chioukh¹, T. Khemis¹, H. Ben Hamida¹, I. Hellara², S. Ferchichi³, K. Monastiri¹

¹Department of Intensive Care and Neonatal Medicine, Research Unit 01/UR/08.14, University of Monastir, Monastir, Tunisia

²Laboratory of Biochemistry, EPS Fattouma Bouguiba, Monastir, Monastir, Tunisia

³Laboratory of Biochemistry, University Hospital of Farhat Hached, Sousse, Tunisia

BACKGROUND

Neonatal hyperammonemia is an emergency requiring a multidisciplinary teamwork for early diagnosis and early treatment. The causes of neonatal hyperammonemia vary. The diagnosis is based on laboratory tests. Sampling needs specific conditions and results are usually not immediately available.

AIM

To evaluate the reliability of blood ammonia measurements made with a point-of-care device in newborns.

MATERIALS AND METHODS

The study was conducted in an intensive care and neonatal medicine department over a period of two years (2016-2018). Venous ammonia level was measured with one device (Pocket Chem TM BAPA-4140) and compared with a concomitant laboratory

blood ammonia measurement. Correlation analysis was used with T-test for paired variables.

RESULTS

Overall, 34 samples were included from 15 newborns. Mean newborns' age was 11.7 days [2-28]. Mean laboratory ammonemia was $122.47 \pm 97.17 \mu\text{mol/L}$ [25.5-452 $\mu\text{mol/L}$]. Mean device ammonemia was $97.55 \pm 71.48 \mu\text{mol/L}$ [22-271 $\mu\text{mol/L}$]. T-test showed statistically significant correlation between laboratory ammonemia and device ammonemia respectively 0.85 ($p = 0.000$).

CONCLUSION

In some department laboratories ammonemia is not usually available in emergency. Our study showed that Kit ammonemia could be used to detect hyperammonemia in neonates and if necessary to initiate treatment earlier.

ABS 18

AUTOMATED AUDITORY BRAINSTEM RESPONSE VS. OTOACOUSTIC EMISSIONS IN NEWBORN HEARING SCREENING – PROSPECTIVE, PILOT SCREENING TRIAL

K. Wroblewska-Seniuk¹, M. Zych², G. Greczka², D. Naskrecka³, F. Borys³, P. Dabrowski², T. Szczapa⁴, J. Mazela¹

¹Department of Newborns' Infectious Diseases, Poznan University of Medical Sciences, Poznan, Poland

²Department of Otolaryngology and Oncological Laryngology, Poznan University of Medical Sciences, Poznan, Poland

³Students' Research Circle at the Department of Newborns' Infectious Diseases, Poznan University of Medical Sciences, Poznan, Poland

⁴Department of Neonatology, Poznan University of Medical Sciences, Poznan, Poland

OBJECTIVE

Early diagnosis and treatment of congenital and acquired hearing impairment in newborns is a key element for optimal speech development. The automated auditory brainstem response (AABR) method is considered to be superior to the otoacoustic emission (OAE) method, as it detects hearing deficit not only at the level of the ear but also of neural origin. Recent recommendations suggest implementation of AABR in newborn hearing screening, to identify the group of newborns at higher risk of hearing impairment. Aim: The aim of the study was to analyze the effectiveness of OAE and AABR used as screening tools for hearing impairment among infants.

MATERIALS AND METHODS

The group of 350 infants (250 – with risk factors of hearing deficit; 100 – control group) was examined by means of both OAE and AABR before discharge from the hospital after birth. The risk factors for hearing deficit were recorded. Infants who failed the screening test and/or had risk factors were referred for further audiological evaluation.

RESULTS

The results of OAE were positive in 4 newborns bilaterally and in 1 unilaterally. In 2 infants OAE was not performed due to anatomical defects or respiratory support. The results of AABR were positive in 7 newborns bilaterally and in 13 unilaterally. One newborn in whom both OAE and AABR were positive was finally diagnosed with bilateral sensorineural profound hearing deficit > 90 dB; the identified risk factor was congenital cytomegalovirus infection. Five newborns of the study group and one of the control group in whom OAE was negative and AABR was positive either unilaterally or bilaterally, finally were not diagnosed with hearing deficit (false positive screening). Other infants in whom AABR was positive do not yet have the final diagnosis of hearing status. All newborns of the study group had at least one risk factor for hearing deficit – the most frequent were treatment in the intensive care unit (90%), mechanical ventilation (83.3%), and ototoxic treatment (75.1%). One newborn with negative results of both OAE and AABR and with risk factors for hearing deficit (prematurity, very low birth weight, ototoxic treatment, treatment in NICU and mechanical ventilation) was diagnosed with moderate hearing deficit (30 dB and 50 dB) at the second level of the screening program (false negative screening). AABR exam was assessed by the staff as more difficult and time-consuming to perform (mean time of the exam 7.4 min; SD 7.19) when compared to OAE.

CONCLUSIONS

The AABR method, recommended as gold standard for hearing screening in premature babies, is very useful in the early diagnosis of hearing impairment. It allows early identification of infants with hearing deficit as it examines the entire auditory pathway. However, it seems to be more difficult to perform when compared to OAE.

ABS 19

MORBIDITY AMONG FULL-TERM NEONATES DEPENDING ON GESTATIONAL AGE

E. Kvedariene, D. Stoniene, R. Tameliene, V. Kopustaite, E. Zekaite-Vaisniene

Department of Neonatology, Kaunas Center of Perinatology, The Hospital of Lithuanian University of Health Sciences (LSMU) Kaunas Clinics, Kaunas, Lithuanian

INTRODUCTION

Supposedly full-term neonates, born at 37-41⁺⁶ weeks of gestation are less susceptible to get ill in comparison with neonates born at less than 37 weeks of gestation. However according to data, outcomes of full-term neonates, particularly outcomes of respiratory tract diseases depend on the gestation week. In accordance with reviewed articles, neonates born at 37-38⁺⁶ weeks of gestation had a tendency to be ill more often than neonates born at ≥ 39 weeks of gestation.

METHODS

A retrospective study of morbidity trends in 2,655 full-term neonates born at the Hospital of the Lithuanian University of Health Sciences Kaunas Clinic in 2016 was carried out. The study did not involve neonates transferred from other hospitals. Data was collected from medical records. Subjects were divided into two groups according to gestational age: neonates born at 37-38⁺⁶ weeks of gestation and neonates born at ≥ 39 weeks of gestation.

RESULTS

The most common neonatal diseases were: hyperbilirubinemia (5.54%), birth trauma (2.64%) and hypoglycaemia (2.41%). Neonates born at 37-38⁺⁶ weeks of gestation suffered from the diseases significantly more often than neonates born at ≥ 39 weeks of gestation (38.1% and 23.7%, respectively; $p < 0.05$); moreover, hyperbilirubinemia (12.46% and 3.14%, respectively; $p < 0.05$), hypoglycaemia (5.43% and 1.37%, respectively; $p < 0.05$) and respiratory distress syndrome (0.7% and 0.0%, respectively; $p < 0.05$) were significantly more prevalent amongst them (**Tab. 1**). Infants born at 37-38⁺⁶ weeks of gestation received treatment more frequently in the intensive care unit (2.49% and 0.76%, respectively; $p < 0.05$) and had longer hospital stays (4 days [1-36 d.], and 3 days [1-29 d.]; $p < 0.05$).

CONCLUSIONS

The most frequent diseases in full-term neonates born at the Hospital of the Lithuanian University of Health Sciences Kaunas Clinic in 2016 were: hyperbilirubinemia, birth trauma and hypoglycaemia. Neonates born at 37-38⁺⁶ weeks

Table 1 (ABS 19). Incidence of morbidity among full-term neonates depending on gestational age.

Condition	All neonates			Gestational age				p ^c
	Cases (n)	Cases (%) ^a	Frequency ^b	37-38 ⁺⁶ weeks		≥ 39 weeks		
				Cases (n)	Cases (%)	Cases (n)	Cases (%)	
Hyperbilirubinemia	147	5.54	55	85	12.46	62	3.14	< 0.05
Birth trauma	70	2.64	26	17	2.49	53	2.69	NS
Hypoglycemia	64	2.41	24	37	5.43	27	1.37	< 0.05
Congenital infection	30	1.13	11	7	1.03	23	1.17	NS
Respiratory tract diseases	24	0.90	9	6	0.88	17	0.86	NS
Meconium aspiration syndrome	10	41.67	4	0	0	10	0.5	NS
Transient tachypnea of the newborn	5	20.83	2	1	0.1	4	0.2	NS
Respiratory distress syndrome	5	20.83	2	5	0.7	0	0	< 0.05
Congenital pneumonia	4	16.67	1.5	1	0.15	3	0.15	NS

^a Cases (%): cases of all full-term neonates; ^b frequency: cases for 1,000 live birth full-term neonates; ^c p: statistical significance among different gestational age groups.

NS: no statistically significant difference.

of gestation required more medical treatment more often than neonates born at ≥ 39 weeks of gestation. Hyperbilirubinemia, hypoglycaemia and respiratory distress syndrome were more common amongst neonates born at 37-38⁺⁶ weeks of gestation. They also received treatment more frequently in the intensive care unit and had significantly longer hospital stays.

ABS 20

PERINATAL OUTCOME IN OFFSPRING OF MOTHERS WITH THYROID DISEASE: A RETROSPECTIVE STUDY

C. Emmanouil, N. Iacovidou, M. Kollia, I. Zarkada, V. Mougiou, A. Kontogeorgou, Z. Iliodromiti, R. Sokou, T. Boutsikou

Neonatal Department, Aretaieio Hospital, National and Kapodistrian University of Athens, Athens, Greece

INTRODUCTION

Thyroid disorders are particularly common during pregnancy and represent the second most common endocrine disease of reproductive age, with diabetes mellitus being the first one. Thyroid dysfunction during pregnancy has been associated with multiple adverse pregnancy, perinatal and developmental outcomes.

METHOD

Data were retrospectively collected from the archives of the Neonatal Department, Aretaieio Hospital, National and Kapodistrian University of Athens. Neonates born between 1/1/2016 and

31/12/2017 from mothers with thyroid disease comprised the study population. These infants were given a follow-up appointment on the 10th-14th day of life (DOL) for measurement of TSH and FT4. In case of maternal Hashimoto or Grave's disease, anti-thyroid antibodies were also measured.

RESULTS

Maternal history of thyroid disease was present in 447 of 1,635 deliveries (27.3%). Out of the 447 cases, 55.9% corresponded to pre-gestational hypothyroidism, 38.7% to gestational hypothyroidism, 3.1% to gestational hyperthyroidism and 2.2% to pre-gestational hyperthyroidism. Six per cent (6%) of the cases were transferred to tertiary NICUs. Number of miscarriages in maternal history, gestational age, 1- and 5-minute Apgar score, birth weight, centile of weight for gestational age and birth length were not associated with the type of maternal thyroid dysfunction. However, head circumference was significantly lower in neonates of mothers with gestational hypothyroidism compared to those of mothers with pre-gestational hypothyroidism (p = 0.011). Attendance rate in the follow-up on DOL 10-14 was 35.6% and 40.7% for 2016 and 2017 respectively. Only 4 infants were referred to a pediatric endocrinologist, 3 of them due to persistently high anti-thyroid autoantibodies titers on DOL 30-45 and one due to low TSH on DOL 10-14 (< 0.46 mIU/L).

CONCLUSIONS

Thyroid disease during pregnancy is very common. Gestational hypothyroidism of the mother was associated with significantly lower head circumference compared to pre-gestational

hypothyroidism, possibly due to delayed or inadequate treatment. Finally, measurement of thyroid hormones on DOL10-14 in serum of neonates of mothers with thyroid disease should be considered.

ABS 21

NEONATAL THROMBOPHILIA – SHOULD WE SCREEN? – CASE PRESENTATION

M. Rusneac¹, C. Gliga¹, R. Marian², R. Santa¹, M. Simon Marta², M. Cucerea²

¹Regional Neonatal Intensive Care Department, County Emergency Hospital, Tîrgu Mureş, Romania

²Neonatology Department, University of Medicine and Pharmacy, Tîrgu Mureş, Romania

INTRODUCTION

Inherited thrombophilia has been described as a risk factor in neonates with idiopathic venous thrombosis. The incidence of venous thromboembolism has increased over the past decades. There are no clear guidelines regarding which patients with venous thrombosis should be checked for thrombophilia.

METHODS

The authors present a case of a very low birth weight preterm newborn, born at 26 weeks weighing 900 grams. Apgar scores were 7 at 1 minute and 8 at 5 minutes; the infant presented respiratory distress (RD) immediately after delivery and was admitted to the neonatal intensive care unit.

RESULTS

After effective treatment of RD through minimally invasive surfactant administration on continuous positive airway pressure, the newborn developed early thrombocytosis and after a period of time clinical signs of deep venous thrombosis, elevated level of D-dimers, without the presence of central venous lines, infection, total parenteral nutrition or lupus anticoagulant. Further laboratory exams had shown low activity of C-protein and antithrombin, V factor (Leiden) – heterozygous mutant, PAI – 1 4G/4G homozygous, Endothelial Protein C Receptor with alleles A2/A3 generator for deep venous thrombosis predisposition, elevated homocysteine levels secondary to the MTHFR A1298C heterozygous mutation. All these findings pointed to neonatal thrombophilia. We started a course of treatment with unfractionated heparin subcutaneously to decrease the risk of thrombus

extension and embolism while allowing the natural fibrinolytic mechanisms to reduce the size of the clot. Duration of therapy was 6 weeks with good outcome and without side effects.

CONCLUSIONS

Thrombocytosis without infection and other risk factors can be a marker for further investigation of possible thrombophilia. Due to the lack of clear protocols, currently, the duration of therapy for venous thrombosis in neonates is extrapolated from adult practice.

ABS 22

NEWBORN HEARING SCREENING WITH OTOACOUSTIC EMISSIONS: THE EXPERIENCE OF A GREEK PUBLIC MATERNAL HOSPITAL

C. Emmanouil¹, P. Volaki¹, E. Stathi¹, T. Boutsikou¹, E. Kokkou¹, S. Karamichalou¹, I. Tsigkouli¹, N. Iacovidou¹, D. Douniadakis², V. Lampropoulou³

¹Neonatal Department, Aretaieio Hospital, National and Kapodistrian University of Athens, Athens, Greece

²Otorhinolaryngology Department, “Panagiotis and Aglaia Kyriakou” Children’s Hospital, Athens, Greece

³National Institute of Deaf, Athens, Greece

INTRODUCTION

Otoacoustic Emissions (OAEs) is a fast, non-invasive and objective method for the assessment of preneural cochlear function. Nowadays, the goal of early hearing loss detection and intervention before six months of age is realistic and can maximize linguistic competence and academic development.

METHODS

Data for the period 5/5/17-22/3/18 were collected retrospectively from the archives of the Neonatal Department, National and Kapodistrian University of Athens Aretaieio Hospital, Athens, Greece.

RESULTS

During the study period, 706 newborns (95.4%) were tested with OAEs, performed by appropriately trained healthcare professionals. Screening was not performed in 30 preterm infants that were transferred to NICUs, 3 infants who did not attend the scheduled appointment and in one infant whose parents refused consent. Only 10 neonates (1.42%) failed OAEs and were re-evaluated 10 days after the initial screening. Out of those infants, only 3 (0.42%) did not pass the ensuing screening and were referred to an audiologist for further investigation and diagnostic evaluation.

CONCLUSIONS

OAEs is a simple and effective method of universal hearing screening in healthy newborns. According to our experience, the referral rate to specialists for early diagnosis and intervention was very low (< 0.5%).

ABS 23

THE IMPORTANCE OF NEONATAL SCREENING AND ITS IMPACT ON THEIR FAMILIES

M. Nanu¹, F. Moldovanu¹, E. Stativa¹, I.S. Ardeleanu^{1,2}

¹Institute for Mother and Child Health "Alessandrescu-Rusescu", Bucharest, Romania

²University of Medicine and Pharmacy "Carol Davila", Bucharest, Romania

INTRODUCTION

The neonatal screening of all children is recommended immediately after birth, even if they appear healthy. The National Health Programme, Child Nutrition and Health Subprogram performs neonatal screening for congenital hypothyroidism and phenylketonuria, prevention of hearing impairment and prevention of prematurity retinopathy and its complications.

OBJECTIVES

We aimed to assess the impact of the Newborn Screening Services on newborns' families.

MATERIAL AND METHOD

We evaluated a representative lot of 534 women who had children born in a 12-month period prior to the study. The sample of 534 women is a sub-population of 5,000 women (age 15-44 years) from the Reproductive Health Survey conducted in 2016 (unpublished study).

RESULTS

The percentage of those who had heard about neonatal screening varies between 30.5% of those surveyed (for the rural area) and 50.7% (for the urban area), with an average of 41.4%.

Regarding receiving information on the importance of newborn screening, only 29.4% (for hypothyroidism and phenylketonuria test), 28.7% (for the prevention of hearing impairment) and 15.4% (for screening of retinopathy of prematurity) answered yes.

CONCLUSIONS

Although neonatal screening helps to diagnose diseases and start treatment early, preventing the onset of serious health problems (growth and

developmental impairments, irreversible mental retardation or even death) its importance is known only to a small part of the population.

Active intervention by all healthcare providers (general practitioners, obstetricians and neonatologists, midwives, nurses) is required to raise awareness among future mothers and to extend testing to all newborns.

ABS 24

A CASE OF INCIDENTAL EARLY DIAGNOSIS OF LIPOPROTEIN LIPASE DEFICIENCY DURING A NEWBORN SCREENING TEST

A. Melekoglu, M. Keskin

Neonatology, Malatya Education and Research Hospital, Malatya, Turkey

Pediatric Endocrinology, Gaziantep University Hospital, Gaziantep, Turkey

INTRODUCTION

Newborn screening programs facilitate early diagnosis of treatable disorders to reduce long-term morbidity and mortality. In Turkey, neonatal bloodspot screening has been used for detecting congenital hypothyroidism, phenylketonuria, biotinidase deficiency and cystic fibrosis. Here we report a newborn case incidentally diagnosed with lipoprotein lipase deficiency during bloodspot screening.

CASE REPORT

A full-term 23-day-old female was noted to have pinky blood sample with high condensity while repeating newborn screening by heel lancing and was referred to a tertiary hospital. She was born by vaginal delivery from an uneventful pregnancy. Her parents had second-degree consanguinity. The birth and early postnatal course were unremarkable, and she was exclusively breastfed. At the physical examination, there were no signs of acute distress and she did not have organomegalia or xanthomas. While blood samples were being held before laboratory testing, gross lipemia was observed. The initial plasma triglyceride (TG) level was 15,792 mg/dL. Oral feeding was stopped, and the baby received lipid free-total parenteral nutrition for the next few days, resulting in the lowering of serum triglyceride. Subsequently, oral feeding was initiated with an amino acid and carbohydrate-rich formula (fat-free) to which medium-chain triglycerides were slowly added. After 15 days of dietary modification, the lipid profile showed an improvement and TG levels decreased to 1,016 mg/dl. Lipid electrophoresis

showed isolated elevation of VLDL. Sequencing of the LPL gene revealed a homozygous novel mutation at c.679G>T (p.Val227Phe). A diagnosis of lipoprotein lipase deficiency was made. The lipid profiles of mother, father and two older siblings were normal.

CONCLUSION

Extreme hypertriglyceridemia is rare in the neonatal period. We present the case of a newborn with familial hypertriglyceridemia detected incidentally during heel lancing for neonatal screening tests. Early diagnosis and early regulation of the lipid profile can improve prognosis and quality of life by decreasing pancreatitis attacks and cardiovascular complications.

ABS 25

CASE REPORT: MIXT GONADAL DYSGENESIS

D.S. Arnăutu¹, I. Constantinescu², M. Surdu³, L. Frățiman⁴

Neonatology Department, County Emergency Clinical Hospital "Saint Andrew" of Constanța, Constanța, Romania

INTRODUCTION

Infants with congenital discrepancy between the appearance of their genitalia, gonadal and chromosomal sex are classified as having a disorder of sex development. A 2006 consensus conference suggested that the potentially pejorative terms "pseudo-hermaphrodite", "hermaphrodite", "intersex" be replaced by the diagnostic category "disorders of sex development" (DSD) [1-6].

CASE REPORT

We present the case of a 29-year old patient, 39 weeks pregnant, gravida 3, para 3, monitored and investigated pregnancy, with the prenatal diagnosis – clitoris hypertrophy. Clinical exam of the newborn raises suspicion of DSD, going to be investigated. After the investigations, the newborn was diagnosed with Mixt Gonadal Dysgenesis and presented in the 17th day of life the migration of ovotestis in the labia-scrotum on the left side, confirmed by RMI.

CONCLUSIONS

Suspicion of DSD needs a complex investigation and a multidisciplinary team (Obstetrician, Neonatologist, Geneticist, Pediatric Endocrinologist, Pediatric Surgeon, Psychologist) in order to obtain a correct diagnosis, which is extremely important both for establishing the infant's sex and for medical conduct, with an important effect on

cultural, social and psychological status and family integration.

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ABS 26

DIFFICULTIES OF DIAGNOSIS IN A CASE OF HYPERBILIRUBINAEMIA

I. Rosca¹, B. Vasiliu¹, M. Nanea¹, O. Saulea¹, A. Constantinescu²

¹Neonatology Department, Clinical Hospital of Obstetrics & Gynecology "Panait Sarbu", Bucharest, Romania

²Pediatric Department, INSMC "Alessandrescu Rusescu", Bucharest, Romania

INTRODUCTION

We present the case of a newborn whose uninvestigated mother presented herself at a county hospital during expulsion.

CASE REPORT

The newborn was male, small for gestational age (birth weight 2,600 g), Apgar score of 5 at 1 minute, acrocyanosis, dry pale skin, facial ecchymosis, edema, secondary apnea at birth that required positive pressure ventilation followed by spontaneous breathing. He was admitted to the Intensive Care Unit where intravenous fluids were started along with broad spectrum antibiotics. During his first few hours of life, a significant increase in serum bilirubin level was noted as well as anemia. At this point he was transferred to our clinic. The newborn was admitted to our Intensive Care Unit in critical condition with jaundice,

petechia, facial ecchymosis, desaturation up to 87% in atmospheric air, minimal functional respiratory syndrome, distended abdomen, hepatosplenomegaly, diminished tonus and motility. Serum testing revealed a total bilirubin level of 56 mg/dl. We decided to initiate exchange transfusion. The outcome was a total bilirubin level of 23.35 mg/dl. Due to the steady rise of serum bilirubin levels despite continuous phototherapy, 24 hours later a second exchange transfusion was performed. After the decrease of indirect serum bilirubin, we noticed an increase in direct serum bilirubin, to maximal value of 18 mg/dl. As a differential diagnosis we

considered a metabolic disease and a surgical pathology, but both pathologies were negative. In conclusion the rise of direct serum bilirubin was secondary to prolonged exposure to phototherapy and was slowly resolved with conservative treatment with hepatoprotectors.

CONCLUSION

Uninvestigated pregnancies of multipara mothers can be at risk of severe isoimmunization requiring aggressive and extensive treatment methods such as exchange transfusion when there is no response to conservative treatment choices (Phototherapy, Albumin, Immunoglobulin).