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Abstracts

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ABS 1

THE OUTCOME OF THE NEWBORNS IN OUR SUBURBAN HOSPITAL IN 2017-2018

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OBJECTIVE

The objective of our study was to present the outcome of the newborns in the Maternity Ward of the Hospital Unit of Edessa in the years 2017-2018. In developed countries, 20% of deliveries take place in regional health units that do not have the necessary infrastructure or specialized personnel.

MATERIALS AND METHODS

We conducted a retrospective analysis over a 2-year period of all records of the deliveries that took place and all files of the neonates born during that time. We recorded parameters such as gestational age, morbidity of the mother during pregnancy, type of delivery, type of anesthesia at cesarean sections, body weight at birth, need for resuscitation, respiratory support, need for transfer, morbidity and mortality of the neonates.

RESULTS

A total of 237 deliveries took place in that period. 69.1% of the mothers were of Greek origin. Only 4 mothers had diabetes mellitus of pregnancy, 1 mother had hyperthyroidism, and 8 mothers had hypothyroidism. Two-thirds of the deliveries were cesarean section, and only 13.7% of them were urgent. In only 4 cesarean sections, was administered epidural anesthesia. The majority were term babies; 11.8% of them needed resuscitation. 27% of the newborns needed respiratory support, and 3% were transferred to a NICU. All babies that needed resuscitation or respiratory support were delivered by a cesarean section with general anesthesia.

CONCLUSIONS

Although term babies have a lower risk of resuscitation or respiratory support than preterm babies, cesarean section and general anesthesia are risk factors for these events compared to vaginal delivery or epidural anesthesia. Due to the fact that deliveries at regional health units are not few and because all newborns should receive standard care, continuous staff training, as well as cooperation with Tertiary Health Care Centers, is necessary.

ABS 2

CESAREAN SECTION AND INTRODUCTION OF FORMULA AS INHIBITORS FOR BREAST-FEEDING

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OBJECTIVE

To study the practice of birth and feeding in the Maternity Ward of the Hospital Unit of Edessa. Breast milk is the optimal nutrition for infants. It contains antibodies against viruses and bacteria. It lowers the risk for asthma and allergies, diabetes and obesity, as well as the percentage of ear infections, respiratory illnesses, and diarrheic syndromes. It seems that some special circumstances affect the establishment of breastfeeding.

MATERIALS AND METHODS

A retrospective observational study of all neonates born in years 2017-2018 in our Maternity Ward. Documentation and data files were analyzed for gestational age, type of delivery, early breastfeeding, exclusive breastfeeding, introduction of formula, body weight loss, electrolyte disorders.

RESULTS

A total of 237 full-term neonates were born in that period. 67% of them were delivered by cesarean section. Only 38.8% were breastfed within the first hour of life. The neonates delivered normally had a

higher percentage of early breastfeeding than those delivered by cesarean section ($p < 0.001$). Those who were breastfed early had a higher percentage of establishing exclusive breastfeeding (74.5%, $p < 0.001$). Early formula introduction was noticed in 76% of all breastfed neonates, with only 5.6% being above the 95th NEWT curve for body weight loss and 55% being below the 50th. Only 2 exclusively breastfed neonates were above the 97th NEWT curve on their 4th day of life, with mild electrolyte disorders and no need for intervention.

CONCLUSIONS

In our study, the delivery mode seems to affect the type of newborn's feeding, with cesarean section representing an inhibitor factor for early breastfeeding and its exclusive establishment. As a result, further notice should be given to following the criteria for cesarean section. What is more, all health professionals associated with the mother and child should support breastfeeding and strictly follow the criteria for the introduction of formula.

ABS 3

ALTERATIONS IN BIOCHEMICAL VARIABLES DUE TO BODY WEIGHT LOSS IN NEONATES

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OBJECTIVE

To measure the alterations in biochemical variables in neonates due to body weight (BW) loss. According to the current literature, in the first 5-7 days of life, term neonates lose 5-10% of their birth weight, while premature neonates 10-20%. In the first week of life, we assess the neonates' fluid and electrolyte balance by measuring the BW and serum sodium, potassium, glucose, and calcium level.

MATERIALS AND METHODS

A retrospective observational study was conducted on all neonates born in a 2-year period (2017-2018) in the Hospital Unit of Edessa that had been through laboratory examinations due to BW loss. We collected data regarding BW (percentage of BW loss, NEWT curves), as well as their biochemical test results and possible treatment (i.v. fluids, phototherapy). We used IBM® SPSS® Statistics 25 for the descriptive statistics, while we conducted multiple linear regression analysis.

RESULTS

Our sample consisted of 34 neonates (boys:girls ratio = 3:2). Almost all neonates were full-term neonates (4 late preterm and 1 early preterm). The mean birth weight was 3,200 g, and only 16% of the neonates were under exclusive breastfeeding. The multiple linear regression analysis showed that for each 1% of BW loss there was an increase of 0.572 g/dL in Hb and 0.577% in Hct, 1.331 mmol/L in Na and 1.363 mmol/L in potassium, 1.95 mg/dL in urea and 0.351 mg/dL in creatinine, and 0.825 mg/dL in TBil ($p > 0.05$). Moreover, phototherapy duration for jaundice was found to increase by 7 hours for every 1% BW loss to a statistically significant degree ($p < 0.05$). Finally, despite BW loss > 10% in full-term neonates, electrolyte disorders were found significant only in neonates that were above the 90th NEWT curve.

CONCLUSIONS

While the alterations we found in biochemical parameters were not statistically significant, they agree with the current literature. It seems the BW loss could be used in the prognosis of the severity of jaundice and the duration of the needed phototherapy.

ABS 4

EPIDEMIOLOGICAL ANALYSIS OF NEONATAL JAUNDICE IN A SUBURBAN HOSPITAL

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OBJECTIVE

Our objective was the epidemiological analysis of neonatal jaundice in the Maternity Ward of the Hospital Unit of Edessa. Neonatal jaundice is the

most common morbidity cause during the neonatal period, requiring intervention in 5-10% of all newborns due to pathologically high bilirubin levels.

MATERIALS AND METHODS

A retrospective observational study of all neonates born during a 2-year period from January 2017 to December 2018 in our hospital. The categorization was based on pregnancy features, type of birth, blood type of mother and newborn, levels of bilirubin, as well as the course of treatment.

RESULTS

Our sample consisted of 237 neonates, 51% females and 49% males. Mean gestational age was 38.6 weeks, including 58% early-term and 43.5% full-term neonates. Jaundice was apparent in 32.9% of the population, 9% of these mothers had a thyroid disease and 2.5% gestational diabetes. Only 19.2% of newborns had total bilirubin value above the age and risk factor cut-off and were treated with phototherapy, with a median duration of 24 hours. Exchange transfusion was not needed, since phototherapy was an adequate treatment for all patients. All neonates that required phototherapy were early-terms; however, no statistical correlation was found between gestational age and jaundice. ABO incompatibility was present on 9.2% of the total sample, and almost half of these newborns manifested jaundice, and 30% required light therapy.

CONCLUSIONS

Jaundice has a high incidence in the neonatal period, but the application of the latest guidelines reduces the implementation of phototherapy only in cases with severe hyperbilirubinemia or important risk factors as ABO incompatibility. Furthermore, the incidence of exchange transfusion is decreasing secondary to prevention and improvements in the management of neonatal hyperbilirubinemia.

ABS 5

EARLY-TERM NEONATES: AN AGE GROUP WITH SPECIAL MORBIDITY

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OBJECTIVE

The objective of our study was to present the outcome of the early-term neonates in comparison to late-term neonates. Neonatal morbidity due to immaturity has been studied primarily in preterm neonates less than 37 weeks' gestation. However, more recent evidence indicates that neonatal morbidity decreases with delivery at later gestational ages, and babies with a gestational age of 37-38 weeks have morbidity compared to newborns delivered at 39 weeks and have risks similar to those of late preterms.

MATERIALS AND METHODS

This was a retrospective observational study of all neonates born from January 2017 to December 2018 in the Maternity Ward of the Hospital Unit of Edessa. Data and documentation files were analyzed according to gestational age, type of birth, type of anesthesia, birth weight, Apgar score, need for resuscitation or respiratory support, perinatal events, and complications.

RESULTS

Our population consisted of 237 neonates, with a gender distribution of nearly 1:1. Mean gestational age was 38.6 weeks, including 58% early-term and 43.5% full-term neonates. Only 4% were late preterm babies and 0.5% post-term. The mean birth weight was 3,280 g. More than 60% of the deliveries were elective cesarean sections due to previous cesarean section or mother's request. Of the aforementioned deliveries, 89% were early-term babies. We found a statistically significant correlation ($p < 0.001$) between cesarean section and the need for resuscitation, as well as a higher correlation of early-term neonates requiring resuscitation than late-term neonates ($p = 0.001$). Gestational age appeared to have a positive correlation with Apgar score at the first and the fifth minute of life ($p < 0.05$).

CONCLUSIONS

This study's results are in agreement with the current literature and our findings concerning the morbidity of early-term neonates and reinforce the recommendation that elective cesarean section should not be performed before the gestational age of 39 weeks.

ABS 6

ALTERATIONS IN THROMBOELASTOMETRY VARIABLES IN NEONATES WITH RESPIRATORY DISTRESS SYNDROME

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OBJECTIVE

While coagulation and fibrinolysis disorders appear to play an important role in the pathogenesis of neonatal respiratory distress syndrome (RDS) and are associated with its severity, little has been studied in the acute phase of the disease. The aim of our study was to investigate alterations in thromboelastometry (TEM) variables in neonates with RDS and their possible association with disease severity.

MATERIALS AND METHODS

We studied 39 neonates with RDS who were hospitalized at the NICU of our General Hospital during a 1-year period. 282 healthy neonates were served as controls. Demographics and clinical characteristics were recorded for all neonates in the study. TEM-EXTEM was performed in the first 6 hours of life and before the administration of a surfactant, whenever deemed necessary. The severity of respiratory distress was assessed using the Down score.

RESULTS

The study population was 21 full-term and 18 preterm neonates with RDS. The control group included 198 full-term and 84 preterm neonates. In both term and preterm neonates with RDS prolongation of CT, CFT, smaller clot size (A10, MCF) as well as lower clot lysis index in 1 hour (LI60), when compared with healthy neonates ($p < 0.001$), were observed (**Tab. 1**). The Down score was positively correlated with CT and CFT values and negatively with A10, MCF, and LI60 values ($p < 0.001$) (**Tab. 2**).

Table 1 (ABS 6). EXTEM parameters in full-term and preterm neonates with respiratory distress syndrome (RDS) in comparison with healthy term and preterm neonates.

	CT	CFT	A10	A20	A30	Alpha	MCF	LI60
Full-term (n = 198)	41 (24-78.1)	70 (39.98-168.1)	58 (39-69)	65 (46.98-79.03)	65 (43.95-80.05)	77 (62.9-83.03)	66 (40.93-85.05)	97 (84.98-100)
Full-term with RDS (n = 19)	65 (41-74)	122 (70-144.75)	45 (29-47)	51.5 (37-54)	53 (30-55)	66.5 (43-70.5)	53 (39-55)	93.5 (40-95)
p-value	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Preterm (n = 84)	44 (31.13-65.88)	64 (27.13-160)	57.5 (35.25-71)	62 (45-79.63)	63 (47.25-84.25)	79 (52-86)	64 (48.13-84.88)	96 (84-100)
Preterm with RDS (n = 17)	55 (46-64.5)	107 (62-132)	45 (38-53.5)	50 (44-59)	51 (36-59)	70 (57-73.5)	51 (44-59.5)	91 (66-94.5)
p-value	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Data are presented as medians and reference ranges (2.5th and 97.5th percentiles). The two-sample Wilcoxon rank-sum (Mann-Whitney test) was used for statistical comparisons.
RDS: respiratory distress syndrome; CT: clotting time (seconds); CFT: clot formation time (seconds); A10: clot strength at 10 min (mm); A20: clot strength at 20 min (mm); A30: clot strength at 30 min (mm); MCF: maximal clot firmness (mm); LI60: lysis index at 60 min (%).

Table 2 (ABS 6). Down score in correlation with changes in the EXTEM parameters.

	CT	CFT	A10	A20	A30	Alpha	MCF	LI60
Correlation coefficient	.324	.311	-.316	-.333	-.340	-.349	-.341	-.262
p-value	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Spearman's rho test was used for statistical comparisons.
Interpretation of Spearman's correlation coefficient: Chan YH. Biostatistics 104: correlational analysis. Singap Med J. 2003;44(12):614-9.
CT: clotting time (seconds); CFT: clot formation time (seconds); A10: clot strength at 10 min (mm); A20: clot strength at 20 min (mm); A30: clot strength at 30 min (mm); MCF: maximal clot firmness (mm); LI60: lysis index at 60 min (%):

CONCLUSIONS
Variables in TEM revealed hypocoagulability in the neonates with RDS and appeared to be correlated with the severity of the respiratory distress.

ABS 7

ENTEROVIRAL INFECTIONS IN THE NEONATAL PERIOD

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AIMS/OBJECTIVES
The clinical manifestations of enteroviral infections (EI) in neonates are difficult to differentiate from those of bacterial sepsis, while severe life-threatening complications, including hepatic necrosis with coagulopathy, meningoencephalitis and myocarditis, usually present during the first week of life. Here, we present a case series of neonates infected by enterovirus and discuss clinical manifestations and outcomes.
METHODS
Retrospective cohort study of neonates admitted to a Level 3 Neonatal Intensive Care Unit in Greece from January 2019 till March 2020 with PCR-confirmed EI.
RESULTS
A total of 6 neonates (5 males) were identified with EI within a 14-month period among 655 admitted neonates. The presenting complaint was fever (5/6), respiratory symptoms (2/6), and irritability (4/6); no gastrointestinal symptoms were noted. Illness of other family members occurred in 33% of cases (2/6). Central nervous system infection was the most common manifestation (5/6, 83.3%), followed by septic shock (3/6, 50%). The mean age at diagnosis was 18.1 days (range 5-27 days, median 23 days), and the mean duration of stay 12.6 days (range 5-25 days, median 10 days). No hepatic involvement and no cases of myocarditis were identified. Inflammatory markers were elevated in 3/6 cases (max CRP 13.2 mg/dl, median 2.06 mg/dl), and all received antibiotics awaiting culture results. In 2 cases, a concomitant microbial infection was identified.
CONCLUSIONS
EI in the neonatal period are often difficult to differentiate from severe bacterial sepsis and often present as meningoencephalitis. It is estimated that EI is the cause for up to 35% of neonatal febrile infections during the enterovirus circulating period. A high index of suspicion and laboratory verification by PCR are of paramount importance in reducing hospital stay and antibiotic exposal on the one hand and identifying and promptly treating life-threatening complications such as hepatic necrosis and myocarditis, which are more often in the first week of life, on the other hand.

ABS 8

LIMITATIONS OF NON-INVASIVE PRENATAL TESTING IN DIAGNOSIS OF MICRODELETION SYNDROMES: A CASE PRESENTATION

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AIMS/OBJECTIVES
Non-invasive prenatal testing (NIPT) is becoming increasingly common in screening high-risk mothers. NIPT has high sensitivity and high specificity for common aneuploidies like trisomies 13, 18, and 21. Cri-du-chat is a rare syndrome with a frequency of 1-3 in 50,000 live births and is caused by deletions of the chromosome 5p. The aim of this study is to present the case of a neonate diagnosed with cri-du-chat syndrome with negative NIPT.
RESULTS
A female neonate was delivered to a primigravida, 31-year-old mother by emergency caesarian section after 36 weeks of gestation, weighing 2,130 g. First-trimester testing revealed an increased risk for trisomy 21, and NIPT was found negative. Anatomy screening at 24 weeks revealed a hypoplastic left kidney and fetal growth restriction. At birth, the baby was floppy, with poor respiratory effort, and symmetrically small for gestational age. She was noted to have high-pitched cry, microcephaly (OFC 31 cm, 10th), hypertelorism, broad nasal bridge, downward slanting palpebral fissures, micrognathia, single palmar creases, and marked hypotonia. She required non-invasive positive pressure ventilation for 48 hours, and initial feeding efforts were unsuccessful. Screening for other malformations revealed an ectopic left kidney and a small atrial

septal defect. Karyotype analysis and FISH showed a 5p deletion consistent with cri-du-chat syndrome. The infant was discharged after 1 month. At 6 months of age, she smiled, had achieved head control, but she could not sit unsupported, could not roll, did not support her weight, and was growing below the 10th percentile.

CONCLUSIONS

NIPT has been a major advance in prenatal screening for fetal aneuploidy. For the diagnosis of microdeletion syndromes, its clinical utility remains controversial. The positive predictive value of NIPT for these syndromes is between 0-20%, although newer techniques like single-nucleotide polymorphism (SNP)-based NIPT can be of great value. The current standard of care remains diagnostic testing with chorionic villus sampling or amniocentesis in high-risk pregnancies.

ABS 9

CONSERVATIVE MANAGEMENT OF A SUPERFICIAL NEONATAL PSEUDOANEURYSM: CASE REPORT

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AIMS/OBJECTIVES

Pseudoaneurysms (PA) are extremely rare in Neonatal Intensive Care Units with a reported incidence of 0.03%. They usually result from disruption of the arterial wall related to iatrogenic damage from invasive arterial procedures. PA management has traditionally been surgical, but less invasive methods are being used lately. The aim of this study is to report a case of successful minimally invasive management of a PA in a preterm neonate.

METHODS

We discuss the case of a preterm mosaic 21 neonate with concomitant transient abnormal myelopoiesis who developed a brachial PA.

RESULTS

Male neonate born at 30^{+5} weeks of gestation due to hydrops fetalis, as presentation of transient abnormal myelopoiesis accompanying mosaicism for trisomy 21. On the 15th day of life, he was noted to have a compressible, fluctuant, soft tissue mass at the medial aspect of the left antecubital fossa at a previous venipuncture site. The radial pulse was palpable, and movement of the left arm was normal. Ultrasound imaging revealed a 1.5 cm PA of the left brachial artery, and Doppler imaging revealed turbulent flow. Since peripheral perfusion was intact, the decision was made to manage the PA conservatively after discussion with the vascular surgical and interventional radiology teams. Ultrasound-guided compression and banding of PA were performed in 3 consecutive sessions. The neonate required platelet transfusions due to thrombocytopenia and was followed up with serial ultrasonography. One month later, the PA had clinically and radiologically completely resolved.

CONCLUSIONS

PAs are rare complications in the neonatal period, most commonly occurring at arterial trauma sites, especially if bleeding diathesis exists, as in our case. In the neonatal period, a pseudoaneurysm can be the sole clinical manifestation of hemophilia A. The traditional treatment is by surgical excision. Nonetheless, a detailed ultrasound study of the pseudoaneurysm has allowed for less invasive methods to be used, such as ultrasound-guided thrombin injection or bandage pressure.

ABS 10

CONGENITAL DEPRESSION OF THE SKULL: A CASE PRESENTATION

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AIMS/OBJECTIVES

Congenital depression of the skull is rare, with an estimated incidence of ~1/10,000 births and is more commonly associated with instrumental vaginal birth. Rarely, excessive molding of the fetal scalp due to mechanical pressure on the mother's pelvis can be the cause. Treatment options depend on the severity of the skull depression and underlying brain injury, which is theoretically possible in depressions greater than 5 mm of depth. We aim to describe the management of a term female neonate with a non-traumatic congenital depression of the skull.

METHODS

We present the diagnostic features and discuss management of a term female neonate born with a large congenital parietal skull depression.

RESULTS

A term female infant weighing 2,850 g was delivered by elective uneventful caesarian section to a 48-year-old primiparous mother. The pregnancy was uncomplicated, and the newborn needed no resuscitation. A right parietal skull depression was noted just posterior to the coronal suture, measuring 2.7 cm by 2.5 cm with a depth of 1 cm (**Fig. 1**). Sutures were intact, fontanelles were patent, and there was no hematoma or other skull abnormality. Physical and neurological examinations were unremarkable, and there were no dysmorphic features. A radiograph of the skull showed a deformed skull depression with no evidence of soft tissue swelling/hematoma or fracture. Cranial ultrasound was unremarkable. A conservative approach was decided following neurosurgical evaluation. Monthly follow-up assessments revealed complete resolution of the depression by 3 months of age. The infant remained asymptomatic with normal neurodevelopmental growth.

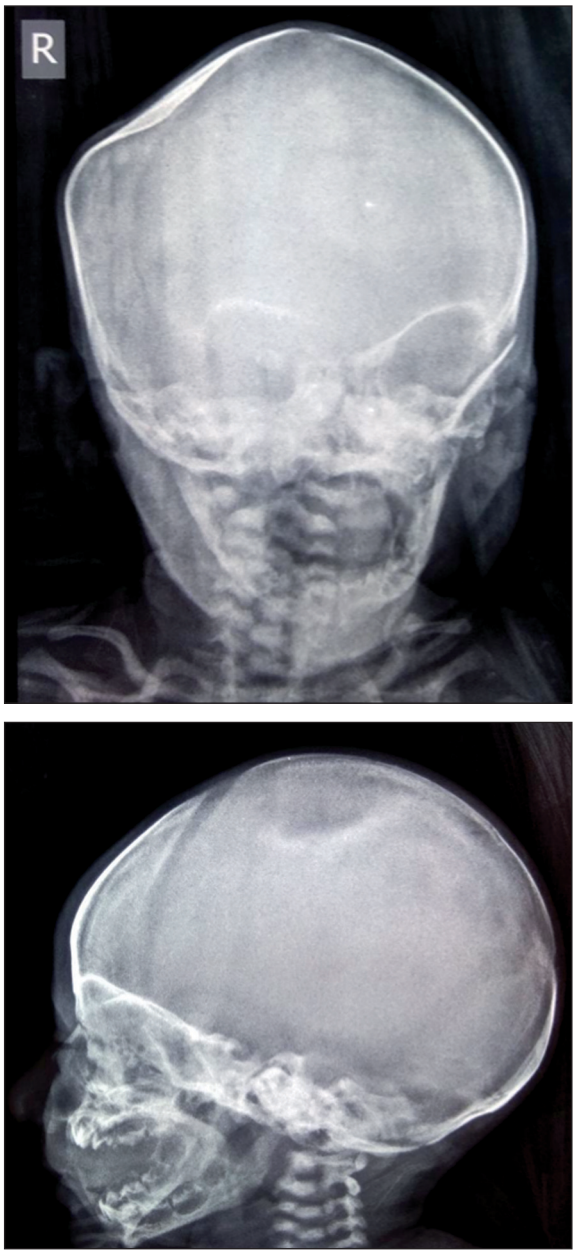

Figure 1 (ABS 10). A right parietal skull depression was noted just posterior to the coronal suture, measuring 2.7 cm by 2.5 cm with a depth of 1 cm.

CONCLUSIONS

Congenital depressions of the skull are uncommon in neonates. In the majority of cases, the neonates are asymptomatic, unless brain injury and/or intracranial hematoma exist, most often in the case of a co-existing skull fracture. Conservative treatment is usually preferred, since automatic resolution is observed after 3-6 months in the majority of cases. Further investigation with CT or MRI is necessary in symptomatic cases, where neurosurgical treatment might be necessary.

ABS 11

GENETIC DISORDERS ASSOCIATED WITH ANNULAR PANCREAS: A LITERATURE REVIEW

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AIMS/OBJECTIVES

Annular pancreas (AP) is a rare congenital anomaly that occurs in 1 per 12,000-15,000 live births. In the neonatal period, duodenal obstruction is the most common clinical manifestation, although many cases remain asymptomatic till adulthood. Aim of this review was to identify associations of AP with genetic disorders.

METHODS

We conducted a systematic literature review of published studies reporting cases of AP in association with genetic disorders in PubMed, Medgen, Google, OMIM, GARD databases through March 2020. Relevant studies were reviewed, and results were analyzed using qualitative synthesis.

RESULTS

Fifty-one studies were identified. Trisomy 21 was the most common genetic disorder associated with AP, with an estimated incidence of 14-25 per 1,000

cases. AP was less commonly linked with trisomy 18, trisomy 13, Goldenhar syndrome, Smith- Lemli-Opitz syndrome, Cornelia de Lange syndrome, Scimitar syndrome, Mitchell-Riley syndrome, TAR syndrome, alveolar capillary dysplasia with misalignment of pulmonary veins, and other genetic disorders.

CONCLUSIONS

Several genetic disorders are associated with AP. Among these, trisomy 21 is by far the commonest chromosomal abnormality, while others are less commonly reported. A high index of suspicion for underlying disorders should be maintained when evaluating patients with AP, and targeted genetic testing should be performed when needed.

ABS 12

DICHORIONIC, DIAMNIOTIC PREGNANCY COMPLICATED BY TWIN ANEMIA POLYCYTHEMIA SEQUENCE

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AIMS/OBJECTIVES

Twin anemia polycythemia sequence (TAPS) is a rare form of feto-fetal transfusion, caused by small-diameter placental vascular anastomoses occurring in 3-5% of monochorionic twins. TAPS is distinguished from twin-to-twin transfusion syndrome as the former is characterized by the absence of amniotic fluid imbalances, often making the prenatal diagnosis difficult. In dichorionic, diamniotic (DCDA) twins, TAPS is extremely rare. We report an unusual case of TAPS in DCDA twins diagnosed postnatally.

METHODS/RESULTS

A 28-year-old Greek woman conceived spontaneously and delivered DCDA twins at 36 weeks of gestation. The antenatal screening was unremarkable, and monthly ultrasound monitoring showed normal growth, no evidence of oligo-polyhydramnios, and normal Dopplers for both fetuses. Middle cerebral peak systolic velocity measurements did not vary significantly, and there were no signs of fetal compromise. The twins were delivered by elective cesarean section, and the delivery was uneventful. At birth, Twin A appeared large and plethoric with a birth weight of 2,980 g, while Twin B was pale and weighed 2,630 g. Both neonates showed signs of respiratory distress and required non-invasive positive pressure ventilation soon after birth. Inter-twin difference in hemoglobulin levels was more than 12 g/dl (Twin A arterial Hb: 23.5 g/dl, Twin B arterial Hb: 11.3 g/dl), with marked reticulocytosis in Twin B (reticulocyte count 16.5% vs. 3.5% in Twin A). The discordance of hemoglobin and reticulocyte count levels suggested a chronic form of inter-twin blood transfusion, and the twins fulfilled the criteria for TAPS postnatal diagnosis. Both neonates were managed conservatively with a favorable outcome.

CONCLUSIONS

TAPS is extremely rare in DCDA twins. A high index of suspicion is needed for the diagnosis of TAPS as prenatal Doppler findings may be normal. Large inter-twin hemoglobin and reticulocyte count differences are required for the diagnosis of postnatal TAPS, without evidence of amniotic fluid volume discordances.

ABS 13

OUTCOMES OF NEONATES BORN TO MOTHERS WITH SUBSTANCE USE DISORDER

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AIMS/OBJECTIVES

An increase in the number of pregnant women who use opioids has been reported in the last years. The aim of this study is to determine the complications that can arise during pregnancy as well as the rate of abstinence syndrome in neonates.

METHODS

Retrospective cohort study of neonates admitted in a Level 3 Neonatal Intensive Care Unit in Greece with prenatal exposure to substances admitted from January 2014 till March 2020. Medical records were reviewed, and the Neonatal Abstinence Scoring System of Finnegan was evaluated for withdrawal.

RESULTS

A total of 13 neonates (9 males) were identified in a 6-year period, with an incidence of 4/1,000. Withdrawal symptoms occurred in 9 (69.2%) of 13 exposed neonates; 4 developed mild symptoms (30.8%) within 2-4 days of life. Severe symptoms occurred in 5/13 (38.5%). Obstetric complications

occurred rarely; premature delivery in 4/13 (30.8%) and intrauterine growth restriction in 1/13 (7.7%). CNS damage occurred in 1 case with severe hydranencephaly. Oral morphine sulfate was administered in 3/9 symptomatic neonates based on the Neonatal Abstinence Scoring System of Finnegan and phenobarbital in 1 case with seizure activity.

CONCLUSIONS

Maternal opioid use during pregnancy does not seem to be related to severe congenital anomalies in the majority of cases. The short-term outcome of these neonates was normal, but long-term follow-up is necessary for neurodevelopmental deviations to be timely diagnosed and managed.

ABS 14

A CASE REPORT OF A NEONATE WITH CONGENITAL HYPERINSULINISM

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PURPOSE

Congenital hyperinsulinism is the most common cause of persistent hypoglycemia in infancy, potentially leading to permanent neurological damage. The incidence of the disease is estimated at 1/50,000 live births.

The etiology of congenital hyperinsulinism includes a variety of genetic mutations related to the regulation of insulin secretion, and leads to severe and persistent hypoglycemia. Histological examination is characterized by hyperplasia of the islets of Langerhans, and the presentation may be diffuse or focal.

The therapeutic approach includes diazoxide as a first-line treatment, glucagon, somatostatin, and calcium channel blockers. In focal hyperplasia, the treatment of choice is the surgical exclusion of the affected tissue, which is usually therapeutic.

We present the case of a newborn with congenital hyperinsulinism.

MATERIALS AND METHODS

The case of a preterm infant (IUGR and IDM) – 35^{+6} weeks of gestation and BW 2,210 g – is described, with persistent hypoglycemia presented soon after delivery. The initial management included a 2-hour feeding regime, but due to poor response a continuous enteral glucose infusion was initiated. Due to the persistence of the hypoglycemia, an intravenous infusion of dextrose 5 mg/kg/min was initiated. Endocrine and metabolic studies were performed and the diagnosis of congenital hyperinsulinism was confirmed by genetic testing.

RESULTS

On the occasion of this rare case, we underline the importance of early recognition, differential diagnosis and treatment of neonatal hypoglycemia and the possible genetic mutations that cause it, in order to make a timely diagnosis and determine the most appropriate therapeutic approach.

CONCLUSION

Congenital hyperinsulinism is the most common cause of persistent hypoglycemia in infants and toddlers. It is a genetic disorder that is either sporadic or familial. Early diagnosis of neonatal hypoglycemia is of major importance to avoid permanent neurological damage to the newborn.

ACKNOWLEDGEMENTS

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ABS 15

CASE REPORT: MALE NEONATE BORN WITH EPISPADIAS AND BLADDER EXSTROPHY

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INTRODUCTION

We are presenting a clinical case from the Pediatric Department of the General Hospital of Zakynthos. It involves a newborn male presented at birth with an exstrophy-epispadias complex.

CASE REPORT

Male neonate born at 38^{+3} gestational weeks, 2nd child, birth weight 3,230 g (50th percentile) by cesarean section due to elevated maternal blood pressure and proteinuria, APGAR score 8 at 1 minute and 9 at 5 minutes. Perinatal history and prenatal control were normal. The physical findings consisted of exposed, everted bladder template visible below the umbilical stump (**Fig. 1**), dorsally opened urethral plate (epispadias, **Fig. 2**); both corpora cavernosa were beneath and alongside urethral plate, the scrotum was caudally displaced, the anus was normal. The rest of the examination was normal. Body temperature: 36.3ºC; HR: 148/min; RR: 40/min; SpO_2: 100%; dxt: 80 mg/dl. Inflammation

Figure 1 (ABS 15). Bladder exstrophy.

Figure 2 (ABS 15). Epispadias.

markers were negative. We administered 1 dose of i.v. ampicillin 50 mg/kg, 1 dose of i.v. amikacin 7.5 mg/kg and i.v. dextrose 10% 80 ml/kg. Additionally, the bladder was covered with sterile gauze with normal saline.

CONCLUSION

Due to the imperative need for surgical correction of the defect, the neonate was transferred to the NICU for further surgical treatment. Exstrophy-epispadias complex refers to a rare defect of the lower abdominal wall and other malformations [1]. According to the bibliography, 2:100,000 live births are affected with an almost equal distribution between males and females [1].

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ABS 16

USE OF ULTRASOUND IN PNEUMOPERICARDIUM TREATMENT IN PRETERM NEONATES

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PURPOSE

Pneumopericardium represents an air-leak syndrome that can cause cardiac tamponade; thus, prompt diagnosis and treatment are required. These cases highlight the value of ultrasonography-guided pericardiocentesis for aspiration of pericardial air by syringe suction.

MATERIALS AND METHODS

We report 2 cases of preterm neonates diagnosed with pneumopericardium and treated by subxiphoid aspiration of pericardial air by syringe suction. The first neonate was a preterm female with gestational age (GA) of $28^{+4/7}$ weeks and birth weight (BW) of 1,660 grams, born by cesarean section (CS) due to hydrops fetalis. On day 2 of life, while intubated and on 2 Bülau drains due to bilateral pneumothorax, a sudden clinical decline occurred. A chest radiograph was performed, showing the presence of pneumopericardium. The second neonate was a preterm male with GA of $29^{+5/7}$ weeks and BW of 1,430 grams, born by CS due to breech position and labor onset. On day 3 of life, the neonate was transferred from a private clinic to our department due to air-leak syndrome (pneumomediastinum). On admission, a chest radiograph was performed and showed both pneumomediastinum and pneumopericardium.

RESULTS

In both cases, a successful ultrasonography-guided aspiration and suction of the pericardial air were performed, with prompt clinical improvement (normalization of blood pressure and heart rate). Follow-up chest radiographs showed complete resolution of the air-leak syndrome on both neonates. No complications or relapses were observed.

CONCLUSION

Ultrasonography-guided pericardiocentesis can be used as a safe and successful method of pneumopericardium treatment.

ABS 17

RESPIRATORY MORBIDITY IN LATE PRETERM NEONATES (36-36^{6} WEEKS OF GESTATIONAL AGE)

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AIM

The aim of our study was to analyze the characteristics of late preterm neonates (LPN) (36-36^{+6} weeks of gestational age [GA]) that presented with respiratory symptoms.

MATERIALS AND METHODS

Retrospective study of the data collected from medical files of 83 LPN (36-36^{+6} weeks GA) that were admitted to our Intensive Care Unit during 2019.

RESULTS

Respiratory symptoms presented in 20.5% of the hospitalized LPN. Initially, they were all treated with oxygen delivered via Hood, and 21.4% of them needed further mechanical ventilation support. The neonates' mean birth weight was 2,768.9 g (min-max: 1,530-3,310 g), and the mean time of hospitalization was 17.9 days (min-max: 6-47 days). 92.4% of the aforementioned neonates were delivered via caesarian section (CS), mainly due to preceding CS, followed by hypertension (14.3%), maternal age (7.1%), non-reactive non-stress test (7.1%), and maternal oligohydramnios (7.1%). Problems during pregnancy were reported by 42.9% of the mothers, with premature contractions being the most common one (83.3%). Corticosteroids were administered in 57% of those pregnant women antenatally. During hospitalization, 71.4% of the neonates also showed additional complications, including hypocalcemia (50%), infection (40%) and/or hyperbilirubinemia (50%). 64.3% of the LPN were breastfed.

CONCLUSION

The majority of the neonates of our study were delivered with CS. LPN of 36-36^{+6} weeks GA develop significant respiratory morbidity, which is often complicated, leading to prolonged hospitalization. Given that CS represents an important risk factor for respiratory problems, adherence to the relevant guidelines could contribute to a significant reduction in hospitalization time of LPN.

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ABS 18

"APPLE-PEEL" JEJUNAL ATRESIA IN A FEMALE NEONATE

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INTRODUCTION

"Apple-peel" jejunoileal atresia (JIA) is a rare congenital defect that represents only 10% of all JIA cases [1, 2]. Prenatal diagnosis is supported by the presence of maternal polyhydramnios and "double-bubble" sign on fetal ultrasonography [3]. Despite substantial improvement in outcome, "apple-peel" JIA remains associated with significant morbidity and mortality [4].

AIM

We present a case of a Caucasian female neonate (36 weeks of gestational age), second child of phenotypically normal parents, that presented with JIA, diagnosed antenatally. Amniocentesis revealed a normal 46XX karyotype and genotype of the fetus.

RESULTS

Ultrasounds of the first and second trimester revealed hyperechoic structures corresponding to dilated small intestine (SI). Ultrasonography of the third trimester showed worsening of the aforementioned finding and significant maternal polyhydramnios. Fetal MRI showed: a dilated part of the intestinal tract corresponding to the proximal part of the SI (first jejunal helix), with a maximum diameter of 42 mm, absence of meconium in the large intestine and SI

helixes with small diameter, findings suspicious of JIA. The neonate was delivered with an uncomplicated cesarean section, due to premature contractions and breech presentation. Physical examination revealed a distended, soft, non-tender abdomen with no bowel sounds. No other congenital disorders were observed. Exploratory laparotomy confirmed the diagnosis of "apple-peel" JIA, and repair of the atresia was conducted at 12 hours of life. Partial excision of the proximal dilated bowel below the Treitz ligament and end-to-end jejunoileal anastomosis were performed. The pathologic report confirmed the diagnosis. Enteral feeding (exclusively maternal breast milk) started on postoperative day 8, increasing gradually until full enteral feeding was achieved on day 26. The first spontaneous stool passage was observed on day 13. At 57 days of life, hypocalcemia and vitamin D deficiency were found and treated with administration of calcium and high doses of vitamin D. Ophthalmologic examination and echocardiography did not reveal any significant abnormal findings. The neonate was discharged at 83 days of life.

CONCLUSIONS

"Apple-peel" JIA constitutes an unusual type of intestinal atresia. The presented case highlights the significance of early prenatal diagnosis in the management of these neonates, which is challenging and involves several medical specialties.

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ABS 19

NEUROLOGICAL OUTCOME AT 18 MONTHS OF NEONATES SUBJECTED TO THERAPEUTIC HYPOTHERMIA

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AIM

Evaluation of neurological outcome of neonates subjected to therapeutic hypothermia (TH) following hypoxemic-ischemic encephalopathy (HIE).

MATERIALS AND METHODS

In this retrospective cohort study, the neurological outcome of neonates subjected to whole-body TH following HIE during a 9-year period (2011-2020) was evaluated. Neurological assessment was performed at the age of 18 months using the Hammersmith Infant Neurological Examination (HINE). The neurological state was characterized as normal (HINE score 74-78), abnormal (HINE score ≤ 73), and severely abnormal (HINE score ≤ 40). The demographic characteristics and data related to HIE were also recorded.

RESULTS

Of the 41 neonates treated with TH, 32 (78%) survived, and 15/32 (47%) were followed up at the outpatient clinic. The infants that were followed up (10 males and 5 females) had gestational age 37.5 ± 1.7 weeks, birth weight 2,888 ± 700 g, and an Apgar score (median [range]) of 2 (1-3), 5 (4-6), and 4 (3-6) at 1, 5, and 10 minutes, respectively. Twelve (80%) developed moderate HIE and three (20%) severe HIE. Neurological evaluation at 18 months of age revealed the following scores (median [range]) in the five domains of the HINE: cranial nerve function 15 (13-15), posture 18 (4-18), quality and quantity of movements 6 (1-6), muscle tone 24 (8-24), and reflexes/reactions 15 (5-15), while the global score was 74 (32-78); 8 (53%) children displayed normal scores, 5 (33%) abnormal scores, and 2 (13%) severely abnormal scores (diplegia with independent walking). The mean HINE score (68 ± 14) was 5.4 (95% CI: 2.8-13.6) units lower than the optimal, but the difference was not significant ($p = 0.181$).

CONCLUSIONS

Our results show that early implementation of TH in neonates with moderate-severe HIE is associated with good neurological outcomes, especially in those with moderate HIE. Therefore, TH should be implemented for all neonates fulfilling the hypothermia criteria.

ABS 20

MICROCEPHALY: A REVERSIBLE SITUATION? CASE PRESENTATION

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INTRODUCTION

Microcephaly is defined as a head circumference below 2 SD from the mean value or below 3 SD, for age, sex and nationality.

CASE REPORT

A female neonate was born by cesarean section, during the 32nd week of gestation, because of placenta abruption. Her birth weight was 2,420 g, and her head circumference was 29 cm (50th percentile).

Her mother was a substance abuser. Also, she had fever, cough, and findings from the respiratory computed tomography (CT), compatible with COVID-19 infection. Both mother and neonate were examined for COVID-19, and PCR tests were negative. Apgar was 1 at the 1st, 5th and 10th minutes, respectively, and the neonate was immediately intubated in the delivery room.

During its hospitalization to our NICU, the newborn received a dose of surfactant once intratracheally, and remained in intermittent positive pressure ventilation (IPPV) for 24 hours.

During the 4th day of life, the neonate experienced generalized tonic-clonic seizures and other symptoms of abstinence syndrome, and was treated with methadone for a total of 36 days. From the 3rd week of life, head circumference did not properly increase (head circumference 31.2 cm [2 SD below average]). Brain magnetic resonance imaging (MRI) revealed increased signal intensity in the subcortical white matter, and bilateral parietal gliotic area. A month later, the head circumference increased at the expected rates for the neonate's corrected gestational age. Findings from a second MRI were improved. The newborn remained in good general and normal neurodevelopment condition.

DISCUSSION

According to the Centers for Disease Control and Prevention (CDC), the incidence of microcephaly is expected to be 2-3%, while in numerous studies from North America, an incidence of 0.01-0.12% is reported [1]. A number of pathogenic causes (maternal substance use, withdrawal syndrome, methadone administration, hypoxic-ischemic encephalopathy, maternal viral infection) are associated with the development of microcephaly in the newborn. Reversible microcephaly is reported in the literature [2].

CONCLUSION

In our case, similar causes were related to newborn microcephaly, which was transient. Long-term follow-up of the neonate will confirm this reversibility, or not.

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ABS 21

SENSITIVITY OF COAGULASE NEGATIVE *STAPHYLOCOCCI* TO GLYCOPEPTIDES NEONATES WITH BLOOD STREAM INFECTIONS

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AIM

Coagulase-negative *Staphylococci* (CoNS) are a common cause of late-onset sepsis in neonates, while the glycopeptides vancomycin and teicoplanin are among the most frequently prescribed antibiotics. Existing data indicate a decreased sensitivity of CoNS to glycopeptides. The aim of the present study was to investigate the sensitivity of CoNS to vancomycin and teicoplanin and its association with their consumption.

MATERIALS AND METHODS

Retrospective analysis of CoNS isolates from bloodstream infections in a tertiary NICU over a 9-year period (2011-2019). Blood cultures were evaluated using the automatic system BacT/ALERT, while identification and antimicrobial susceptibility testing were performed by Vitek2. Vancomycin and teicoplanin consumption during 2010-2018 was expressed as defined daily doses per 100 bed-days

(DDD/100BD) and correlated with the Minimum Inhibitory Concentration (MIC) during 2011-2019.

RESULTS

The sensitivity to teicoplanin and vancomycin was assessed in 368 and 385 blood cultures, respectively. The geometric means of teicoplanin and vancomycin MIC were 1.8-4.2 mg/L and 0.9-1.2 mg/L, respectively, without significant differences during the study period. Teicoplanin MIC (mg/L) was ≤ 0.5 (18%), 1 (5%), 2 (23%), > 2 (54%), and ≥ 16 (4%), and vancomycin MIC ≤ 0.5 (16%), 1 (64%), 2 (18%) and 4 (2%). There was a strong correlation between teicoplanin use and MIC > 2 mg/L ($r = 0.74$, $p = 0.02$). Vancomycin consumption did not correlate with either the proportion of CoNS with MIC > 2 mg/L during the following year or the increase of MIC over time.

CONCLUSIONS

A considerable percentage of CoNS display increased teicoplanin and vancomycin MIC, whereas the finding of CoNS with MIC > 2 mg/L is correlated with its use. Considering that the increased teicoplanin and vancomycin MIC may result in sub-therapeutic exposures, therapeutic failure and further increase in resistance, surveillance of MIC and rationale use of glycopeptides are crucial.

ABS 22

TWENTY YEARS OF CONTINUING EDUCATION ON NEONATAL PAIN. EFFECT ON GREEK NEONATOLOGISTS' PERCEPTIONS ON PAIN AND ITS MANAGEMENT

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AIM

Existing data show that pain and discomfort may have significant acute and long-term consequences in neonates. The aim of this study was to investigate the effect of 20-year continuous education on perceptions of Greek physicians working in NICUs as regards the consequences and management of neonatal pain.

MATERIALS AND METHODS

Anonymous, self-administered, multiple-choice questionnaires were distributed to physicians working in Greek NICUs (neonatologists, pediatricians, and fellows) in the years 2000 and 2019.

RESULTS

A total of 106 and 117 physicians responded (response rate 91% and 81%) in 2000 and 2019, respectively. All respondents at both time-points stated that neonates are capable of experiencing pain that may have adverse effects. Knowledge on the specific organs adversely affected by pain improved by 2019. Utilization of NICU protocols and pain assessment tools, although increased by 2019, remained low. The proportion of respondents using systemic A-S during major surgeries was very high at both time-points, while A-S implementation during mechanical ventilation increased significantly by 2019 (83% vs. 96%, $p = 0.001$). The use of systemic or local analgesia during certain minor procedures, namely lumbar puncture, arterial line, tracheal suctioning, and suprapubic paracentesis, decreased, while the use of sweet solutions and non-pharmacological measures significantly increased over time. The use of opioids significantly increased, while a shift from morphine to fentanyl was observed. The most common sources of education were international publications (84%) and congresses (59%), as well as intra-departmental lectures (46%).

CONCLUSIONS

Knowledge of the Greek physicians on pain consequences in neonates significantly improved, as the use of non-pharmacological interventions increased over time. However, the percentage of respondents using local and systemic A-S during minor procedures decreased, possibly due to the fear of adverse effects, and the use of non-pharmacological interventions increased. Continuous education and development of generally accepted protocols is a common request.

ABS 23

EPIDEMIOLOGY AND CLINICAL CHARACTERISTICS OF NEONATES WITH CONGENITAL HEART DISEASE ADMITTED TO A NICU OVER 10 YEARS

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BACKGROUND
Changes in epidemiological data on congenital heart diseases (CHD) over time are important for the public health policy. The aim of the study was to investigate the demographic and clinical data of neonates with CHD admitted to our NICU during two consecutive 5-year periods.
MATERIALS AND METHODS
In a retrospective, cohort study of CHD cases hospitalized during the last decade, demographic and clinical characteristics were recorded, and CHD severity was categorized (according to the EuroCAT classification).
RESULTS
Of the 127 neonates included, 47.5% were boys, 62% term and 63.7% inborn infants. A prenatal investigation was performed in 52.8% of cases with a 31% rate of prenatal diagnosis. A postnatal ultrasound diagnosis was initially performed by a neonatologist (66.4%), followed by a pediatric cardiologist. Severity classification was applied in 109 (85.8%) cases, of which 67 (61.5%) concerned non-severe, non-life-threatening CHD (EuroCAT III), and 42 (38.5%) severe CHD (11% EuroCAT I and 27.5% EuroCAT II), and 14.2% remained unclassified. Main manifestations included heart murmur (56.8%), respiratory distress (12.1%), and cyanosis (12.1%). Prostaglandins, inotropic medications, oxygen, and mechanical ventilation were required in 23.6%, 7.9%, 35.4%, and 19.7% of neonates, respectively. Transportation to the Cardiac Surgery Center was needed in 29.9% of cases. Comparison between the two 5-year periods revealed a lower proportion of outborn neonates and rate of prenatal investigation in the second period, while the rate of confirmed prenatal diagnosis of CHD was higher than in the first one. Moreover, the relative prevalence of cyanotic and severe CHD forms (EuroCAT I and II) decreased.
CONCLUSIONS
A considerable proportion of CHD diagnosed in the neonatal period are severe, and potentially life-threatening, requiring specialized management in Cardiac Surgery Centers. Prenatal assessment became more reliable and more targeted, while the prevalence of cyanotic and severe CHD decreased overtime. Following appropriate education, neonatologists may give a significant contribution to the early diagnosis of CHD postnatally.

ABS 24

METABOLOMIC ANALYSIS OF BIOFLUIDS AT BIRTH FOR THE EARLY PREDICTION OF THE RISK FOR NECROTIZING ENTEROCOLITIS, SEPSIS AND MORTALITY

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BACKGROUND/AIM
Intrauterine environment has been associated with the development of severe complications of prematurity, including necrotizing enterocolitis (NEC) and sepsis. The aim of the study was to identify early, predictive biomarkers of the risk for NEC, sepsis, and mortality using metabolomic analysis of umbilical cord blood (UCB), gastric fluid (GF), and urine obtained at or soon after birth.
MATERIALS AND METHODS
Inborn, preterm infants (gestational age [GA] < 32 weeks) were eligible for inclusion in a prospective cohort study. Samples of UCB, GF, and urine were obtained at or soon after birth for metabolomic analysis. Multiple regression models were constructed to evaluate the independent association of the main outcome measures (NEC, sepsis, mortality) with metabolites detected in the biofluids after adjusting for GA and birth weight.
RESULTS
Regression analysis revealed that certain UCB, GF, and urine metabolites displayed an intermediate discriminatory ability between neonates who later developed or not NEC (mainly sorbitol, taurine, inositol, and uridine of UCB). Regarding sepsis, only UCB and GF metabolites displayed an intermediate discriminating ability for the risk of sepsis. Urine glucose, fructose, lactic acid, and asparagine, as well as GF gamma-aminobutyric acid, were significant predictors of mortality. Specifically, GF and urine metabolites could detect all neonates who eventually died, while UCB metabolites had an intermediate discriminating ability. Biomarkers with the highest capability in predicting death included urine thymidine, as well as GF glucose and pyruvic acid.
CONCLUSIONS
Metabolomics in UCB, GF, and urine obtained at or soon after birth are capable of predicting

the risk for NEC, sepsis, and death. Should these findings be confirmed in larger cohorts of preterm neonates, the detected metabolites could be a useful tool for the prediction of severe complications of prematurity, such as NEC and sepsis, and mortality soon after birth, thereby allowing implementation of individualized preventive and therapeutic interventions.

ABS 25

LATE PRETERM NEONATES (36-36⁶ WEEKS) ADMITTED IN NICU OF A TERTIARY HOSPITAL. CLINICAL CHARACTERISTICS OF THE NEWBORNS AND THEIR MOTHERS

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AIM

To describe the characteristics of the hospitalized late preterm neonates (LPN) of 36-36⁶ weeks of gestational age (GA) and the associated morbidity.

MATERIALS AND METHODS

We retrospectively studied the medical records of 83 neonates with GA 36-36⁶ that were hospitalized in our NICU during 2019 and recorded their baseline characteristics and morbidity.

RESULTS

During 2019, 83 LPN were admitted in our NICU, which accounts for 34.4% of all the admissions. The mean birth weight was 2,617.7 g (1,500-3,360 g) and the mean hospitalization time was 10.7 days (1-50 days). Most of these LPN (84.3%) were delivered with cesarean section (CS), mainly due to prior CS (32.9%), followed by twin pregnancy (11%), non-reactive non-stress test (10%), and abnormal presentation (4%). Almost half of the mothers were primiparas (48.6%). Corticosteroids were administered antenatally to 55% of the mothers, while to those with a previous CS the corresponding percentage reached 69.4%. The mean mothers' age was 31.1 years (15-47 years). Regarding the maternal educational level, 38.6% had completed tertiary education, 48.2% secondary education, 6.6% primary education, and 6% were completely uneducated. 51.8% of the mothers were hospitalized during pregnancy; the main causes for admission were premature contractions (67.4%), antepartum vaginal hemorrhage (6.9%), premature rupture of membranes (6.9%), urinary tract infection (6.9%), hypertension (4.6%) and preeclampsia (4.6%). The most common reasons for NICU admission of the neonates were maternal tocolytic treatment antenatally (34.9%), low birth weight (27.7%), respiratory distress symptoms (20.4%), feeding difficulties (3.6%), and suspected infection (3.6%).

CONCLUSIONS

Our study confirms the morbidity associated with late prematurity, which in some cases appears to be significant (respiratory morbidity: 20.5%). The high CS rate, especially in primiparas, and the overall justification (prior CS: 32.9%) should raise concern. Only half of the women were given corticosteroids. Adherence to the guidelines for proceeding to CS and vaginal birth after cesarean (VBAC) in carefully selected cases could contribute to the reduction of late preterm deliveries.

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ABS 26

SHORT-TERM OUTCOME IN VERY LOW BIRTH WEIGHT PRETERM INFANTS (BG < 1,500 G)

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INTRODUCTION

Despite the improvement in survival of very low birth weight (VLBW) infants worldwide, during the last decades, the risk of complications remains significant.

AIM
The objective of our study was to describe neonatal survival and neonatal morbidities of VLBW newborns admitted to our Neonatal Intensive Care Unit.
MATERIALS AND METHODS
We studied retrospectively the neonatal morbidities of premature infants with birth weight (BW) < 1,500 g and gestational age < 32 weeks who were hospitalized in our unit from January 2016 to August 2020. Gestational age, birth weight, sex, type of delivery, need for mechanical ventilation and surfactant administration, complications during hospitalization (sepsis, necrotizing enterocolitis, intraventricular hemorrhage [IVH], periventricular leucomalacia, retinopathy of prematurity, bronchopulmonary dysplasia, patent ductus arteriosus) and mortality were recorded.
RESULTS
During the study period, 130 VLBW premature infants with an average GA of 28^{+1} weeks and BW of 1,065 g were hospitalized in our NICU. Seventy of them (54%) were males. The majority of them (91%) were born by cesarean section, while 15% (20 newborns) were transferred after birth to our unit. The survival rate was 75% (98 newborns). Sixty-five percent (85 newborns) needed mechanical ventilation, while 64% (83 newborns) needed surfactant administration. Fifteen percent (20 newborns) developed late-onset sepsis, 4% (5 newborns) necrotizing enterocolitis, 5% (7 newborns) IVH grade III and IV, 3% (4 newborns) periventricular leucomalacia, 15% retinopathy of prematurity (20 neonates, of which 3 needed laser photocoagulation), 19% (25 neonates) bronchopulmonary dysplasia and 8% patent ductus arteriosus (11 neonates, 8 of whom received medication for ductal closure and 1 underwent surgical ligation).
CONCLUSIONS
The survival rate of VLBW premature infants in our unit is satisfactory. During their hospitalization, 2/3 needed mechanical ventilation, while the most common complications were bronchopulmonary dysplasia and late-onset sepsis.

ABS 27

DIABETES DURING PREGNANCY AND CLINICAL OUTCOME OF THE NEONATES OF OUR MATERNITY CLINIC – REPORT OF A 5-YEAR PERIOD

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INTRODUCTION
Diabetes during pregnancy, whether pre-existing (type 1 or 2 diabetes) or gestational diabetes (GD), is associated with an increased risk to the mother, the fetus, and the newborn. It is the most common complication in pregnancy, with an incidence rate of 1.5-15%, depending on the race.
OBJECTIVE
To record the neonates of the Maternity Clinic from mothers with diabetes in pregnancy, type of childbirth, gestational age, birth weight, need of intensive care of the neonates, age and pathology of the mother, and to compare these results with the neonates of mothers without diabetes.
MATERIALS AND METHODS
This is a retrospective study of the period 2015-2019. Maternal, perinatal, and clinical data of the neonates of the Maternity Clinic were recorded, and statistical analysis was performed with the χ^2 test. The 2-hour glucose tolerance test with 75 g was used as the method for detecting GD.
RESULTS
Out of 2,160 births, 100 women (4.6%) were identified – 4 with pre-existing diabetes and 96 with GD. They were treated with medication (insulin [32%], Glucophage® [4%]) and/or diet (65%).
The average age of the mothers with diabetes during pregnancy was 31.5 years compared to the average age of the non-diabetic mothers that was 28 years. The most common comorbidity of the mothers was thyroid disease (25%), for which they were medically treated. Regarding the type of childbirth (natural birth and cesarean section) of healthy and diabetic women, the rates for cesarean section were 45% versus 55%, respectively.
95% of the neonates were full-term, 51% were male, with an average birth weight of 3,200 g. 17% were admitted to the NICU for at least 24 hours, with no statistically significant correlation between the need for admission and the type of regulation of maternal diabetes and thyroid disease. The most common causes for admission to the NICU were respiratory distress, hypoglycemia, and jaundice.

CONCLUSION

The birth weight and the need for hospitalization in the NICU do not seem to be affected by well-regulated diabetes. Regarding the percentages of cesarean section, if the women with diabetes who would definitely give birth with cesarean section due to a reason other than diabetes are excluded, no statistically significant difference is found (p = 0.072).

ABS 28

DIFFUSE BASAL GANGLIA OR THALAMUS HYPERECHOGENICITY IN TERM INFANTS – CLINICAL IMPACT AND COAGULATION TEST

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INTRODUCTION

Basal ganglia or thalamus hyperechogenicity (BGTH) has been reported in 0.3-2.5% of term neonates and 5.1-32% of preterm infants and can be detected during routine ultrasound (US) as two distinct patterns, either diffuse hyperechogenicity (HE) or linear-lenticulostriate vasculopathy (LSV). BGTH may be caused by a variety of conditions, including infection, hemorrhage, hypoxic-ischemic insult, hypoglycemia, infarction, calcifications, vascular lesions, or chromosomal anomalies. In preterm neonates, diffuse homogeneous BGTH is a frequent and normal prematurity-related finding. In near-term and term neonates, increased HE in this region usually indicates hypoxic-ischemic injury and is associated with serious neurologic sequelae.

MATERIALS AND METHODS

Our aim was to record the incidents of diffuse HE of the thalamus in US examination and define possible causes. We conducted a retrospective descriptive study during a 4-year period in our tertiary NICU. Maternal, gestational, perinatal data, clinical perinatal variables, and medical intervention were collected from our files. All neonates were tested with routine cranial ultrasound GE Logiq P5, probe 7.5 MHz, including coronal and parasagittal views of the brain, performed by experienced radiologists. Coagulation tests, including Factor V Leiden (PCR), Prothrombin 20210 (PCR), and MTHFR gene mutation, were done. Developmental follow-up was performed at 3, 6, 9, and 24 months. Cases with LSV, concomitant periventricular pathology, and IVH had been excluded.

RESULTS

During this study, 4 neonates (from 1,043) presented with unilateral HE in thalamus from the first week:

1. a girl, 37 w, IUGR, delivered by cesarean section, with perinatal stress, had an ischemic lesion in the right thalamus (17-6 mm) in US, confirmed by MRI, heterozygosity for Factor V Leiden;
2. a boy, 40 w, with no prenatal labor, SGA, had early perinatal infection, meningitis, ischemic infarction in the right thalamus, and hemorrhagic stroke in the left middle cerebral artery, confirmed by MRI, homozygosity for MTHFR;
3. a boy, 37 w, delivered with cesarean section, had respiratory support, 2 doses of surfactant, ischemic infarction in the left thalamus (15-12 mm), and homozygosity for MTHFR;
4. a boy, 38 w, had PROM, chorioamnionitis, perinatal stress, HE in the right thalamus (10-10 mm), normal coagulation test.

CONCLUSION

Diffuse BGTH is a rare finding in our study. The outcome seems to depend on the size and location. As in unilateral BGTE, epilepsy is a frequent morbidity, but nobody had clinical symptoms or pathological follow-up in our study. A routine coagulation test for prothrombotic factors is recommended in all cases of BGTH. Follow-up is continued.

ABS 29

UMBILICAL HERNIA IN A NEONATE WITHOUT GESTATIONAL ULTRASOUND FINDINGS – CASE REPORT

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INTRODUCTION

Umbilical hernia is the rarest of the abdominal wall malformations in which intestinal contents protrude through the umbilical cord, while the abdominal wall and skin at the base of the umbilical

cord remain intact. In embryology, during early fetal life, most of the bowel is located within the proximal part of the umbilical cord. During the period from the 10th to the 12th week of gestational age, this intestinal content is withdrawn into the peritoneal cavity, and the umbilical ring closes. When this does not happen, an umbilical hernia occurs.

Unlike other abdominal wall defects (gastroschisis, omphalocele), the umbilical hernia is not associated with chromosomal abnormalities. Intercurrent bowel abnormalities, malrotation, intussusception are described.

CASE PRESENTATION

A male neonate (GA 38 w, birth weight 3,400 g), the second child of the family, was delivered by cesarean section, from a mother who had her first child with cesarean section, without prenatal problems and with normal prenatal ultrasound done by a maternal-fetal medicine specialist. The reported Apgar score was 9 at 1 minute, 10 at 5 minutes. Afterward, he was transported to our tertiary NICU at approximately the 4th hour of life for surgical treatment of the umbilical hernia.

Clinically there were no prominent congenital abnormalities, except for the umbilical cord dilation 5 x 2 cm with 2 cm base (umbilical hernia) (**Fig. 1**).

On the 3rd day of life, surgical occlusion of the hernia was performed with taxis of the content of the sack (terminal ileum – cecum/ascending colon) into the peritoneal cavity, ligation of the umbilical cord vessels, and concurrent appendicectomy. The postoperative course was smooth, with feeding starting on the 3rd post-operative day and full feeding on the 7th post-operative day. The ultrasound screening of the brain, the kidney-ureter-bladder scan, and the abdomen ultrasound scan were normal.

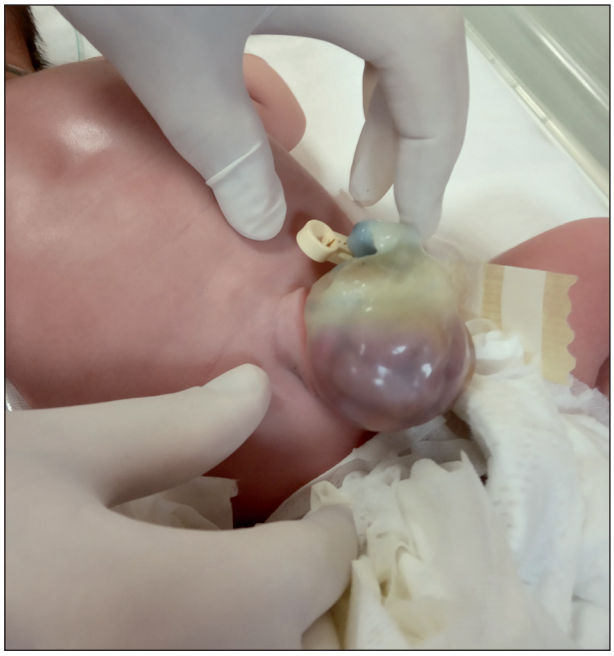

Figure 1 (ABS 29). Umbilical cord dilation 5 x 2 cm with 2 cm base (umbilical hernia).

CONCLUSIONS

The bibliographic references for umbilical hernia are limited. It often passes by "a small omphalocele". It can be diagnosed with prenatal ultrasound. The clinical presentation varies from a small reversible hernia that is epithelialized without intervention, to larger ones that appear as a swelling at the base of the chord and require awareness to avoid intestinal damage during umbilical cord ligation.

ABS 30

RECURRENT EPISODES OF MASSIVE PULMONARY HEMORRHAGE IN A TERM NEONATE

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INTRODUCTION

Pulmonary hemorrhage (PH) in term infants is extremely rare [1] and associated with neonatal asphyxia, coagulation disorders, and cold stress [2].

CASE REPORT

We report a term male, birth weight 3,315 g, born with caesarian section. Apgar scores 9 and 10 at the 1st and 5th minute, respectively. Pregnancy was reported uneventful. Progressive respiratory distress resulted in admission to the NICU at the 2nd hour of life. On physical examination, grunting, reduced respiratory whisper, and bloody effluent from the mouth were noted. Emergency intubation revealed endotracheal bleeding, treated with adrenalin, high mean airway pressure ventilation, and surfactant. The baby had no known risk factors, no bleeding disorder, or other congenital anomalies. Severe persistent pulmonary hypertension of the newborn (PPHN) and systemic hypotension needed high doses of inotropes and cortisol. After resolving of PPHN, recurring massive episodes of PH, hypertension,

left heart dilatation, edemas, and liver congestion appeared, that initially subsided with hydralazine and diuretics but recurred after tapering of diuretics. Bronchoscopy was negative for vascular dysplasia below tropis. Thorax CT revealed ground glass image and no pulmonary sequestration [3]. The cardiac catheterization revealed a small artery originating from the descending aorta that ended up at the pulmonary parenchyma (MAPCA). He was discharged home on day 52 of life, after successful discontinuation of diuretics with a normal neurosensory evaluation.

Follow-up at the age of 1 year showed appropriate-for-age physical examination with no murmur, no episodes of lung infections, and no further need for pharmacologic treatment.

DISCUSSION

This was a rare case of congenital vascular dysplasia that resulted in recurring pulmonary bleeding and signs of heart failure. Aggressive treatment that kept the baby alive gave the appropriate time window for the vascular dysplasia to reverse. Further evaluation is retained for the event of pulmonary symptoms.

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