ICCN CONGRESS 2019

POSTER PRESENTATION
ABSTRACT BOOK
TOPIC: Delivery of fetal CHD patients

ABSTRACT ID: 97

TITLE: CAYLER CARDIO-FACIAL SYNDROME IN A NEWBORN

AUTHORS: FZ Chioukh, A Chaabane, T Khemis, K Monastiri.

AFFILIATIONS: Department of ICU and Neonatal Medicine, CHU Fattouma Bourguiba, Monastir, Tunisia.

CONTENT:

Cayler cardiofacial syndrome is characterised by congenital unilateral hypoplasia of the depressor anguli oris muscle (DAOM) in association with congenital cardiac defects. We report a newborn that was diagnosed as case of Cayler Cardio-facial syndrome based on clinical features.

A preterm female baby, born to non-consanguineous couple through normal vaginal delivery was diagnosed to have asymmetric crying faces with deviation of angle of mouth to left side associated to left congenital aural atresia. Baby was diagnosed as case of Cayler Cardio-facial Syndrome and was investigated with echocardiogram, brain ultrasound and total body X-ray examination. Echocardiogram showed tetralogy of Fallot, brain ultrasound was normal and Whole body X-ray and lateral X-ray of cervico-thoracic vertebral column were not suggestive of any skeletal abnormalities. Genetically, karyotype was 46, XX, 22q11 without microdeletion. Baby was discharged and now on follow-up.

Cayler syndrome is a rare syndrome which must be suspected if a baby has asymmetrical cry pattern and normal facies when baby sleeps. Patient must be evaluated with echocardiography to find out associated cardiac malformations.
TOPIC: Delivery of fetal CHD patients

ABSTRACT ID: 114

TITLE: ANXIETY, DEPRESSION, PERCEIVED SOCIAL SUPPORT AND LIFE SATISFACTION MOTHER WHO HAVE CHILDREN IN CARDIAC SURGERY INTENSIVE CARE UNIT

AUTHORS: F.Bozdağ1; Ö. Başdaş2- Fatma Bozdağ

AFFILIATIONS: 1Doctor Siyami Ersek Thoracic and Cardiovascular Surgery Training and Research Hospital, Nursing, Children and Cardiovascular Surgery, Istanbul, Turkey
2Erciyes University Faculty of Health Sciences and Nursing Child Health Department, Kayseri, Turkey

CONTENT:

An important part of the chronic diseases seen in children is congenital heart diseases (CHD) and the incidence of CHD in children is in the range of %0.4-0.8. Progress in diagnostic and surgical techniques have resulted in a striking increase in survival rates and quality of life for young children with CHD. However, the affected child and family are exposed to the psychosocial effects of chronic illness for a longer time. This research; in mothers who have children in cardiac surgery intensive care unit planned to determine depression, perceived social support and life satisfaction levels.

The study was carried out between July and December 2017 in order to determine the levels of anxiety, depression, perceived social support and life satisfaction in the mothers who had children in the Cardiac Surgery Intensive Care Unit at the of a third-level heart surgery center. Data were collected via "Introductory Characteristics Survey Form", "Hospital Anxiety and Depression Scale", "Perceived Social Support Scale from Family and Friend" and "Life Satisfaction Scale". For the research, ethics committee, institutional permission and maternal approval were taken. In evaluating the data; was used descriptive statistics, Independent t, Mann-Whitney U, ANOVA, Kruskal-Wallis, Paired Samples t, Wilcoxon Signed Rank, Bonferroni tests and Pearson correlation analysis.

In the cardiac surgery intensive care unit (CSICU), it was determined that the anxiety and depression were found in the mothers of the children, the level of social support perceived by family and friends and the level of life satisfaction were middle and upper level. It was determined that the average scores of hospital anxiety scale were higher in mothers whose spouse was a primary school graduate. Mothers of children who have previously undergone surgery hospital depression scale scores were found to be higher. Themselves and husbands are university graduates, who live in core families have and mother of children who do not have previously undergone surgery family perceived social support scale from scores were found to be higher. Mothers who are university graduates, employee and husbands civil servants are determined to have higher average scores of friend perceived social support scale from. Themselves higher school graduates, husbands university graduates and mothers of children who do not have previously undergone surgery were found to have higher mean scores of life satisfaction scale. Mothers who have children in CSICU; depression level increases as
anxiety level increases, as the level of anxiety and depression decreases, life satisfaction increases, the level of social support perceived by a friend decreases as the level of perceived social support from the family decreases and it has been determined that as perceived social support increases, life satisfaction also increases. In line with these results; reduce the anxiety and depression level of mothers who have children in CSICU, it may be advisable to carry out studies on the activation of social support resources and the improvement of life satisfaction.
TOPIC: Early strategies to prevent BPD: budesonide? anything more?

ABSTRACT ID: 42

TITLE: EARLY INHALED BUDESONIDE DECREASES MANIFESTATION OF CHRONIC LUNG DISEASE OF IMMATURENESS

AUTHORS: J. Tukova 1, J. Smisek 2, B. Zlatohlavkova 2, R. Plavka 2, D. Markova 1

AFFILIATIONS: 1 Centre for Follow up Care of Ex-Preterm Babies, Department of Paediatrics and Adolescent Medicine, First Faculty of Medicine, Charles University in Prague and General University Hospital in Prague, Czech Republic
2 Division of Neonatology, Department of Obstetrics and Gynecology, First Faculty of Medicine, Charles University in Prague and General University Hospital in Prague, Czech Republic

CONTENT:

Bronchopulmonary dysplasia (BPD) constitutes main respiratory complication of prematurity. There is no strict correlation between early bronchopulmonary dysplasia and long term chronic lung disease of immaturity (CLDI). Early inhaled glucocorticoids seem to reduce the incidence of BPD but long-term outcome remains unknown. The aim of this study was to evaluate the effect of early inhaled corticosteroids on CLDI.

Fifty nine survivors from Prague cohort of infants included in Neonatal European Study of Inhaled Steroids (NEUROSIS) underwent further follow-up comprising of respiratory morbidity monitoring during first two years of life followed by objective lung function testing (spirometry) performed at age of 5.9 years (range 5-7 years). Both outcomes as well as retrospective re-analysis of perinatal data (NEUROSIS) were pursued and finalized before un-blinding of budesonide subgroups.

Fifty randomised (budesonide vs. placebo group, 56 % vs. 44 %) survivors with complete data were included in the study. Children assigned to budesonide had significantly lower rate of CLDI symptoms (28.6% vs. 71.4%; P < 0.004) than children assigned to placebo. No statistically significant differences were found in the lung function test (FEF75, FEF50, FEF25 and FEF25-75, FEV1, FVC, FEV1/FVC) although mild trend to improvement of expiratory flow pattern was observed (median z-score of FEV1/FVC -0.69 vs. -1.26, p=0.11; median z-score of FEF25-75 -0.68 vs. -1.3, p=0.10; median z-score of FEF75 -0.48 vs. -0.92, p=0.16) in the budesonide group.

Our study suggests that early inhaled budesonide was associated with lower clinical manifestation of CLDI within first two years of life with the trend to improvement of functional lung parameters in older children.

Supported by RVO-VFN64165
Extracorporeal life support is a modified form of cardiopulmonary bypass. Experience in extracorporeal membrane oxygenation (ECMO) has come largely from the neonatal population. Extracorporeal membrane oxygenation (ECMO) was used in neonates with severe cardiopulmonary failure who failed to respond to conventional therapy. Several randomized trials in the United States and the United Kingdom found that ECMO support improved outcomes when compared with conventional care and it has become accepted practice in neonatal care.

One of the more difficult problems to deal with is infection (17% respiratory and 11% cardiac). Infection can occur in any central line, at the cannula insertion site, possible manufacture contamination of the cannulas or other ECMO equipment, or seeded infection from the underlying sepsis.

To determine the incidence of, and risk factors for, nosocomial infections in neonates during and after treatment with extracorporeal membrane oxygenation (ECMO).

Retrospective cohort between January 2018 and December 2018. Demographic data (age, sex, cardiac diagnosis, number of days of hospitalization, ) were collected. There were 125 neonates treated with congenital heart surgery and 22( 17.6 %) newborns were treated with ECMO. Norwood Sano Shunt n:7, Arterial Switch n:4, Right Mbt Shunt n:2, TAPVD n:3 and other procedures n:6 for newborns applied to ECMO.

Data collected included patient demographics, primary and secondary diagnoses, pre-op, post-op 1st, 2nd and 5th days white blood cell(WBC), blood urea nitrogen (BUN), kreatinin, Hemoglobin, LYM counts, presence of invasive devices such as urinary catheters, endotracheal tubes, dialysis and central venous catheters, nutritional properties, operative procedures, length of hospitalization,
duration of ventilation, indication for ECMO support, duration of ECMO support, duration of post ECMO ventilation, type of infection and causative agents were recorded.

Results
Table 1. Comparison of neonates with ECMO characteristics with and without infectious complications. 22 neonates experiencing 6 patients (27.3 %) nosocomial infections were used ECMO, and 16(%72.7) neonates with no nosocomial infections during this one- year span.
All patients were monitoring by , urinary catheter, central venous catheter, arterial catheter, intubated and parenteral nutrition. Nosocomial infections were n:2 (%9,1) Staphylococcus Epidermidis, n: 1(%4,5) Klebsiella Pneumoniae, n:2 (%9.1) Acinetobacter spp., n:1(%4,5) Enterococcus Faecalis.

Incubation time, observed microorganisms and incubate of body part in newborns with ecmo were significantly associated with BUN, creatinine, hemoglobin and lym values observed on postoperative 1st, 3rd and 5th days (p<0.05).
TOPIC: ECMO: indications, risks and benefits

ABSTRACT ID: 119

TITLE: EARLY PERIOD RESULTS OF PEDIATRIC PATIENTS APPLYING EXTRACORPOREAL MEMBRANE OXYGENATION AFTER CARDIOVASCULAR SURGERY

AUTHORS: F. Bozdağ1, Ö. Başdaş2, E. Hekim Yılmaz3, NA. Aydemir4, N. Yurtseven5, A. Baykal6- Fatma Bozdağ

AFFILIATIONS: 1Doctor Siyami Ersek Thoracic and Cardiovascular Surgery Training and Research Hospital, Nursing, Pediatrics Cardiovascular Surgery Clinic, Istanbul, Turkey
2Erciyes University Faculty of Health Sciences and Nursing Child Health Department, Kayseri, Turkey
3Doctor Siyami Ersek Thoracic and Cardiovascular Surgery Training and Research Hospital, Pediatrics Cardiology Clinic, Istanbul, Turkey
4Doctor Siyami Ersek Thoracic and Cardiovascular Surgery Training and Research Hospital, Pediatrics Cardiovascular Surgery Clinic, Istanbul, Turkey
5Doctor Siyami Ersek Thoracic and Cardiovascular Surgery Training and Research Hospital, Anesthesia and Reanimation Clinic, Istanbul, Turkey
6Doctor Siyami Ersek Thoracic and Cardiovascular Surgery Training and Research Hospital, Pediatric Intensive Care Unit, Istanbul, Turkey

CONTENT:

Extracorporeal membrane oxygenation (ECMO) is a valuable tool for increasing the survival rates of patients developing cardiorespiratory failure after cardiac surgery and it is used electively or in emergency conditions in pediatric cardiac surgery. There is no biventricular assist device (BVAD) suitable for both ventricular support in young children in newborns and body surface area. Therefore, the need for biventricular support can be provided with ECMO. However, complications such as bleeding, thromboembolism and device-induced infection in patients with ECMO system affect the survival rates of patients. ECMO, which is a technologically complex and advanced treatment method, requires every member of the team to have extensive knowledge. It is important that the ECMO nurse who interacts with the patient and gives care to the patient knows the equipment and operating principles of the ECMO system, recognizes ECMO complications and can intervene in the early period.

This research; To determine the early results of pediatric patients connected to the ECMO system with the purpose of providing a retrospective evaluation of patients who were connected to the ECMO system in the last one year period at a third-level heart surgery center.

The study was retrospectively analyzed by the researchers in order to determine the early results of pediatric patients who were connected to ECMO system at a third level cardiac surgery center in January 2018 - January 2019. It was collected by a form prepared by researchers in line with the scientific literature. The sample consisted of 63 patients who were connected to ECMO from 590 patients in the pediatric cardiac surgery intensive care unit. Ethical committee and institution permits
were obtained and data such as age, gender, diagnosis and complications of patients were evaluated in a one-year cross-sectional time interval.

55.6% of the patients were male and 41.3% were between 0-28 days. 76.2% of the diagnoses were cyanotic heart disease and 23.8% of them were acyanotic heart diseases. 52.4% of the patients in the operating room, it was determined that 47.6% of the patients were connected to ECMO in intensive care unit. When the indications for the ECMO were examined, it was found that 36.5% of the patients had low cardiac out put syndrome (LCOS), 39.7% exit no cardiopulmonary bybass (CBP), 12.7% had prophylactic and 11.1% had eCPR. It was found that 69.8% of the patients remained in ECMO for 0-5 between days and 30.2% for more than 5 days. It was determined that 30.2% of the patients did not receive renal replacement therapy (RRT) and 57.1% of the RRT areas were connected to peritoneal dialysis. While 47.6% of the patients received triple inotropic support (adrenaline / noradrenaline / milrinone), 27.0% of the patients received double inotropic support (adrenaline / milrinone). 27.0% of the patients infection, 6.3% had neurological damage, 11.1% had chylothorax, 3.2% had diaphragmatic paralysis and 3.2% it has evolved pneumothorax. Immediately after 44.4% of the patients have been separated from ECMO, 20.6% lost their lives within 24 hours after leaving ECMO, 34.9% were discharged. The care and treatment process of pediatric patients undergoing ECMO requires an experienced team with the knowledge and skills to minimize complications and keep quality of life at the highest level. It is thought that increasing the studies related to ECMO and sharing of knowledge and experiences can decrease the morbidity and mortality of the patients.
INTRODUCTION
Lactoferrin (LF) is a cationic transferrin found in milk, some other exocrine secretions and in neutrophils. LF has bactericidal, anti-anemic, immunomodulatory, antitumor and antiphlogistic effects. Almost 90% of LF in human milk is iron-free (apo-LF) and has an extreme affinity towards Fe(III), which makes it an efficient iron chelator. We showed previously that, due to its chelating activity, it stabilizes in vivo HIF-1-alpha and HIF-2-alpha, the redox-sensitive multi-targeted transcription factors. In the absence of an iron chelator this effect is not observed at least at normoxia, since HIF-1 is continuously modified by iron-sensitive hydroxylases and undergoes ubiquitination and proteasomal degradation. In our experiments various tissues of animals treated with recombinant human LF (rhLF) responded by expressing HIF-1 target genes. As a result, such proteins as erythropoietin (EPO), ceruloplasmin, etc. were synthesized in noticeable amounts [1-3]. These results allowed us to suggest that LF is an efficient natural anti-hypoxic factor. Various harmful factors during pregnancy, including hypoxia, cause postnatal motor and cognitive dysfunctions as shown in our previous studies [4,5]. In this study we analyzed the effects of LF on the cognitive function of the offspring of pregnant rats subjected to hypoxia.

MATERIALS AND METHODS
Recombinant human LF purified from the milk of transgenic goats was obtained from the Belorussian State University and Scientific Practical Centre of Animal Breeding of the Belorussian National Academy of Sciences. The product is officially branded “CAPRABEL®”. About 90% of such LF was iron-free (apo-LF). Pregnant Wistar rats (200g) were subjected to hypoxia (7% O2, 3h) on the 14th day of gestation in a special chamber as described in [4]. Half the pregnant rats were injected i.p. with 10 mg of CAPRABEL each on the 9, 12, 13 and 15th day of gestation or during nurturing (every day starting from P0 after delivery up to P15) and were sacrificed 3 h after the last injection. Organ
homogenates of some females and suckling pups were analyzed by Western blotting or ELISA with anti-HIFs or anti-EPO. Another group of pups was allowed to grow and their short-term working memory was tested in a two-level radial maze. The “Novel Object Recognition” (NOR) test was also used to assay both short-term and long-term memory.

RESULTS

Western blotting detected HIF-1α, HIF-2α and EPO in the brain, liver, heart, spleen and placenta, but not in the embryos of rat dams subjected to prenatal hypoxia. HIFs or EPO were not detected in the organs of control pregnant rats. In young (P22) or adult (P90) rats born from the apo-LF-treated mothers subjected to hypoxia a significant memory improvement was registered in comparison with the offspring of untreated rats, as judged by the radial maze and NOR tests. Injections of CAPRABEL to hypoxia-treated lactating dams caused the presence of human apo-LF in their milk during 4-24 h after the treatment [6] and resulted in induction of HIF-1α, HIF-2α and EPO expression in the pup brain, liver and spleen. CAPRABEL injections to hypoxia-treated lactating dams also resulted in significant improvement of short- and long-term memory of their offspring in the NOR test on P22 and P90.

CONCLUSION: Apo-LF applied to pregnant or lactating dams protects the developing brain both during prenatal and postnatal ontogenesis against the harmful effects of prenatal hypoxia and this effect is most likely due to the ability of apo-LF to induce EPO biosynthesis in the brain and other tissues via a HIF-signaling mechanism. This observation is in line with our recent results showing that apo-LF significantly mitigated neurological symptoms in rotenone-treated rats (a model of Parkinson’s disease) and rescued rats with experimental allergic encephalomyelitis (a model of multiple sclerosis) [6]. An i.p. injection of apo-LF to mice 1 h after they were subjected to the occlusion of the medial cerebral artery significantly diminished the necrosis area in the brain [6]. Taken together, the results of this study and previous data suggest that endogenous LF in the breast milk or as a pharmaceutical in the substitute formulas can have therapeutic value providing a neuroprotective effect.

This work received support from the Russian State budget (AAAA-A18-118012290373-7).

TOPIC: IGF-1, anti-VEGF, surgery to treat severe ROP: where are we now? which is the best choice?

ABSTRACT ID: 59

TITLE: INTRAVITREAL ANTI-VEGF IN THE ACUTE MANAGEMENT OF NEONATAL PROLIFERATIVE RETINOPATHY

AUTHORS: P. Triantafyllidou 1, E. Kapsambeli 1, A. Daskalaki 1, V. Sideri 1, N. Podimatas 1, K. Adamopoulos 1, P. Mexi 1, A. Papadopoulou 2, A. Charonis 3

AFFILIATIONS: 1 Attikon University Hospital NICU, Athens, Greece, 2 Attikon University Hospital Research Laboratory of 3rd Pediatric Department, Athens, Greece, 3 Athens Vision Eye Institute, Athens, Greece

CONTENT:

PURPOSE
To outline the use of intravitreal anti-VEGF pharmacotherapy in the acute management of neonatal proliferative retinopathy in a NICU setting.

DESIGN
Retrospective, nonrandomized, interventional, consecutive case series.

METHODS
We report 2 consecutive cases of acute neonatal proliferative retinopathy who underwent intravitreal anti-VEGF therapy in our NICU. We underscore the timing, indication, as well as the overall strategy of our intervention. We critically analyze our respective results and the pertinent literature.

Case 1: Female born inhouse at 31 weeks gestational age, birth weight 1120gr IUGR without significant need for O2 treatment (CPAP 21%FiO2 for 6 days), staphylococcal sepsis, NEC I, BPD, PVL II (with normal MRI) was diagnosed at 37+6 PMA with rush posterior zone I, stage 3+ ROP and substantial posterior lipid exudation with early temporal macular traction RE and modest vitreous hemorrhage with an early closed-open funnel retinal detachment LE. She underwent immediate treatment with indirect diode ablation (RE #2082/200-400mW/200-300msec, LE #982/200-400mW/700msec) in combination with bilateral intravitreal bevacizumab 0.625mg injections, in an attempt to achieve rapid control of the vascular proliferation and prepare for vitreoretinal surgery in the best RE. The procedure took place in the NICU under deep sedation with intubation and co-administration of fentanyl and midazolam. Postoperatively, immediate regression of plus disease was noted with persistence of traction and exudation temporally in the RE. At 42 weeks PMA uncomplicated 23g lens sparing vitrectomy with membrane dissection was performed with a satisfactory anatomic outcome. In her last follow up examination at 18 months corrected age her retina remains attached, substantial resolution of both traction and exudation is observed, and ambulatory vision is achieved, while her LE is NLP with leukocoria. Of note, genetic testing revealed homozygous LRP5 mutations (c.2409_2503+79del) supporting the diagnosis of familial exudative vitreoretinopathy (FEVR) with no other symptoms of OPPG syndroms until the age of 2 years.
Case 2: Male born at 25+3 weeks gestational age, birth weight 860gr, treated in a district hospital for prematurity, ELBW, sepsis, severe RDS (26 days intubated IPPV and HFOV), BPD, IVH II was referred to our NICU for treatment of ROP. At 37 weeks PMA was diagnosed with type 2 ROP (posterior zone 2, stage 3, severe plus bilaterally) and was treated with diode laser (RE # 2418/300msec/400-600mW and LE # 2558/300msec/400-600mW) under sedation in our NICU. 4 days after laser and solumedrol treatment we observed persistence of vascular activity RE whereas satisfactory regression was noted LE. Rescue- adjunct therapy with intravitreal injection of 0.2 mg ranibizumab was performed RE under mild analgesia with acetaminophen. 20 days postoperatively we observed complete regression of the retinopathy. 2 months postoperatively there is no evidence of ROP reactivation.

CONCLUSION
Both of our patients illustrate the efficacy of intravitreal non-selective VEGF blockade in the acute management of neonatal proliferative retinopathy. In case 1, where the clinical phenotype of FEVR was accentuated by prematurity anti-VEGF resulted in immediate regression of vascular activity enabling further uncomplicated vitreoretinal surgery. In case 2, anti-VEGF pharmacotherapy was used as rescue therapy after extensive ablative therapy for posterior ROP and resulted in a favorable anatomic outcome. In terms of local and systemic safety, no adverse events were observed in either of our patients. In the current era of anti-VEGF therapy in a wide array of ophthalmic proliferative retinopathies there is a shift towards the everyday use of such agents in neonatal proliferative disease. As such, further studies are warranted in order to clarify the optimal agent, dosage, posology, as well as follow-up regimen of neonates treated with anti-VEGF intravitreal pharmacotherapy.
**TOPIC:** IGF-1, anti-VEGF, surgery to treat severe ROP: where are we now? which is the best choice?

**ABSTRACT ID:** 92

**TITLE:** ASSOCIATION BETWEEN SEVERE RETINOPATHY OF PREMATURITY AND POSTNATAL WEIGHT GAIN IN VERY LOW BIRTH WEIGHT INFANTS AT CHIANGMAI UNIVERSITY HOSPITAL

**AUTHORS:** A. Wongnophirun 1; W. Tantiprabha 2; A. Wiwatwongwana 3; V. Khuwuthyakorn 2

**AFFILIATIONS:**
1. Department of Paediatrics, Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand
2. Division of Neonatology, Department of Paediatrics, Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand
3. ROP Unit, Division of Paediatric Ophthalmology and strabismus, Department of Ophthalmology, Chiang Mai University, Chiang Mai, Thailand

**CONTENT:**

**Background:** Poor postnatal weight gain was associated with low serum IGF-1 which is a key factor in pathogenesis of ROP. Cut-off weight gains for predicting ROP and advanced stages of disease were demonstrated but varied between studies. Our aims were to investigate a potential association between postnatal weight gain and severe ROP requiring laser treatment and to identify an appropriate cut-off weight gain for predicting severe ROP requiring laser treatment in a Thai population.

**Methods:** Medical records of VLBW infants who admitted to NICU at Chiang Mai University Hospital during June 2014 and December 2016 and obtained ROP screenings were reviewed. Relative weight gain (RWG) and total caloric intake (TCI) at the second, fourth and sixth week of age were calculated and compared between groups of no ROP/ mild ROP and severe ROP requiring laser treatment.

**Results:** This study included 139 VLBW infants, of which 24 (17.3%) had ROP requiring laser treatment. Infants with severe ROP requiring laser treatment had lower median birth weight (840 vs. 1,195 g, p<0.001) and median gestational age (27 vs. 30 weeks, p<0.001) than infants with no ROP/mild ROP. APGAR < 3 at 5 min (30.4 vs. 11.3%, p<0.05), RDS requiring surfactant (58.3 vs. 29.6%, p<0.01), patent ductus arteriosus (83.3 vs. 54.0%, p<0.05), necrotizing enterocolitis (45.8 vs. 14.8%, p<0.01), intraventricular hemorrhage (66.7 vs. 44.3%, p<0.05), bronchopulmonary dysplasia (95.8 vs. 49.6%, p<0.001), hypotension (29.2 vs. 10.4%, p<0.05) and packed red cell transfusion (87.5 vs. 46.1, p<0.001) were significant risk factors of severe ROP requiring laser treatment.

The infants with severe ROP requiring laser treatment had lower RWG at the second (p<0.01) and fourth week of age (p<0.05) and had lower TCI at the second week of age (p<0.001) than those with no ROP/mild ROP. Multivariate logistic analysis demonstrated that GA<29.5 wk. (p<0.01), hypotension (p<0.05), RWG<2.9 g/kg/d (p<0.05) and TCI<98.5 kcal/kg/day (p<0.001) at the second week of age were independent risk factors of severe ROP requiring laser treatment.
Conclusion: Poor weight gain and low caloric intake at the second week of age were associated with severe ROP requiring laser treatment in very low birth weight infants. Monitoring weight gain and caloric intake during this period are essential and may improve outcome of ROP.

IMAGES:

https://www.eiseverywhere.com/eselectv3/v3/events/354183/submission/files/download?fileID=de9e88e8a6027f991074c4e0fd3c72c3-MjAxOS0wNCM1Y2FiMTk0NzA1YmRm
TOPIC: Is LISA necessary, or “only” helpful, or nothing at all?

ABSTRACT ID: 112

TITLE: LESS INVASIVE SURFACTANT ADMINISTRATION (LISA): OUR EXPERIENCE

AUTHORS: C.Barone 1; M.Napolitano 1; L.Balestrieri 1; A.Manna 1; S.Acierno 2; F. Angrisani 2; N. Martin 2; F.Toro 1; I.Rotta 1; V.Roseto 1; A.Faiella 1; F.Messina 1

AFFILIATIONS: 1 Terapia Intensiva Neonatale, Ospedale Evangelico Betania, Naples, Italy
2 Paediatric dept., Università degli Studi della Campania “L.Vanvitelli”, Naples, Italy

CONTENT:
RDS syndrome remains a significant problem for preterm babies. The main cause is the lack of alveolar surfactant, because type II Pneumocytes develop only at the beginning of third trimester. The outcome of RDS has improved by the use of antenatal steroid, early CPAP (Continuous positive airway pressure) and exogenous surfactant therapy. In addition to the “classic” technique, which involves the administration of surfactant via an endotracheal tube with a short period of manual or mechanical ventilation, new strategies involves the use of less invasive methods such as LISA (less invasive surfactant administration).

The LISA technique consists in the use of a thin endotracheal catheter, without interrupting the non-invasive ventilation CPAP. A small diameter catheter is placed in the trachea of the infant with a direct view of the vocal cords by laryngoscope, then the surfactant is instilled through a single bolus over a period of 0.5 to 3 minutes. After the instillation of the surfactant, the catheter is immediately removed.

In our study we included all preterm newborns (E.G. <32 weeks), with respiratory distress syndrome, who required the administration of surfactant. In all the infants no pharmacological sedation was practiced during the administration, but only sensory saturation with 24% sucrose, to avoid the adverse effects on the respiratory dynamics caused by the sedative drugs.

The LISA technique has the advantage of being easily executable and with low impact on the newborn (we found only brief and insignificants periods of desaturation/bradycardia during the procedure) reducing stress and complications caused by intubation. Although this technique seems very promising, further studies are needed to establish the real advantages over traditional surfactant administration.
TOPIC: Kidney injury in the preterm infant

ABSTRACT ID: 22

TITLE: ASPHYXIA AND ACUTE KIDNEY INJURY IN NEWBORNS

AUTHORS: S.Naunova Timovska 1, T. Voinovska 2, S.Neskova Jankovic 3, V. Timovski 4, M.Kimovska Hristova 5, H. Mandzukovska 6
University Children’s Hospital, Skopje, Republic of North Macedonia,
PZU d-r Timovski, Stip, Republic of North Macedonia

AFFILIATIONS: University Children’s Hospital, Skopje, Republic of North Macedonia

CONTENT:

Acute kidney injury is a serious condition in neonatal intensive care unit (NICU). It is a common consequence of perinatal asphyxia which results from an inadequate intake of oxygen by the baby during the birth process. The other predisposing factors of neonatal kidney injury are prematurety, sepsis and congenital malformation. The aim of this study was to determine the predisposing factors associated to the neonatal acute kidney injury.

The study was conducted at the Children’s University Hospital in Skopje. It was a clinical, prospective study. In the period of two years (January 2016 to December 2018) 50 patients hospitalized at the NICU with documented neonatal kidney injury were analyzed. Medical data records of admitted neonates with kidney injury were analyzed. The material was statistically analyzed using methods of descriptive statistics.

Results. We evaluated 50 neonates with documented acute kidney injury who at the period of 2 years were treated in NICU. The prevalence of kidney injury was 6.4%. Most of involved neonates were born at term 66%. Prenatal injury was evaluated in 80% of cases. Perinatal asphyxia was the most common predisposing factors for kidney injury in our study revealed in 30% cases with predication of term infants and male. Sepsis and prematurity were present in 24% cases, congenital heart diseases in 12% and meconium plug syndrome in 10% of cases. All of the patients included in this study had more than one contributing condition.

Perinatal asphyxia is a dominant predisposing factor associated with neonatal kidney injury. Often, the occurrence of kidney damage in the neonatal population is multifactorial (more than 40%) and caused by several associated comorbidities. Early recognition of risk factors and rapid effective treatment of contributing conditions will reduce acute renal failure in neonatal period.
 According to EUROCAT data 2,5% of children are born with different kinds of congenital malformations annually (2016). In Kazakhstan (2017) despite of significant progress in medicine, in structure of infant mortality, mortality from birth defects takes second place (20,8%). At the same time the death rate among neonates from acute kidney injury (AKI), who stay in Neonatal intensive care units remains very high, reaching from 40 to 90%. Each surgery is a known risk factor for acute kidney injury, especially in infants. However, congenital digestive tract surgery- associated AKI in neonates has not been well studied. That is why the aims of this research were: (1) to show the epidemiology of congenital digestive tract surgery- associated AKI; (2) to study the clinical and laboratory manifestations of AKI in neonates of this group during the first 7 days of perioperative period.

This was a retrospective study involving 51 newborns undergoing digestive tract surgery from 2017–2018, in Scientific Center of Pediatrics and Pediatric Surgery, Almaty, Kazakhstan. Newborns with and without AKI were estimated according to the neonatalRIFLE(nRIFLE) criteria (2013) using urine output data. The “AKI patient” group consisted of 31 newborns. The control “non-AKI patient” group consisted of 20 newborns.

During 2017-2018 years digestive tract surgery-associated AKI occurred in 60,7%(31) neonates, of whom 51,6%(16) were in risk stage (RISK), 19,3%(6) were stage of INJURY, and 29,1%(9) had stage of FAILURE. There was a significantly higher mortality rate in neonates with AKI than in those without AKI 19,3%(6) vs. 5%(1) respectively.

We determined that in “AKI patient” group compared with “non-AKI patient” group, the main clinical and laboratory predictors in perioperative period were: a decreased numbers of urine output (± 1,441) and low numbers of glomerular filtration rate (± 21,4) in conjunction with high levels of serum creatinine (161,21 ± 62,3) on the first day after surgery; high systolic pressure was in 48,3%(15) of neonates before surgery, in 35,4%(11) on 3-5 days and 38,7%(12) in neonates on 7 day post-operatively . The main clinical manifestations were abnormal gain of weight (70,9 ± 7,4; 20 ± 4,3;
P <0.001 *), edema syndrome in form of total edema of the body – 32,2%(10) and of the face, eyelids – 22,5%(7). In urine analyses the proteinuria up to 1 g/l was in 19,3%(6) of "AKI patient" group neonates, besides of that, 6,4%(2) of newborns had up to 3 g/l on 3-5 days post-operatively, which was the not good prognostic indicator of the transition from prerenal stage AKI to renal.

To conclude, the incidence of digestive tract surgery associated AKI in neonates in perioperative period was high-60,7%(31) over 2 years. The main critical changes were observed on 1 and 3-5 days post-operatively. That is why we advise to take into account in newborns undergoing digestive tract surgery a decrease in urine output starting from <1,5 ml \ kg \ h according to the nRIFLE criteria (2013), which can prevent the progression of surgery-associated AKI earlier. Early diagnosis of surgery-associated AKI in this group of patients contributes to the proper correction of their therapy on time, decreasing their further kidney chronic morbidity and mortality rates.
**TOPIC:** Laboratory at bedside: what’s new in the NICU?

**ABSTRACT ID:** 11

**TITLE:** PECULIARITIES OF CELL REDOX-STATE INTEGRAL INDEX DYNAMICS IN TERM NEWBORNS AFTER HYPOXIA

**AUTHORS:** A. Pysariev 1; T. Kurilina 2

**AFFILIATIONS:** 1 Neonatology Dept., Shupyk National Medical Academy of Postgraduate Education, Kyiv, Ukraine; 2 Pediatrics-2 Dept., Shupyk National Medical Academy of Postgraduate Education, Kyiv, Ukraine

**CONTENT:**

The detection of oxidative stress or hypoxia before clinic manifestation is important for the evaluation of the severity of pathologic process and for the correction of prophylactic-treatment complex. Nikotinamid-dinucleotids (NAD) are fundamental factors of cellular death. Integral index of redox-state of cells is calculated index of ratio of free couple NAD+/NADH in the lactate-dehydrogenase system.

**Aim.** To estimate the redox-status of cells in term born infants after hypoxia via evaluation of the dynamic of NAD+/NADH ratio.

**Materials and methods.** Complex investigation during early neonatal period was provided in 80 term infants. Healthy infants (20) were included in comparison group; 35 infants with 5-6 Apgar score children were concluded in 1st main group; 25 newborns with 1-4 Apgar score were formed in 2nd group (20). The concentration of lactate, pyruvate, LDH activity was determined and NAD+/NADH ratio in the lactate-dehydrogenase system was calculated. The concentration of substrates was provided by enzyme methods in standard kits

**Results.** The light increase of concentration of lactate and pyruvate was revealed in healthy newborns as well as LDH activity. This was an evidence of certain level of hypoxia immediately after birth. High level of NAD+/NADH ratio indicates on a respiratory oxidative stress after birth and is a normal in transition period. The decreasing of this ratio to physiologic value was detected to the end of the early neonatal period.

Upon condition of moderate asphyxia dynamic of NAD+/NADH ratio in 1st group reflexes the change of hypoxic state during first days of life in normoxia, which can be compared with the meanings in healthy children. The value of NAD+/NADH ratio is decreased up to hypoxic levels until 7-10 days of life. Dramatic decline of pyruvate concentration was marked, due to this correlation L/P increased. Changes in metabolism show the increase of the utilization of pyruvate on the pathway of the oxaloacetate synthesis and its diversion into pentose phosphate pathway, which is anaplerotic for TCA cycle.

There is very low NAD+/NADH ratio after severe asphyxia has happen during first days of life. Dramatic decline of lactate level in children on the 7-10 day after severe hypoxia was marked, pyruvate concentration increased, correlation L/P at this time is lower than in healthy neonates.
Probably, when addition pathways of energy intake for the support of energy provision are activated during severe hypoxia, L/P correlation doesn’t relevant to the stage of hypoxia-reperfusion. Its meaning arises until 7-10 days of life up to the level, which is measurably higher than in healthy neonates and is declarative about hyperoxia. All observed children who suffered from severe intranatal hypoxia received AVL due to the development of respiratory failure with or without perinatal CNS injury with seizures, cerebral edema and coma.

NAD+/NADH ratio is a sensitive integral index of energy metabolism, of the effectiveness of provided therapy and is a base for its correction aimed to prevent hyperoxia and oxidative stress.
TOPIC: Late hypothermia after 6 hrs of life

ABSTRACT ID: 18

TITLE: EX VIVO MITOCHONDRIAL RESPIRATION DURING THERAPEUTIC HYPOTHERMIA IN NEWBORN PIGLET BRAIN HYPOXIA/HYPEROXIA.

AUTHORS: M Rodriguez1,3, , L Vaamonde1, V Valez 2,3, F Blasina1 and Rafael Radi 2,3.

AFFILIATIONS: 1. Departamento de Neonatología, Área básica. Hospital de Clínicas. Facultad de Medicina, Universidad de la República
2. Departamento de Bioquímica, Facultad de Medicina, Universidad de la República
3. Center for Free Radical and Biomedical Research (CEINBIO), Universidad de la República, Uruguay

CONTENT:

The incidence of neonatal encephalopathy is 3 - 6 per 1,000 live newborns. Cerebral palsy is the most devastating complication of the survivors. Brain injury from hypoxia-ischemia is a consequence of an energetic failure secondary to oxygen deficiency inducing a mitochondrial dysfunction. Hypothermia is a therapeutic intervention which demonstrated beneficial effects in newborns with moderate neonatal encephalopathy, decreasing mortality and sequelae. Currently, the researchers state that the severity of the secondary oxidative metabolism impair and mitochondrial dysfunction triggered by an initial hypoxic event is associated with an increased risk of mortality and sequelae in the neurodevelopment of these patients. Mitochondrial dysfunction is considered key in neuronal injury, it causes secondary energetic failure, however the mechanism involved is not known in detail.

Newborn piglets (1 to 3 days old, Sus scrofa domestica) are anesthetized with ketamine i / m 30mg / kg, and then maintained with ketamine, midazolam and fentanyl in continuous infusion. They are connected to mechanical ventilator assistance, continuous monitoring of oxygen saturation, brain function monitor (aEEG) and regional brain saturation using near infrared spectroscopy (NIRS). Controlled hypothermia is induced from 38.5°C to 31.5 ° C. Brain cortex biopsies are taken and oxygen consumption is measured using an oxygen electrode in a closed chamber using a Clark electrode (OROBOROS Instrument®). The oxygen consumption is measured in basal conditions, in hypoxia and at different temperatures (39 ° C to 31.5 ° C). The degree of coupling of the mitochondria for the synthesis of ATP with the respiratory chain, and the ability of ATP synthesis of the tissue to the different conditions is calculated. The biopsies are extracted in the conditions that we detail (basal, hypoxia and hypothermia), are measured at 37 ° C.

Hypothermia produces a reduction in cerebral metabolism by approximately 5% for each degree of temperature, and decreases neuronal depolarization. Mitochondrial dysfunction is the key in the evolution to failure.
TOPIC: Less surfactant and less intubation: has this policy improved the neonatal outcomes?

ABSTRACT ID: 88

TITLE: COMPARATIVE EFFECTS OF EARLY CPAP FAILURE AND ENDOTRACHEAL INTUBATION AFTER BIRTH ON OUTCOMES IN VERY LOW BIRTH WEIGHT NEWBORNS WITH RDS

AUTHORS: A. Menshykova 1,2; D. Dobryanskyy 1

AFFILIATIONS: 1 Department of Pediatrics #2, Lviv National Medical University, Lviv, Ukraine
2 Neonatal Intensive Care Unit, Lviv Regional Clinical Hospital, Lviv, Ukraine

CONTENT:

It is well known that method of respiratory support after birth can influence the clinical outcomes in very preterm infants with respiratory distress syndrome (RDS). The aim of this study was to evaluate the impact of early CPAP failure as compared to endotracheal intubation and ventilation immediately after birth on clinical outcomes in very low birth weight infants (VLBWI) with RDS.

92 outborn VLBWI with RDS who required mechanical ventilation (MV) during the first 3 days of life were involved into a retrospective study. 41 infants with GA of 28.68 (1.54) wks, who were initially treated with CPAP but required MV within the first 12 h of life, were included into the CPAP group. 51 infants with GA of 28.74 (2.11) wks, who were intubated and treated with MV in the course of immediate postnatal care, were attributed to the intubation group.

The study groups were not different neither in birth weight, nor in gestational age, rates of Cesarean delivery or antenatal steroid prophylaxis (p>0.05). Newborns in the intubation group had lower 1 min Apgar scores (p<0.01). Age (median [range]) at the time of hospitalization to the intensive care unit was 3 [1-25] h in the CPAP group vs. 5 [1-41] h in the intubation group (p<0.05). Surfactant was administered more frequently in the CPAP group (95.12% vs. 80.39% respectively; p<0.05) but at an older age than in the intubation group (5.5 [2-15] h vs. 4.5 [0.2-15] h; p<0.05). However, these differences did not affect the incidence of bronchopulmonary dysplasia (BPD) or incidence of combined BPD/death based on the results of logistic regression analysis (LRA). Primary and total MV duration were longer in the intubation group (19 [5-64] h vs. 9 [1-50] h; p<0.01 and 25 [5-271] h vs. 11 [1-152] h respectively; p<0.05).

In very preterm VLBWI CPAP after birth, even in the case it has failed, is still superior to intubation and ventilation. Earlier surfactant administration can prevent CPAP failure and improve clinical outcomes.
Adequacy of surfactant distribution (SD) after endotracheal administration may alter the effectiveness of Respiratory distress Syndrome (RDS) treatment. NeuTral infant position during surfactant administration supposed to help with symmetric SD between right and left lungs, while adequacy of SD assessed by patient’ clinical response and radiological studies.

The purpose of this literature review is to determine the role of lung ultrasonography in the assessment of SD in infants with RDS. Medical electronic databases such as Google Scholar, Ovid Medline, PubMed, CINAHL, EMBASE, the Cochrane Library, Science Citation Index and Evidence-Based Emergency Medicine were used. Search terms included: newborn, preterm, RDS, surfactant, endotracheal, administration, distribution, radiography, ultrasonography, lungs, scanning. A pilot study was initiated to assess the feasibility, reliability, and validity of the LUS for SD in infants with RDS. Lungs aeration before and after exogenous surfactant administration was assessed in 10 preterm infants with RDS using LUS. LUS was performed 5-15 mins prior to & 1-2 hours after surfactant administration with a linear high-frequency probe longitudinal approach. LUS indexes used: A-lines, B-lines, lung consolidation, bilateral white lungs.

The literature search identified 189 sources through database searching, 145 full-text articles were assessed for eligibility. Inclusion criteria: all RCT’s, cohort and case-control studies relevant to the subject. 10 studies were included in the final review. Reviewed studies were highly heterogeneous in design, approach, mode of assessment and outcomes. There is no single study focused on LUS use for SD in neonates, and the 3 studies on exogenous SD in neonates was done with isotope 13C as a tracer. The local pilot project showed that Bed-side LUS helps to monitor surfactant distribution and made necessary adjustment during the endotracheal surfactant administration on the bedside.
Meconium aspiration syndrome (MAS)-associated persistent pulmonary hypertension of the newborn (PPHN) has a significantly higher incidence in low-middle income countries, but there is little in the recent literature about this condition in these settings, and not much more from high income settings due to the low incidence of MAS-related PPHN. Thus, an improved understanding of the nature of PPHN associated with MAS may improve clinical care for neonates worldwide. The objective of this study was to explore the incidence, clinical outcome, and risk factors for PPHN in MAS in infants admitted to the neonatal care unit in Hat Yai Hospital, a large hospital in southern Thailand.

The records of infants diagnosed with MAS with and without PPHN at Hat Yai Hospital from 2015 to 2017 were retrospectively reviewed.

Results: During the study period, the cases of 211 MAS infants were analyzed. The overall incidence of MAS based on born inside hospital was 10.4 per 1,000 live births. Of these, 36 (17.1%) developed PPHN with a 2.4% (5/211) mortality rate. The mean gestational age and birth weight of all MAS infants were 39.2±1.6 weeks and 3,043±584 gm, respectively. MAS-PPHN infants had a significantly lower Apgar score at 5 minutes of <7 (33.2 vs. 18.3%, p = 0.04) compared with those who did not develop PPHN. Severe MAS was found to be a significant predictor of PPHN in the infants with MAS (adjusted odds ratio (OR) = 96.5). In a multivariate analysis, a lowest mean arterial pressure of <35 mmHg within 24 hours of admission, initial positive end expiratory pressure (PEEP) of ≥6 cmH2O (adjusted OR = 15.1) and initial supplemental fraction of inspired oxygen (FiO2) of ≥0.6 (adjusted OR = 22.2) were found to be independent predictors for PPHN in MAS.

Almost one-fifth of MAS neonates developed PPHN during the study period. Monitoring and controlling blood pressure during the first day of admission in MAS neonates should be mandatory. PEEP and FiO2 in CMV mode are significant risk indicators for potential PPHN.
EFFECTIVENESS AND SAFETY OF 2 PHOTOTHERAPY DEVICES FOR THE HUMANIZED MANAGEMENT OF NEONATAL JAUNDICE

Authors: A. Montealegre 1,2,3; N. Charpak 3; A. Parra 3; C. Devia 1,2; I. Coca 1,2; A. Bertolotto 1,2.

Affiliations: 1. Pontificia Universidad Javeriana, Medicine Faculty  
2. Paediatric Departamento Hospital Universitario San Ignacio  
3. Kangaroo Foundation

Content:

Neonatal jaundice is overtreated especially in premature infants. Compliance with treatment protocols and standard serum bilirubin curve forces the clinician to separate the child from the mother after birth for short phototherapy. The objective of this study is to evaluate the effectiveness and safety of two innovative devices for phototherapy including a LED light mesh: one bag and one blanket compared to conventional hospital or ambulatory phototherapy.

Two randomized clinical trials were conducted: one with newborns >2000g at birth in the Neonatal Care Unit and the other with premature infants followed in an outpatient clinic (PMC). Gold standard for bilirubin measurement was serum bilirubin and ambulatory controls were done with the Bilicheck®. Parents and health personnel answered a survey on comfort and perceptions.

Results: For the bag trial, a linear regression for bilirubin’s decrease (mg/dl/h) was performed controlling by early jaundice (<36h) and device. Result was similar between the 2 devices. For the blanket trial in PMC, decrease in bilirubin levels with the new device was significantly greater with no differences in temperatures, duration of phototherapy, readmission, mortality or side effects for both trials. For the 2 trials, parents and staff satisfaction with the two devices was identical. Conclusion: These 2 small studies add a “grain of sand” to humanization of newborn care, avoiding the mother-and-child separation both for the intrahospitalary high-risk hyperbilirubinemia as for the lower-risk hyperbilirubinemia in an outpatient clinic.

Images:

https://www.eiseverywhere.com/eselectv3/v3/events/354183/submission/files/download?fileID=6e2715cb35b08c657407f6b8d5b924439-MjAxOS0wNCM1Y2FiMTk0NmNzNm
TOPIC: Miscellaneous - Other

ABSTRACT ID: 12

TITLE: ASSOCIATION BETWEEN BODYWEIGHT CHANGE AND SIGNIFICANT NEONATAL HYPERBILIRUBINEMIA IN TERM INFANTS

AUTHORS: S. Prachukthum, N. Srisuwan

AFFILIATIONS: Department of Pediatrics, Faculty of Medicine, Thammasat University, Thailand

CONTENT:

Neonatal jaundice is one of the most common problems in newborns, and approximately 60% of term infants develop hyperbilirubinemia in the first week of life. Neonatal jaundice is caused by high levels of unconjugated bilirubin, which is neurotoxic. Severe neonatal hyperbilirubinemia can lead to long-term neurodevelopmental impairment: inadequate breastfeeding is commonly the cause of jaundice in the first week of life. Subsequent infant weight loss in the first 2-3 days can be associated with further jaundice.

Aims: This study aimed to analyze associations between bodyweight change during the first 48 hours of life and significant neonatal hyperbilirubinemia in the first week for term infants.

Methods: This was a prospective study conducted from March to July 2017. Term infants with BW ≥ 2,500 gram were enrolled. Data collection included baseline characteristics and percentage of weight change during the first 48 hours of life. Infants were followed up at 7 days old whether they had significant hyperbilirubinemia or not. Body weight change and causes of hyperbilirubinemia were recorded.

Results: Of 269 infants, 35 (13.0%) presented with significant hyperbilirubinemia within 7 days after birth; 21 (60%) presented in the first 48 hours. Mean birthweight was 3,178.2 ± 356.1 g; mean percentage weight loss during the first 48 hours was 5.6 ± 2.1%. Infants with significant hyperbilirubinemia has non-statistically significant higher weight loss than those without, (6.0 ±1.5% and 5.5±2.2%, p = 0.21).

Conclusions: Infants with significant hyperbilirubinemia has slightly higher weight loss at 48 hours of life, although not statistically significant. Therefore, infants with excessive weight loss should be monitored for development of severe significant hyperbilirubinemia.
Neonatal pulmonary hypertension (PHT) is a complex pathology occurring at birth by a failure in oxygenation. The gold standard therapy is inhaled Nitric Oxide (NO) but its availability is limited because of its high cost. The present study reports a three-phase study using a NO generator called TAS+PLUS, which was applied during experimental PHT, in safety experimental settings and in newborn patients as a compassionate therapy.

Piglet models of PHT were used to assess the efficacy of the new NO generator TAS+PLUS to decrease PHT. Effects on pulmonary arterial pressure (PAP) were assessed after different treatments. To study potential gas toxicity after acute and chronic exposure of newborn piglets and rats, gasometric and biological parameters were compared to control animals. Newborn babies suffering from PHT were exposed to NO delivered by TAS+PLUS. We measured the medium airway pressure, the oxygen saturation (SatO2), and the partial oxygen pressure (PaO2) and calculated the Oxygenation Index (OI).

Besides, a pilot study including 32 newborn patients suffering from primary or secondary PHT showed an increase in oxygen saturation (SatO2) and partial pressure of oxygen in arterial blood (PaO2) leading to a decrease of Oxygenation Index (OI) after compassionate treatment with NO produced by TAS+PLUS.

TAS+PLUS as a source of NO can be efficiently used for clinical therapy of PHT. Adverse effects were excluded in newborn animal models and humans after the use of NO generator. A small and portable device TAS+PLUS is an excellent alternative for PHT management in conditions where other source of inhaled NO is not available.
TOPIC: Miscellaneous - Other

ABSTRACT ID: 34

TITLE: THE USE OF A DOCUMENTATION TOOL (‘PICC STICKER’) AS A QUALITY IMPROVEMENT INITIATIVE TO STANDARDISE THE INSERTION OF PERIPHERAL CENTRAL CATHETERS (PICC) IN A REGIONAL NEONATAL UNIT.

AUTHORS: N.AKHTAR  
S.GORMALLY  
S.HACKETT

AFFILIATIONS: PAEDIATRIC DEPARTMENT  
OUR LADY OF LOURDES HOSPITAL  
DROGHEDA (RCSI GROUP)  
IRELAND

CONTENT:

IN 2014, A RETROSPECTIVE AUDIT OF 25 NEONATAL CENTRAL LINE (CL) INSERTIONS IN OUR NICU DEMONSTRATED A SUBOPTIMAL CLINICAL DOCUMENTATION STANDARD TOGETHER WITH A LOW KAPPA INTER-OBSERVER VARIATION SCORE (0.519) BETWEEN CONSULTANT RADIOLOGIST AND PAEDIATRICIAN FOR CENTRAL (‘PICC’) LINE TIP LOCATION. A QUALITY IMPROVEMENT INITIATIVE IN THE FORM OF A STANDARDISED DOCUMENTATION TOOLS (‘PICC STICKER’) WAS INTRODUCED IN 2014.

THE ‘PICC STICKER’ CONTAINED 15 DOCUMENTATION CRITERIA AS OUTLINED ABOVE. DEPARTMENTAL POLICY STIPULATED THAT IT WAS TO BE INSERTED INTO THE PATIENT CHART FOR EACH CENTRAL LINE (UAC, UVC AND PICC).

AIMS

• TO MEASURE COMPLIANCE WITH USE OF CENTRAL LINE DOCUMENTATION TEMPLATE (‘PICC STICKER’) FOR INSERTION OF PICC LINES.
• TO MEASURE INTER-OBSERVER AGREEMENT BETWEEN CONSULTANT RADIOLOGIST AND PAEDIATRICIAN IN RELATION TO PICC LINES TIP POSITION
• TO COMPARE RESULTS WITH PREVIOUS CENTRAL LINE AUDIT IN 2014.

Method


A KAPPA SCORE WAS CALCULATED BETWEEN RADIOLOGIST AND PAEDIATRICIAN FOR THE CENTRAL LINE POSITION ON X-RAY.
Results:

The charts of 41 neonates who had X-rays done for PICC line insertion, were reviewed. One hundred percent had a PICC sticker inserted in the chart. Twenty-six ‘PICC stickers’ (63%) had 100% compliance with all the 15 documentation criteria. Thirty-eight charts (92%) had 11 or more documentation criteria completed. There was 100% (41/41) compliance with date, time, indication, catheter type, insertion depth, time of X-ray, position on X-ray, line taped at, ‘line suitable’ and clinical signature. The documentation sticker with less than 100% compliance included catheter size 80% (33/41), measured length 95% (37/41), no change 75% (31/41) and with draw 95% (39/41).

Formal radiological reports documented the PICC line tip position in forty of the forty-one X-rays. The kappa score for correlation between paediatrician and radiologist was 0.637 (95% CI 0.394-0.880).

Conclusion

This audit shows that, following the introduction of a ‘PICC stickers’ quality improvement initiative, there has been significant improvement in quality of documentation of PICC lines in the past 4 year period. While kappa scores for inter-observer variation for the radiological position of the CL has shown some improved since 2014, it remains low at 0.637.

Images:

https://www.eiseverywhere.com/eselectv3/v3/events/354183/submission/files/download?fileID=f6db0e1473f9e6ed8ae7a90d00bc5141-MjAxOS0wNCM1Y2FiMThk0N2JmNmQx
The infants of diabetic mothers (IDMs) very frequently present with neonatal hypoglycemia associated to transient hyperinsulinism but it does not last longer than 2 or 3 days. Here we report a case of hyperinsulinemic hypoglycemia seen in IDMs occurs secondary to transient hyperinsulinism where the diagnoses were challenged and delayed because the patient was born from diabetic mothers (IDM) and had concomitant complicated medical conditions.

A term male infant was born from gravid a with gestational diabetes. His mother managed her gestational diabetes with insulinic therapy. The infant had Apgar scores of 8 and 9 at 1 and 5 minutes, respectively. His growth parameters were in the normal range and the physical examination was normal. No family history of hypoglycemia reported.

His initial plasma glucose level was 10 mg/dL. He received an IV bolus with D10%, followed by IV fluids with a glucose infusion rate (GIR) of 8.5 mg/kg/min. A few hours from birth, respiratory distress syndrome, Silvermann score 7, and mild thrombocytopenia ($129 \times 10^9/l$) and persistent hypoglycemia were present. A sepsis evaluation was performed and the infant was started on intravenous antibiotics. All cultures were negative and the baby completed a 10-day course of IV antibiotics.

During his hospital stay, the GIR was gradually increased to 16 mg/kg/min in addition to increased oral feeds. Due to persistent hypoglicemia, he also received hydrocortisone treatment (10 mg/Kg/day) secondary to low cortisol. The results revealed an elevated insulin level of 16.3 mcIU/mL coincident with a plasma glucose level of 35 mg/dL and beta hydroxybutyrate level of less than 100 mcmol/L. Ammonia, pyruvic acid, cortisol level, serum amino acids, acyl carnitine profile, and urine organic acids were all in the normal range. We do not have the opportunity to perform the DNA sequencing for congenital hyperinsulinism. Adrenal and brain ultrasound came back normal. Chromatography of blood amino acids, chromatography urine organic acids, plasma lactate and plasma ammonia were normal. The Brain NMR is scheduled for the next month. The patient responded well to hydrocortisone treatment, which was gradually tapered to suspension on day 6th. The glucose infusion was suspended on day 12th; the respiratory distress resolved progressively as well trombocytopenia and sepsis.

Transient neonatal hypoglycemia in an IDM is not expected to last more than 2–3 days. Since being an IDM does not exclude Congenital hyperinsulinism (CHI), in our patient respiratory distress and
sepsi played an important role in the delay of considering CHI as the final etiology of his persistent neonatal hypoglycemia. This diagnosis should always be considered as the mostly likely etiology if neonatal hypoglycemia persists longer than the described time frame and genetic testing for CHI confirmation is highly suggested. Early recognition and appropriate treatment are important to prevent such adverse outcomes.
TOPIC: Miscellaneus - Other

ABSTRACT ID: 38

TITLE: THE NEED AND THE SIGNIFICANCE OF PERFORMING TORCH SCREEN

AUTHORS: N.Akhtar, Prof.M.White

AFFILIATIONS: Coombe Women and Infants University Hospital Dublin 8 Ireland.

CONTENT:

"TORCH Screen" is a test that screen for Toxoplasmosis, Rubella, Cytomegalovirus, Herpes, simplex. Estimated Incidence of Perinatal "TORCH" Infections (US)

CMV 1% Live Birth (5-20% by 1-2 Month of age) Toxoplasmosis- 0.1-0.2/1000 births. HSV- 0.1-0.5/1000 births. Rubella- Approaching 0.

WHEN DO WE THINK OF TORCH INFECTIONS

IUGR Infants, Hepatosplenomegaly, Thrombocytopenia, Unusual Rash, Concerning Maternal History. Classic findings of any specific Infection

DISTINCTIVE FEATURES

Intracranial Calcification- (Toxo, CMV), Cataracts- (Rubella, HSV), Bone Lesions- (Rubella, Syphilis), Chorioretinitis- (Toxo, CMV), Congenital Heart Disease- (Rubella), Microcephaly- (CMV), Hydrocephalus- (Toxo), Vesicles- (HSV, VZV, Syphilis)

AUDIT PERIOD

This Audit was performed on babies who got TORCH Screen done Between July 2014-December 2014.

OBJECTIVES OF THE AUDIT

The objective of the TORCH Screen audit is to look at the need & Significance of performing TORCH Screen on the babies born during the period of Study.

METHODOLOGY:

TORCH Screen include taking blood sample and urine from the babies. For the audit list of babies was collected from the lab, who had TORCH Screen performed. Chart review was done on all the babies for the results and follow up.

FINDINGS


REASONS FOR DOING TORCH SCREEN & FINDINGS
There were 155 babies who had TORCH Screen performed and Only 4 Babies had Positive Result. In those 4 babies Urine for CMV came as Positive and Blood Test was negative. The conclusion of the Audit performed on the babies who had TORCH Screen done showed that Urine is more specific then taking the Blood Test. The developmental follow up of the babies with positive TORCH Screen was normal. 

**RECOMMENDATIONS:**

Urine is more specific than Blood test. It also prevent the need of pricking the baby for the blood test and it also save the waste of resources for performing the blood test. There is a need for further re-audit after making the necessary changes and implementation to improve the identified area of TORCH Screen.

**IMAGES:**

https://www.eiseverywhere.com/eselectv3/v3/events/354183/submission/files/download?fileID=da30dc70dd385ba5a720ab48f8e40642-MjAxOS0wNCM1Y2FiMTk0N2M0NTBi
In the Province of Quebec, until 2014-2015, infants <6 months of age born at 33 to 35 weeks gestational age (wGA) and classified as moderate to high-risk by a Canadian risk scoring tool were included in a palivizumab (PZB) respiratory syncytial virus (RSV) prophylaxis program. We assessed the impact of withdrawal of this indication since 2015-2016.

We conducted a 4-year observational study in 25 Quebec hospitals. Births at 33-35 wGA and lower respiratory tract infection (LRTI)/RSV hospitalizations (H) were identified via discharge databases using ICD-9 or-10 codes. Subjects with other indications for PZB were excluded. Our primary outcome was LRTI/RSV-H, defined as LRTI with laboratory-confirmed RSV or LRTI not virologically tested during RSV season (Nov. – Apr.). Using multivariable regression analyses, we compared the risk of LRTI/RSV-H before (2013-2015; S1/2) and after (2015-2017; S3/4) the change in recommendations. Through chart review and mailed parental questionnaire, we described the clinical course and caregiver burden (health resource utilization; productivity; stressors) of LRTI/RSV-H in 33-35 wGA infants.

We identified 6,457 eligible 33-35 wGA births in 4 years. LRTI/RSV-H occurred in 105/3,353 (3.13%) infants in S1/2 compared to 130/3,104 (4.19%) in S3/4. Overall, 86.4% were RSV-confirmed. In multivariable logistic regression analysis adjusting for sex, wGA, and birth month, S3/4 was significantly associated with LRTI/RSV-H (OR 1.36, 95% CI 1.04-1.76) but not with RSV-confirmed hospitalization (OR 1.19, 0.90-1.58). Mean hospital stay duration was 5.6 days; 22.6% required ICU admission and 11.1% mechanical ventilation (mean duration 5.4 days). Prior to admission, subjects had an average of 2.3 emergency room and 2.1 clinic visits for their LRTI. Fathers reported a mean of 28.5 hours missed work because of the hospitalization. Comparing S3/4 to S1/2, the proportion of infants with LRTI/RSV-H classified as moderate to high-risk increased from 27.7% to 42.0%.

In a province-wide study, we observed an increase in LRTI/RSV-H among 33-35 wGA infants in the 2 years after withdrawal of PZB prophylaxis, associated with important healthcare utilization and parental burden.
TOPIC: Miscellaneous - Other

ABSTRACT ID: 50

TITLE: INFECTIONS IN NEONATES WITH DIABETIC FETOPTHY

AUTHORS: D. Gencheva 1; M. Krasteva 1,2; P. Petleshkova 1,2; N. Anesteva 1

AFFILIATIONS: 1 Neonatology Dept., UMHA'T 'St. George', Plovdiv, Bulgaria
2 Obstetrics and Gynecology Dept., Neonatology, Medical University of Plovdiv, Bulgaria

CONTENT:

Diabetic fetopathy is still a common clinical problem correlated with high neonatal morbidity and mortality. The topic about diabetes and pregnancy and its influence on the newborn is still a matter of debate in spite of existing research.

Our aim is to establish a correlation between maternal pathology /pregestational and gestational diabetes mellitus/ and presence of infection in the babies.

A retrospective clinical research has been conducted with 32 babies, born to mothers with anamnesis and clinical signs of diabetes before and during pregnancy. Newborns are divided in two groups based on the diabetic status of mothers. Group A- 15 babies born to insulin- treated mothers (pregestational diabetes) and group B- 17 with gestational diabetic mothers. Parameters of participants in the study are presented in table 1. Subjects are gathered within 18 months in the Department of Neonatology of 'St. George' University Hospital - Plovdiv, Bulgaria. Data was analysed with descriptive statistics. Results are presented in tables and diagrams.

1. Women with pregestational diabetes were identified to have higher than average risk of urinary tract infections during pregnancy and a moderate increase in chance of infection in their newborn babies. Approximately half of their babies /46,7%/ have clinical and laboratory signs of infection and more severe presentation of symptoms after birth.
2. Diabetes developed during pregnancy is a weak predictor of neonatal infections. Frequency of infectious pathology in this group is 17,6%.
3. Independently of diabetes type, viral infections in pregnant women have a weak influence on postnatal infectious diseases in babies.

IMAGES:

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Due to the wide use of artificial reproductive technologies (ART) and advances in reproductive medicine a significant increase in multiple gestations has been observed in the past two - three decades. The aim of the work was to compare neonatal outcome between late preterm neonates born from triplet and from twin pregnancies matched for gestational age.

72 neonates born between 34 to 36 + 6/7 weeks of gestational age (g.a.) were divided into 2 groups: 1st of 36 triplets, the 2nd include 36 twins. The mean gestation age for both groups was 34.3 ± 0.4 weeks. Triplets were smaller in weight than twins (1902.2 ± 227.2 g for triplets vs 2250.8 ± 322.2 g for twins). Triplets had higher risk of respiratory insufficiency requiring non-invasive ventilation support than twins (p<0.0005) but the length of ventilation was similar in both groups. 1st and 5th minute Apgar score was statistically lower in the group of triplets than twins. Both groups did not differ in the incidence of low-grade (1st and 2nd grade) IVH, no RDS and ROP were recorded in any of the groups. Compared to twins, triplets have longer duration of hospitalization (p<0.0005).

Despite important progress in perinatal care and wide use of advanced technologies in neonatal intensive care, triplet gestations still carry an increased risk of premature delivery of small for gestational age (SGA) children and neonatal complications in compare to twins even in late preterm infants. Both the maternal and neonatal outcome may be improved by antenatal and postnatal care in specialized tertiary centers of perinatal care,
**TOPIC:** Miscellaneous - Other

**ABSTRACT ID:** 54

**TITLE:** LATE PRETERM INFANTS - IS THE CESAREAN SECTION THE STANDARD OF DELIVERY?

**AUTHORS:** B. Królak-Olejnik 1, M. Lachowska 1, B Broers 1, U Ostromęcka 1, R Chrostek 1, M Kęsiak 2, B Kociszewska-Najman 3

**AFFILIATIONS:**
1. Neonatology Department of Medical University in Wrocław Medical University, Wrocław, Poland
2. Department of Pathology and Intensive Therapy of the Newborn, Provincial Specialist Hospital M. Pirogowa of Łódź, Łódź, Poland
3. Department of Neonatology University Center of Woman and Newborn Health Warsaw Medical University, Warsaw, Poland

**CONTENT:**

The largest group among premature babies are infants born between 34 0/7 and 36/6 weeks of pregnancy, and constitute up to 74% of infants born prematurely. With the increase of the gestational age the risk of morbidity and mortality in the neonatal period is less, scientists and clinicians pay less attention to this group of patients compared to extremely preterm infants. These children, despite the body weight comparable to children born on time, cannot be treated as term newborns.

The aim of the study is to analyze the late preterm infants in the aspect of the delivery method and its impact on the time of hospitalization.

A retrospective analysis of medical records from three clinical centers was used: Neonatology Department of the University Hospital in Wrocław, Department of Pathology and Intensive Therapy of the Newborn of the Provincial Specialist Hospital M. Pirogowa in Łódź and Department of Neonatology University Center of Woman and Newborn Health Warsaw Medical University.

The study analyzed data on 1683 live-born patients between 34 and 36 weeks of pregnancy from January 1, 2016 to June 30, 2018.

**Results**

The dominant method of delivery was Caesarean section, which concerned 79.55% of newborns. In the case of neonates born via Caesarean section, 88.2% were born in good condition, resulting from the APGAR score; while by vaginal delivery - 90.4%; no correlation was found between the method of delivery and Apgar scores.

Newborns were born with an average birth weight of 2531.24 g. The lowest birth weight was 1,100 g and the highest birth weight was 4,460 g. The percentage of children with low birth weight (LBW), that is, the body weight below 2500 g, was 45.51%.

1035 newborns were from single pregnancies (61.5%) and 648 from multiple pregnancies (38.5%). Among the multiple pregnancies, twin pregnancies and triplets occurred. 92.74% of newborns with multiple pregnancies and 71.62% of single pregnancies were born via Caesarean section.

The average duration of hospitalization in children born via caesarean section was 9 days, and in children born by vaginal delivery - 8 days. 71.5% of newborns born naturally and 79.3% of those...
born via caesarean section required prolonged hospitalization. Children born to cesarean section more often (31.69%) were hospitalized in the intensive care unit than children born by the forces of nature (26.76%).

The most common method of delivery leading to the late preterm infant is the Caesarean section. One of the causes of a significant percentage of cesarean section in late preterm infants may be an increase in multiple pregnancies. Although the condition of newborns at birth was assessed in most cases, as a good, significant number of infants required prolonged hospitalization and treatment in the NICU, which emphasizes the lack of prognosis value on the APGAR scale.
Parenteral Nutrition (PN) is an essential part of the management of premature neonates that has significantly improved survival in this population over the last decades. Despite being life-sustaining, prolonged use of PN can cause severe complications, specifically parenteral nutrition-associated liver disease (PNALD). Experimental data shows that soybean-based PN lipid preparations contribute to the development of PNALD. The risks are higher in neonates with gastrointestinal surgery because of prolonged periods of zero oral intake (NPO), with the most intractable PNALD observed in extremely low-birthweight infants (ELBWI).

We describe a case of an ELBWI with intestinal perforation and subsequent bowel resection, who received Omegaven monotherapy for PNALD. Our patient was delivered by emergency caesarian section at 25 weeks of gestation with a birth weight of 780 grams. Her hospital course was complicated by several episodes of intestinal perforation with the formation of enterocutaneous fistulas (Image 1) and subsequent intestinal adhesions causing lower GI obstructions. Surgical interventions and bowel dysfunction resulted in prolonged PN administration and without enteral feeds for greater than 14 weeks. By 2 months of age, her serum bilirubin and liver enzymes were significantly elevated. Despite the optimization of PN, adjustment of trace elements, and cycling of soy-lipid emulsion therapy, hepatic biomarkers continued to rise. Aiming to minimize hepatic inflammation by soy-containing lipids, the patient was started on Omegaven, a fish-oil derived parenteral lipid emulsion rich in omega-3 fatty acids. Omegaven was initiated at 0.5 gm/kg/d for 2 days, and then increased to 1gm/kg/d for the remainder of the treatment course; biochemical markers and growth parameters were obtained at baseline and weekly after initiation of therapy (Graph 1). Both serum bilirubin and liver enzymes began to decline 2 weeks after Omegaven therapy. The infant tolerated therapy well and no side effects related to Omegaven were noted.

The purpose of the literature review was to provide an overview of available data about the use of Omegaven monotherapy in extremely low-birthweight infants. We conducted a systematic search of medical electronic databases: Google scholar, Ovid, Medline, PubMed, CINAHL, EMBASE, the Cochrane Library, Science Citation Index and Evidence-Based Medicine and hand searched related references.
We extracted the details of individual study characteristics from each publication, assessed study quality, evaluated the effect sizes of Omegaven treatment and assessed the influence of study design on the estimated effect size. The presence of small effect sizes was investigated using funnel plots and Egger’s tests.

Omegaven, a parenteral fish oil-based lipid emulsion, is a safe and effective monotherapy in PN dependent ELBWIs during the post-surgical period. Our observation supports other reports that infants who received Omegaven have a higher rate of PNALD reversal when compared to patients who received soy-based lipid emulsion.

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TOPIC: Miscellaneous - Other

ABSTRACT ID: 57

TITLE: AN UNUSUAL AND EARLY PRESENTATION OF CONGENITAL HYPOTHYROIDISM

AUTHORS: J. Rosa 1; I. Marques 2; D. Virella 3

AFFILIATIONS: 1 Pediatric Department of Hospital Divino Espirito Santo, Ponta Delgada, Azores, Portugal; 2 Pediatric Department of Centro Hospitalar Barreiro Montijo, Barreiro, Portugal; 3 Neonatal Intensive Care Unit of Hospital Dona Estefânia, Centro Hospitalar Universitário de Lisboa Central, Lisbon, Portugal

CONTENT:

Congenital hypothyroidism (CH) has a large spectrum of clinical manifestations, which include failure to thrive, lethargy, feeding problems, abdominal distension or constipation. However, the majority of newborns have few, unspecific or no early clinical manifestations of hypothyroidism; therefore, in developed countries, early diagnosis is achieved through the universal newborn screening test. We report an atypical presentation at birth of primary CH with abdominal distension and ascites associated with hypoglycemia and hyponatremia.

A Hindustani male was born at 41 weeks of gestation via vacuum extraction. During the third trimester, maternal hypothyroidism was diagnosed; antibodies against thyroid-stimulating hormone (TSH) receptor, anti-thyroid peroxidase, and anti-thyroglobulin were negative. Approximately two hours after birth, he started moaning and hypoglycemia was detected, initially treated with oral 10% dextrose and infant formula. When he was admitted into the Neonatology Unit, due to the maintenance of hypoglycemia, marked abdominal distension was observed and serum hyponatremia (122mEq/L) was detected; the abdominal radiography suggested intestinal sub occlusion. With intravenous correction, hyponatremia was gradually corrected in 48 hours. The patient was then referred to a neonatal intensive care unit in a tertiary hospital. Abdominal Doppler ultrasound showed hepatomegaly and pure fluid collections in the subhepatic and perisplenic spaces, parieto-colic gutter evocative of ascites, along with bowel filled with liquid and gaseous contents, without parietal thickening or signs of intestinal pneumatosis. At 48 hours after birth, unmeasurable high TSH (>100μIU/mL [0.73-4.77]) and low free thyroxine (0.46ng/dL [0.68-2.53]) were detected. CH was suspected and after confirmation of laboratory values, intravenous levothyroxine 8mcg/kg/day was started. Anti-thyroid peroxidase and anti-thyroglobulin autoantibodies were negatives; the Universal Newborn Screening Test was positive for CH. At 11 days after birth, while fed with both mother’s milk and infant’s formula, abdominal discomfort was noted and feces with blood were passed. Cow’s milk protein intolerance was suspected and extensively-hydrolyzed formula was started with attenuation of symptoms; subsequent provocation trial was positive. A delayed in the acquisition of oral feeding skills was observed, in spite of normal levels of thyroid hormones, postponing the return to the local neonatal unit.
This case highlights CH as a cause of neonatal intestinal occlusion. Hyponatremia and hypoglycemia are rare clinical manifestations of primary CH, notwithstanding, clinicians should be aware of screening thyroid function, in presence of persistent intestinal dysmotility. Cow’s milk protein intolerance can interfere with intestinal absorption of levothyroxine and may hinder the management of CH.
DISEASE SEVERITY OF HOSPITALIZATIONS FOR RSV LOWER RESPIRATORY TRACT INFECTIONS AMONG TERM INFANTS AND INFANTS BORN 33 - 35 WEEKS GESTATIONAL AGE IN QUEBEC

Authors: G. Caouette 1  
J. Papenburg 2  
E. Massé 3  
I. Defoy 4  
M.H. Lebel 5

Affiliations: 1 Centre Hospitalier Universitaire de Québec, Quebec City, QC, Canada  
2 McGill University Health Centre, Montreal, QC, Canada  
3 CIUSSS de l’Estrie-CHUS, Sherbrooke, QC, Canada  
4 AbbVie Inc., Saint-Laurent, QC, Canada  
5 CHU Sainte-Justine, Université de Montréal, Montreal, QC, Canada

Content:

There is a general belief that the clinical characteristics of the hospitalization for a lower respiratory tract infection (LRTI) or for an infection due to respiratory syncytial virus (RSV) of infants born at 33 to 35 weeks gestational age (wGA) are similar to those of infants born at term (≥37 wGA). While conducting a study on the impact on the lack of immunoprophylaxis for RSV disease for infants born at 33 to 35 wGA, we included a control arm of term infants hospitalized under the same conditions and are reporting the comparison of the 2 infant groups.

We conducted a 4-year observational study in 25 hospitals from the Province of Quebec, Canada. Births at 33-35 wGA and LRTI/RSV hospitalizations (H) were identified via discharge databases using ICD-9 or-10 codes. A secondary endpoint of this study was to document disease severity and burden of illness associated with LRTI/RSV-H among preterm infants born at 33-35 wGA and <6 months of age at the start of or born during the RSV season compared to term infants (born at ≥37 wGA and <6 months of age at the start of or born during the RSV season). Centres were asked to retrieve information for 2 term infants hospitalized for each 33-35 wGA infant hospitalized at their centre during the RSV seasons of 2015-2016 and 2016-2017. Term infant controls were matched for calendar month of hospitalization, for chronological age and gender (ideally). Through chart review and mailed parental questionnaires, we described the clinical course and parental burden (health resource utilization; productivity; stressors) of LRTI/RSV-H in 33-35 wGA infants and in ≥37 wGA infants. Categorical data were summarized using counts and percentages and continuous data using mean, standard deviations and inter-quartile values. Comparisons between the pre-term and term infant groups were based on the chi-square for categorical data and the t-test for the equality of means for continuous data.
Results: We identified 130 infants born at 33-35 wGA (preterm) who were hospitalized for LRTI/RSV during 2 RSV Seasons and 234 infants born at ≥37 wGA (term) who were hospitalized during the same months. In both cohorts, the majority of infants were male (56% for preterms and 65% for terms; p=0.0976). Birth hospitalization characteristics were statistically significantly different between the preterm and term cohorts: birth weight (2341g vs.3462g, respectively; p<0.0001), percentage of singleton (65% vs. 97%, respectively; p<0.0001), length of stay (LOS) (14.8 days vs. 3.3 days, respectively; p<0.0001), and need for respiratory support (36% vs. 2%, respectively; p<0.0001). The mean chronological age at LRTI/RSV-H was 15.3 weeks for preterm infants and 14.3 weeks for term infants (p=0.3098). The LOS for preterm infants was on average 6.0 ± 7.84 days whereas it was 3.6 ± 2.34 days for term infants (p=0.0009). A greater percentage of preterm infants required a stay in the pediatric intensive care unit (19.2%) than term infants (10.7%) (p=0.0232) and the LOS in that unit was longer for preterm infants (7.0 ± 4.15 days) than for term infants (3.4 ± 2.60 days) (p=0.0007). Similarly, mechanical ventilation was required for a larger proportion and for longer duration for preterm infants (10.0%; 6.1 days) than for term infants (1.3%; 2.3 days) (p=0.0001 for proportion and p=0.0798 for duration). Oxygen supplementation was used for more days for preterm infants than for term infants (4.4 days vs. 2.5 days, respectively; p=0.0002). Prior to admission for LRTI/RSV-H, 50% of parents of preterm infants reported visiting their general practitioner/pediatrician for issues related to respiratory illness, as did 38% of parents (difference not significant)of term infants for an average of 2.3 visits in both groups. Fathers of preterm infants reported a mean of 28.5 hours missed work because of the hospitalization whereas it was 14.3 hours for fathers of term infants (p=0.0161). Mothers and fathers of preterm infants reported, on a numeric rating scale of 0 to 10, greater impact on their ability to do their regular daily activities (8.9 and 7.8, respectively) compared to those of term infants (8.4 and 6.6, respectively), where 0 meant no effect and 10 meant completely preventing them from doing their daily activities (p=non-significant for mothers; p=0.0054 for fathers).

Conclusions: In a province-wide study, we observed increased disease severity and burden of illness for LRTI/RSV-H for preterm infants when compared to term infants.
The experience of admission to a Neonatal Intensive Care Unit is very distressing for parents who are faced with a reality that is very different from the one they expected after the birth of their child. The complexity of this event depends on the clinical conditions of the child, but parents’ experience may also vary depending on the environment and the staff that is caring for their child. The purpose of this study is to evaluate the parents’ experience within Neonatal Intensive Care Units (NICU).

A secondary analysis was conducted, using the database of the caregiver survey of the RN4CAST®IT-Ped study, which had an observational cross-sectional design. The data collected within the NICUs were drawn. Convenience sampling was chosen and involved informal caregivers of children admitted to 7 NICUs of hospitals affiliated with the Italian Pediatric Hospitals Association (Associazione Ospedali Pediatrici Italiani - AOPI). The caregiver survey was conducted between September 2017 and January 2018, using the paper version of the H-CAHPS questionnaire adapted to the Italian language and context. The survey domains of the questionnaire are: 1) communication with caregivers, 2) attention to safety and comfort, 3) hospital environment, and 4) overall assessment. The data were analyzed through the use of SPSS 22.0 software and the conduction of descriptive analyses.

Results
A total of 68 questionnaires were analysed. Of the total sample, 75% were mothers, with an average age of 34.4 years (SD ± 6.14), and 83.6% were Italian. With regard to the caregivers’ communication experience with NICU staff, data showed an overall positive judgment, both with nurses and physicians. Of the total sample of the caregivers, 75% said they had always been informed about what professionals would do for their child; more than half of the respondents reported that they had obtained the necessary privacy when talking with professionals (66.7%); 68% of caregivers had been informed before discharge of what care their child would need, and 55% had received written information about which signs and symptoms to monitor once discharged. The overall assessment of the hospitals, based on a 10-point Likert scale from 0 to 10 points, was 9.29 (SD ± 1.05).

Conclusions
Although our results showed that the parents’ experience was generally positive with regard to the care received, it is imperative to look at how the quality of care could be improved. In fact, it is not
acceptable that 25% of the parents were not informed about the treatments regarding their child, that over 30% were not informed about the treatments to continue at home, and that 45% did not receive any written information to read at home. The children were often discharged from the NICUs affected by chronic conditions or requiring the support of devices that parents had be able to manage autonomously after leaving the safe environment of the hospital. Health professionals have the responsibility to monitor the quality of care they provide and implement interventions to improve the experience of parents in NICUs.
Lowering the TSH cut-off value on neonatal screening resulted with detection of an increased number of children with neonatal hypothyroidism; both transient forms but also cases with evolution to mild permanent thyroid dysfunction later in life. Transient hypothyroidism (TCH) can be due to factors primarily affecting the thyroid-like iodine deficiency or excess, maternal thyroid-stimulating hormone receptor antibodies, maternal use of antithyroid drugs or DUOX2 (dual oxidase 2) mutations. On the other side, the constantly growing number of preterm infants presents a separate group of children with common transient fluctuations in thyroid function and controversy regarding the treatment strategy.

We retrospectively evaluated the cases of transient hypothyroidism among the term and preterm newborns diagnosed through the national neonatal screening program in Macedonia in the period 2002-2015. TSH cut-off screening was 10mU/L. Permanent hypothyroidism was defined as a requirement for thyroxine beyond 3 years of age. Out of 127 cases diagnosed with primary CH over 12-year period, 30.5% had transient form. 12.1% were premature infants (28-37GA). There was no significant difference between occurrence of TCH in preterm and term infants (p= 0.397), as well as biochemical characteristics of the hypothyroidism. 24.1% of the cases with TCH had serum TSH>20 mU/L at diagnosis. 75% of the cases exhibited normal gland at thyroid ultrasound; 15% had enlarged gland, and 10% had hypoplastic. There was no significant difference in the thyroid morphology between the preterm and term infants with TCH. Urinary iodide excretion examined in mutation-negative cases did not show iodine deficiency (range 124-346ug/L). DUOX2 genetic analysis was performed in 60% of the TCH cases; 2 pathogenic mutations were identified (c.4637A>G and c.4318G>A). Initial levothyroxine dose of 8.47 µg/kg and 3.05 µg/kg dose at age of 1-year were determined as early predictors for transient hypothyroidism; sensitivity of 91.1% and 84.8%, specificity 70.5% and 93.9%; AUC: 0.858 and 0.891, respectively. No significant difference in thyroxine dose and duration of treatment was observed between the groups of preterm and term infants.

Transient hypothyroidism presents a significant portion of patients with congenital hypothyroidism affecting both preterm and term infants. The underlying etiology in most cases is not identifiable. Early levothyroxine requirements may have a predictive role in differentiating from permanent from.
Neonatal sepsis of vertical transmission (early onset-sepsis) occurs as a result of colonization of the fetus before or during labor by microorganisms from the maternal genital tract. Group B streptococcal (GBS) infection is the most frequent cause of vertical sepsis and a leading cause of neonatal mortality. In Spain, national guidelines for the prevention of perinatal GBS infection were issued in 1998.

Objective: To assess the epidemiology of early-onset vertical sepsis (EOVS) in our country (Spain).

Material and Methods: From 1996 the neonatal units of 43 acute-care hospitals in Spain ("Grupo de Hospitales Castrillo" Neonatal Network) carries out a prospective surveillance of the epidemiology of vertical neonatal sepsis.

Results: Of 2,091,663 live birth in the study period (1996-2017), 2,431 had EOVS. The incidence rate of EOVS (Fig 1) declined by 55%, from 2.4/1,000 live birth in 1996 to 1-1.2/1,000 in the period 2002-2017 (p< 0.0001). This incidence was significantly higher in the group of VLBW neonates than in those weighing >1500 g. GBS (767 cases) and E. coli (716 cases) were the most prevalent isolated organisms. 74.2% of GBS sepsis occurred in term babies while, on the contrary 65% of E. coli sepsis occurred in preterm babies. The incidence rate of GBS vertical sepsis declined significantly by 73.6%, from 1.25/1,000 live births in 1996 to 0.3/1,000 as of 2002 (p<0.001). There were annual fluctuations in the incidence of E. coli sepsis with a non-significant increase in VLBW (p <0.1). The mortality rate of vertical sepsis ranged between 8-18% in the study period and was significantly higher in preterm that in term infants (24.7% vs 3%) and in E. coli vertical sepsis than in GBS sepsis (18% vs 7.4%). The mortality per 1,000 live birth decreased from 0.20 (1996) to 0.11 (2017).

In Spain, there was a substantial decline in the incidence of early onset vertical sepsis with significant reduction in the incidence of GBS sepsis in the study period, as consequence of the impact of antimicrobial intrapartum prophylaxis. Fluctuations in the incidence of E. coli infection suggest the need for continuing epidemiological surveillance.
TOPIC: Miscellaneous - Other

ABSTRACT ID: 80

TITLE: HEART DISEASE IN A TERTIARY CARE NEONATAL UNIT

AUTHORS: L. Rodrigues1,2, T. Nelumba1,3, M. Figueiredo1, A. Meireles1,4, M. Miranda1,2, A. Maria1, E. Santos1, A. Salazar1

AFFILIATIONS: 1. Unidade de Neonatologia, Serviço de Pediatria, Hospital de São Francisco Xavier, Centro Hospitalar Lisboa Ocidental, Portugal
2. Serviço de Pediatria, Departamento da Saúde da Mulher e da Criança, Hospital do Espírito Santo de Évora, E.P.E., Portugal
3. Serviço de Cardiologia Pediátrica, Hospital de Santa Cruz, Centro Hospitalar Lisboa Ocidental, Portugal
4. Serviço de Pediatria, Unidade Local de Saúde de Matosinhos, Portugal

CONTENT:

Introduction: Heart disease (HD) is a major reason for neonatal intensive care unit admission and include structural congenital heart disease, neonatal arrhythmias and cardiomyopathies. These conditions have significant impact on morbidity, mortality, and healthcare costs. The aim of this study was to determine the incidence and pattern of HD in a tertiary care neonatal unit in Lisbon.

Materials and methods: A retrospective study was performed between January 2014 and December 2018. Neonates with HD requiring medical or surgical treatment were included in the study. Preterms with patent ductus arteriosus and other transient, minimal lesions were excluded. Perinatal data such as timing of diagnosis, delivery mode, gestational age, birth weight, gender, associated pathologies, procedures, treatment and complications were recorded. Statistical analysis was performed using SPSS 23.0 software. A p-value 0.05 was considered statistically significant.

Results: Out of the 1184 admissions, 99 (8.4%) were diagnosed with HD (incidence is shown in table 1). Sixty-four percent of babies had antenatal diagnosis. Inborns accounted for 75.8% of admissions. Forty-five percent were born by cesarean section. Two percent of babies were less than 32 weeks of gestation and 73.7% were more than 37 weeks of gestational age. Only 1% of babies were less than 1500g birth weight and 75.8% were more than 2500g. Fifty-six percent were male. Thirteen percent had associated malformations and 28.3% had karyotype performed. Thirty percent of the neonates needed invasive mechanical ventilation, 66% had a central line, 50.5% required prostaglandin E1 therapy, 15.2% had balloon atrial septostomy, 6.1% needed antiarrhythmic drug therapy and 1% had synchronized electrical cardioversion. Complications occurred in 44.4% of the patients: infectious (21.2%), respiratory (18.2%), cardiovascular (14.1%), neurological (12.1%) and catheter-related (1%). Mortality rate was 1%. Antenatal diagnosis was associated with increased odds of a scheduled delivery (p=0.021), a decreased need for invasive respiratory support (p=0.014) and with less infectious complications (p=0.019).
Conclusions: Antenatal diagnosis and appropriate early management in a stable environment are key factors for optimal outcome of these conditions.

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Pontocerebellar hypoplasia type 1 (PCH1), known also as Norman’s disease is clinically and genetically heterogeneous group of autosomal recessive diseases, starting prenatally with diffuse muscular atrophy due to pontocerebellar hypoplasia and degeneration of anterior horns of the spinal cord which ultimately lead to early death.

Case report. Mother 31yo, P9G10, one miscarriage, two boys passed away, one due to decreased muscle tone and respiratory failure at 1 month, the second due to severe sepsis and prematurity. Current pregnancy was uneventful, amniocentesis showed normal male karyotype. Term infant (40/40), birth weight 2800 g, asymmetrical growth restriction, APGAR 7, 7, 8, exhibiting hypotonia with hypotrophic musculature of the limbs, weak and low frequency cry. Neurological exam showed hypotonia (central and peripheral), no reflexes, spontaneous motor response poor, some neonatal reflexes normal (sucking, grasping), some decreased (Moro, Galant), obvious atrophy of the muscles of extremities and body.

Baseline biochemistry and metabolic panel were normal. EEG was mildly abnormal, no specific pathological pattern seen. EMG showed borderline changes, possible neuropathy. US head suspicious atrophy of cerebellar hemispheres and vermis, confirmed with MRI which in addition showed disturbances in myelination and neuronal damage. Genetic analysis excluded spinal muscular dystrophy and further genetic testing detected homozygous pathogenic variant in exon 1 of the EXOSC3 gene, typical for pontocerebellar hypoplasia with additional heterozygous variant of uncertain significance in exon 1 of the TSEN54 gene. Further treatment was aimed at alleviating symptoms and the boy passed away in early infancy.

Pontocerebellar hypoplasia is a very rare disease that is characterized prenatally often with polyhydramnios and arthrogryposis multiplex congenital, in neonatal period with severe hypotonia, difficulty feeding due to impaired swallow, progressive microcephaly that mostly develops postnatally and if surviving into infancy severe psychomotor deficit and oculomotor symptoms become apparent—strabismus, nystagmus and oculomotor apraxia. Diagnosis is confirmed with imaging and DNA analysis. Treatment is supportive and prognosis is very poor.
Epidermological Analysis of Neonatal Jaundice in a Suburban Hospital

E. Tsentemidou, G. Katsaras, A. Batsiou, E. Bechlivani, K. Verikkokou, A. Vladikas, E. Lazaridi, E. Oikonomou

Paediatric Department, General Hospital of Edessa, Edessa, Greece

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

A retrospective observational study of all neonates born during a two 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 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 on 32.9% of the population and 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 median duration 24 hours. Exchange transfusion was not needed, since phototherapy was adequate for treatment of all patients. All neonates that required phototherapy were early terms, however not 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 phototherapy.

Jaundice has a high incidence in neonatal period, but 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 hyperbilirubinaemia.
TOPIC: Miscellaneous - Other

ABSTRACT ID: 86

TITLE: CONGENITAL CYTOMEGALOVIRUS INFECTION – CURRENT CHALLENGES

AUTHORS: M. Miranda1,2, D. Banganho1,3, L. Rodrigues1,2, M. Marçal1, M. Tuna1

AFFILIATIONS: 1 – Neonatal Intensive Care Unit, Hospital de São Francisco Xavier, Centro Hospitalar de Lisboa Ocidental.
2 – Paediatric Department, Department of Women's and Children's Health, Hospital do Espírito Santo de Évora, E.P.E.
3 – Paediatric Department, Centro Hospitalar de Setúbal Hospital, E.P.E.

CONTENT:

Congenital cytomegalovirus (cCMV) infection is a leading cause of nonhereditary neurosensorial hearing loss (SNHL) and an important cause of further long-term neurodevelopmental disabilities. Approximately 90% of infected neonates are asymptomatic at birth and most of the clinical findings in the remaining 10% are nonspecific, demanding a high level of suspicion for timely diagnosis. Although long-term sequelae are more frequent in symptomatic children, they are reported in 13% of those without clinical symptoms. Infants cCMV may benefit from antiviral therapy, particularly if treatment is started within the first month of life.

Retrospective study of cCMV cases diagnosed in the last 12 years (2007-2018) in a Neonatal Intensive Care Unit.

Results: We report 6 cases of congenital cCMV, 4 males, with a median gestational age of 36.5 weeks (range of 24 to 39 gestational weeks). In 3 cases, maternal CMV seroconversion immediately before or during pregnancy was documented. Only 1 case had clinical manifestations in utero (bilateral temporal cystic lesions and fetal growth restriction). Five cases presented symptomatic cCMV infection: small for gestational age (1); early sepsis (3); petechiae, hepatosplenomegaly and haemolytic anaemia (1). Viral culture of urine samples was used for diagnosis in all cases. Polymerase chain reaction (PCR) assay of neonatal dried blood spot was performed retrospectively to confirm diagnosis after 21 days of life. All neonates had altered findings in an extensive pretreatment evaluation: elevated transaminases (1); indirect hyperbilirubinemia (3); thrombocytopenia (4); haemolytic anaemia (1); neutropenia (3); abnormal cerebral ultrasound, including lenticulostriate vasculopathy, calcifications, periventricular leukomalacia, ventriculomegaly and germinolytic/subependymal cysts (6); abnormal auditory evoked potentials (4). None had abnormal findings in the ophthalmologic examination. All cases started antiviral treatment (3 of them after 1 month of life, due to late diagnosis). The 2 severe symptomatic neonates received Ganciclovir (during 1 month to 6 weeks), whereas the mild symptomatic and asymptomatic neonates were treated with oral Valganciclovir (9 weeks to 6 months duration). During antiviral regimen all children developed severe neutropenia, 3 had severe thrombocytopenia and one presented elevation of creatinine value.
In terms of long-term outcome, 3 (50%) of these cases evolved to unilateral SNHL and 1 had minor intellectual disabilities.

These cCMV cases illustrate treatment guidelines changes during the last decade, as well as current challenges in diagnosis, treatment and follow-up of long-term sequelae. As reported in other studies, SNHL was the most frequent sequela of cCMV. Given the significative public health impact of cCMV, the implementation of a targeted screening for cCMV infection could allow early identification of asymptomatic infants at risk for delayed hearing loss.
Retinopathy of prematurity (ROP) is an important worldwide cause of severe visual impairment in children, due to increased survival of extreme premature infants. Multiple studies have suggested a link between red blood cell (RBC) transfusion and the development of ROP, with a recent research concluding that early RBC transfusion (within 10 days of age) was associated with an almost four-fold increase in the risk of severe ROP, independent of gestational age (GA) at birth, bronchopulmonary dysplasia (BPD) or clinical illness.

We present a retrospective study that included preterm infants born ≤ 32 weeks of GA or with ≤ 1500 g of birth weight (BW), in the last 5 years (2014-2018) in a tertiary Neonatal Intensive Care Unit.

Data was collected through clinical record reviews and included demographic characteristics, prenatal and neonatal history, clinical evolution (including need for RBC transfusion) and main outcomes. Early RBC transfusion was defined as occurring within the first 10 days of life. Infants that did not receive RBC transfusion or that received it after the 10th day of life formed the control group. Severe ROP was defined as requiring laser ablative surgery or treatment with Bevacizumab.

Statistical analysis was performed with Fisher exact/ two-sided Pearson Chi-square test for categorical variables and Mann-Whitney for numerical variables (p-value <0.05). A binary logistic regression was performed to identify the predictors for the development of ROP, including the association between early RBC transfusions and severe ROP.

Results: A total of 245 newborns were included, 50.6% (124) male, with a mean GA at birth of 26.5 weeks and BW of 1176 grams. The incidence of overall ROP was 26.1% (64/245) and severe ROP was 7.3% (18/245): 10 treated with Bevacizumab and 8 with laser ablative surgery. There was a statistically significant correlation between severe ROP and lower BW (mean of 779 ± 73 grams), younger GA (mean 25.4 ± 0.54 weeks), treated patent ductus arteriosus, higher number of days on supplemental oxygen (median 99.5 ± 27 days), postnatal steroid and inotropic use, BPD, overall RBC transfusion number (median 7.5 ± 7) and timing of RBC transfusions. Although approximately 90% (16/18) of infants who developed severe ROP received an early RBC transfusion,
with a statistically significant association (p < 0.001, OR 22.7, 95% CI: 5.08 – 102.1), this was not proven (p 0.323, adjusted OR 0.327) in the binary logistic regression model (R-squared = 0.431, p < 0.001).

In this sample, RBC transfusions in the first 10 days of life were not associated with an increased risk of severe ROP.
Patent ductus arteriosus (PDA) is a frequent complication in preterm infants associated with various morbidities. Ibuprofen has been effectively used for pharmacological closure of PDA. Our aim was to estimate the closure rate of clinically significant PDA using high-dose regimen of ibuprofen and record possible side effects.

Twenty nine neonates with mean gestational age 30±0.5 weeks and hemodynamically significant PDA, hospitalized from June 2013 until December 2017 were treated with high dose of ibuprofen 14, 7 and 7 mg/kg. A second and a third course of 20, 10 and 10 mg/kg of ibuprofen was given when failure of closure of PDA was noted. Nineteen neonates, with mean gestational age 27±0.6 weeks, who were treated for hemodynamically significant PDA, with the standard dose of ibuprofen (10, 5 and 5 mg/kg), from January 1012 until May 2013, were used as controls and were compared with those treated with the high dose regimen. Adverse effects were recorded for the two groups.

Results
A higher rate of closure in the high dose group could be observed (97 vs 84%, p=0.13), which was not significant but indicated a clear positive trend. Of the neonates treated with the standard dose regimen, 52.6% had persistent PDA and needed a second course as compared with 20.7% of those treated with the high dose regimen (p=0.022). There was no statistically significant difference in the day of treatment started between the two groups (4.2±1.6 vs 4.8±0.8, p=0.183). No significant differences in clinical side effects or complications were noted also.

High dose ibuprofen seems able to increase the rate of effective pharmacological PDA closure without causing any further side effects.
Methylmalonic acidemia (MMA) is an autosomal recessive disorder of metabolism caused by deficient methylmalonyl –CoA mutase activity or impaired transport and synthesis of its cofactor, cobalamin. We present a case of newborn in whom cardiac failure developed probably as a result of this metabolic disease.

A 13 days old boy with a history of a sister’s death at neonatal period after unexplored heart failure, was transferred from pediatric cardiology department for dilated cardiomyopathy with left ventricular ejection fraction (LVEF) 25% and pulmonary hypertension. ECG did not have any evidence of myocardial ischemia. Results of laboratory studies demonstrated metabolic acidosis, mild elevation of serum lactic acid. Chest radiography showed cardiomegaly. Urine organic acid levels during the peak of a crisis showed high concentrations of methylmalonic acid but a little concentration of methyl citrate. Homocystein level was 5.36µmol/l (N=5-15µmol/l) He was started on furosemide, captopril, digoxin and L-carnitine (100 mg/kg/day).Free carnitine level was 27µmol/l (N=18-38) and total carnitine level was 34 (N=28-48). Profile of acylcarnitine in blood and urine organic acids was compatible with methylmalonic acidemia. Whole exom sequencing showed methylmalonic aciduria of the cblA complementation type. His situation was improved after intensive care management. He discharged from hospital under protein restricted-diet, L-carnitine and vitamine B12.

This cardiac manifestation was the first symptom of MMA. Physicians should be aware about this atypical presentation witch can be fatal if not diagnosed and managed rapidly.
Neonatal jaundice is considered to be one of the most frequent symptoms during infancy as about 60% of children in neonatal period have hyperbilirubinemia. It is accepted as normal for newborns to lose up to 10% of their weight during the first days without this having any effect on their general condition.

The aim of this study is to establish a connection between the dynamics of the weight curve and the levels of bilirubin during the first month of life. A total of 195 newborn children, born from 01.01.2018 to 31.01.2018 in University Hospital Medica in Ruse, are included in the research. The levels of bilirubin transcutaneously and the weight during the duration of the hospital stay were traced daily and during routine medical examinations. 22 (~11%) of the monitored children show no icterus signs. In 21 (~11%) of the monitored children have breast milk jaundice. There is prolonged jaundice in 50 (~26%) of the infants after the fourteenth day of birth, in 27 (~14%) - after the thirtieth day and in 4 (~2%) - after the sixtieth day of birth.

The lowest decrease in weight and largest percentage increase of weight at the fourteenth and twenty-eighth day of birth was observed in the group including infants with jaundice from breast milk. The children with prolonged icterus show highest decrease in growth for the first week of life and respectively - lowest increase in growth at the fourteenth and twenty-eighth day of birth.

Conclusion - the lowest weight growth in infants during the first month of life has a negative effect on the extent of decrease of manifestation of neonatal icterus.
**TITLE:** NEONATAL ABSTINENCE SYNDROME AND LONG-TERM OUTCOME – 10 YEAR EXPERIENCE AT A PORTUGUESE HOSPITAL

**AUTHORS:** M. B. Figueiredo, I. V. Gonçalves, L. Queiró, D. Malveiro

**AFFILIATIONS:** 1. Neonatal Intensive Care Unit, Pediatric Department, Centro Hospitalar de Lisboa Ocidental, Lisboa, Portugal.

**CONTENT:**

Antenatal exposure to opiates and other drugs can lead to withdrawal symptoms in the newborn (neonatal abstinence syndrome [NAS]). The aim of this study was to characterize the newborns of drug addicted mothers over a period of 10 years, evaluating neonatal morbidity, treatment and neurodevelopmental outcomes.

Retrospective chart review of all 25 newborns of drug addicted mothers admitted between January 1st, 2008 and December 31st, 2017. We considered repeated drug use and/or enrollment in detoxification programs during pregnancy as drug addiction.

Results:

From the 25 newborns of drug addicted mothers, 88% (n=22) developed NAS. The year with most cases was 2008 (n=10). Most mothers were enrolled in a detoxification program and under methadone therapy (n=15), and 45% (n=10) carried infections with potential for vertical transmission (HCV n=7, HBV n=2 and HIV n=1). Only 32% (n=7) of the gestations had adequate medical follow-up and 2 newborns were small for gestational age. Most newborns (86%, n=19) presented with NAS symptoms during the first 4 days of life, and methadone was the drug of choice for treatment in 59% (n=19). Currently, 4 children are diagnosed with neurodevelopmental disorders, including cognitive deficit, attention-deficit/hyperactivity disorder and language disorders.

Conclusions:

The number of NAS cases has decreased over the years. Most newborns of drug addicted mothers developed NAS. We found a high prevalence of infections with potential for vertical transmission and inadequate pregnancy follow-up. Most newborns had adequate birth weight for gestational age. An important percentage (18%, n=4) is currently diagnosed with a neurodevelopmental disorder. Adequate follow-up of drug addicted pregnant women and their offspring is crucial in preventing NAS and associated morbidity.
**TITLE:** PROCALCITONIN LEVELS IN PRETERM INFANTS WITH RISK OF SEPSIS IN ASSOCIATION WITH THE SEVERITY OF RESPIRATORY DISTRESS SYNDROME

**AUTHORS:** T-W. Chiam 1; Y-P Wong 2; F M-Z 3; F-C Cheah 1

**AFFILIATIONS:** 1 Department of Paediatrics, 
2 Department of Pathology, 
3 Department of Radiology, 
Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia

**CONTENT:**

Procalcitonin (PCT) level as a laboratory marker of sepsis is lacking of a standard reference range in preterm infants. Previous studies have shown varying PCT cut-off as indicator of sepsis, the levels of which may be affected by different gestational ages and severity of respiratory illness. Preterm infants are commonly affected by respiratory difficulties initially after birth. As such, this clinical state may itself elevate the PCT levels used to determine whether an infant is actually having an infection or not.

We measured PCT levels in preterm infants with the risk of sepsis, who also had respiratory distress syndrome. Preterm infants <35 weeks were recruited and had PCT taken at 6 and 48 hours of life. Placentae were examined for subclinical chorioamnionitis. Radiographic diagnosis and severity of RDS were confirmed by a radiologist.

**RESULTS**

A total of 138 preterm infants were recruited and categorized to have risk of sepsis (ROS)(N=88) and no risk of sepsis (nROS)(N=50). The median gestational age and birth weight were 32 weeks (IQR: 28,33) and 1590 g (IQR: 1197,1962) respectively. PCT at 6 hours were similar and elevated in both groups, median 3.08 ng/mL (IQR: 0.89,7.79) and 2.17 ng/mL (IQR: 0.65,6.00); p=0.358. Infants with ROS were significantly associated with exposure to chorioamnionitis (p=0.001); elevated PCT at 6 hours: median 2.56 ng/mL (IQR: 0.53,12.98) and also at 48 hours; 5.15 ng/mL (IQR: 0.61, 16.6). Infants with RDS grade 1(N=68) had elevated PCT at 6 hours; median 2.76 ng/mL (IQR: 0.96,7.05), which decreased significantly to 0.52 ng/mL (IQR: 0.33,1.69;p=0.003) at 48 hours.

PCT appeared to be higher and remained elevated with exposure to chorioamnionitis and the greater severity of RDS. In conclusion, exposure to chorioamnionitis is associated with elevated PCT and the levels are affected by the severity of RDS. A revised PCT reference range needs to be developed as a reliable indicator of sepsis in preterm infants with concomitant respiratory illnesses.
We report the case of a term, large for gestational age female neonate, born by vaginal delivery at 40 weeks gestation, Apgar score was 7, 7, and 8 at 1, 5, and 10 minutes, respectively. Birth weight was 4000 g. The newborn was admitted to the Neonatal Intensive Care Unit (NICU), Ospedale degli Infermi, ASL Biella, Italy. The capillary blood gas immediately after admission showed a pH level of 7.04, pCO2 65 mmHg, pO2 38 mmHg, a base excess of -14 mmol/L, and lactate of 10 mmol/L. The newborn developed a respiratory distress with a rapid worsening of the respiratory function and an increase in oxygen requirement. The chest X-ray showed diffuse micronodula and upper right opacity. Blood cultures were collected and antibiotic therapy with Piperacillin-Tazobactam and Gentamicin was started. At 2 hours of life she developed hypotension and dopamine was administered at 5 mcg/kg/min up to 10 mcg/kg/min.

After, a large amount of blood was seen in the upper airways and a difficult emergency intubation was performed after sedation with fentanyl. Abundant blood secretions were aspirated from the endotracheal tube and severe bradycardia occurred, requiring chest compressions, adrenaline and a crystalloid bolus. SpO2 was 85% with FiO2 1. Fresh blood continued to appear in the endotracheal tube and the newborn’s cardiovascular status remained unstable.

She was transferred to a third level NICU where she was sedated with fentanyl and midazolam and ventilated with High Frequency Oscillatory Ventilation (FiO2 1, MAP 19, Hz 9, ΔP 28) switched to Synchronized Intermittent Positive Pressure Ventilation + VG with the improvement of respiratory
distress. On day 8, she was extubated. Inotropic support was continued with dopamine and dobutamine suspended on day 5 and 6 from admission, respectively. Transthoracic echocardiogram showed a good left ventricular function and no pulmonary hypertension. The CBC revealed a total white cell count of 8,69x10^3/μl; Hgb 14,3 g/dl, Hct 42,7% and platelet count 257 x10^3/μl. Liver enzymes were normal. Since coagulation profile was altered PT INR 2,31, PTT 69,2 seconds and fibrinogen 125 mg/dl plasma was transfused, on day 1. Her cardiovascular status remained stable. PCR, PCT and blood cultures were negative. On day 11 she was backtransported in our NICU. Her head and renal ultrasound scans were negative. She was discharged home after 20 days of hospital stay.

The precise aetiology of PH remains unclear. It could occur without having any known risk factor like prematurity, RDS, treatment with surfactant, patent ductus arteriosus, intrauterine growth retardation, birth asphyxia, meconium aspiration, pneumothorax or pulmonary interstitial emphysema. 60% of survivors develop bronchopulmonary dysplasia, 75% neurosensory deficit or death. Increased incidence of cerebral palsy, cognitive delay and periventricular leukomalacia are also reported.

Current management of PH in preterm infants includes strategies to maintain adequate gas exchanges and to prevent haemorragic shock such as ventilatory support, conventional or HFOV transfusion of blood products to support the circulation and to correct coagulation disorders and treatment for patent ductus arteriosus.

The use of surfactant to contrast the increase in surface tension could be a promising treatment option but a recent Cochrane provides no guidance for clinical practice due to the lack of trials. Other strategies include recombinant activated factor VII or Haemocoagulase through endotracheal tube as rescue therapy in case of failure of ventilation.

Further researches on the pathogenesis of PH are needed to identify interventions that can improve outcome.

**IMAGES:**

https://www.eiseverywhere.com/eselectv3/v3/events/354183/submission/files/download?fileID=2a9984b2fa70146078e76d4de2f3ab1f-MjAxOS0wNCM1Y2FiMTk0ODM2ZDI2
Fetomaternal hemorrhage (FMH) is described as a transfer of fetal blood into maternal circulation before or during delivery. Massive FMH can even lead to fatal pregnancy outcome, however, the pathophysiology of this phenomenon is still unclear because of its rarity, sudden appearance, presentation with nonspecific signs and symptoms and lack of physicians’ awareness. In order to obtain better outcome in the most severe cases, coordinate action of obstetrician and appropriate assessment by the attending neonatologist are crucial.

We present a case of a small-for-gestational-age neonate born in 39+3 weeks of gestation. A 25-year-old secundigravida came into the clinic since she noticed decreased fetal movement for two days. Although umbilical arterial Doppler showed no abnormalities, repeated CTG pattern with no acceleration indicated imminent asphyxia and cesarean section was performed. On initial assessment, the infant was extremely pale, with regular heart rate of 120-130 hb per minute, with spontaneous respirations, dyspnoic and limp. Systolic murmur was registered and peripheral pulse filiform, almost scarce. Abdomen was distended and tense, liver palpable 5 cm under the right costal margin and spleen 3 cm under the left. Positive pressure ventilation by bag mask was provided followed by endotracheal intubation and upon arriving to NICU mechanical ventilation with SIPPV mode was started with high oxygen concentrations. Intravenous cristaloid infusion was administered in order to supply the vascular volume. First blood count showed extreme anaemia: Wbc 16.6*10⁹/L, Rbc 0.84*10¹²/L, Hgb 34 g/L, Hct 0.12, MCV 120 fl, MCH 40 pg, Plt 78*10⁹/L. Blood gas analysis revealed severe acidosis: pH 6.85, pCO₂ 11.34 kPa, pO₂ 2.14 kPa, base excess of -16.3 mmol/L, lactate 10.5 mmol/L. Immediate transfusion of erythrocytes was of uttermost importance and 275mL of "O" RhD negative erythrocytes was administered. With initial steps of resuscitation and management, stable clinical state was attained. Further clinical state allowed extubation after 24 hours of mechanical ventilation and demanded two additional erythrocyte transfusions. Diagnostic tests were performed - tests for viral infection were negative, there were no signs of sepsis, and Kleihauer-Betke test showed this was a case of a massive fetomaternal hemorrhage.
Massive FMH may have serious consequences for infant. Hypoxic-ischemic encephalopathy, severe anaemia or even stillbirth may occur due to this process. Notifying the neonatologist of antenatally suspected massive FMH is paramount, since appropriate resuscitation measures and prompt blood transfusion are considered essential for the outcome.
CONTENT:

Pneumothorax and pneumomediastinum are pulmonary air leaks, frequently found in newborns, with a higher incidence in preterm infants (1 vs. 10%). Air leaks may be spontaneous or iatrogenic. Mechanical respiratory support, endotracheal tube or lung disease may increase the risk of air leaks, while surfactant administration has shown to reduce the incidence of pneumothorax.

Retrospective descriptive study included all newborns hospitalized in a level III NICU, between January 2009 and December 2018, with pneumothorax and pneumomediastinum diagnosis.

During the studied period, 26 neonates were included, representing 1.4% of the NICU admissions. Seventeen (65%) were male, with a median gestational age of 33 (26-41) weeks and a mean birthweight of 2156 (540-3820) grams. Pneumothorax was diagnosed in 17 cases, pneumomediastinum in 6, and 3 neonates had both. The most common presenting symptom was tachypnea (12 cases) and increased oxygen requirement (10 cases). None had signs of hemodynamic instability. Of the total, 11 neonates needed resuscitation at time of delivery, with ventilation support through an endotracheal intubation in 4. The majority of cases (20/77%), occurred in ventilated neonates (mechanical ventilation in 8 and non-invasive ventilation in 12). Surfactant administration was done in 9 neonates. Diagnosis was made by chest radiograph (CXR) in all cases. Treatment was performed by thoracentesis with thoracic drain in 14 cases and needle aspiration in 2. In case of neonatal respiratory distress, pneumothorax is a diagnosis that should be considered. Our results were similar with literature, being more common in preterm neonates under ventilation treatment, despite having an overall lower incidence of air leaks. CXR is still the gold standard for diagnosis, but transthoracic echography is an acceptable alternative. A conservative approach might be a successful management for symptomatic pneumothorax in hemodynamically stable preterm infants receiving assisted ventilation.
The term ventriculomegaly is used to define the widening of one or several ventricles regardless of the skull dimensions and the cause of the dilatation.

Case Report: Newborn boy 27w, 645gr IUGR was born by caesarian section due to maternal pre-eclampsia. Apgar score 8 at first minute and 9 at fifth minute. During his hospitalization in the neonatal intensive care unit main problems were RDS, BPD, enterococcus septicemia, foramen ovale and ROPII. On 7thday of life cerebral ultrasound revealed ventriculomegaly without concurrent intraventricular hemorrhage and a small increase in echogenicity of the periventricular white substance which progressively disappeared. The left lateral ventricular diameter in cross-section increased from 0.7cm to 30w to 1.2cm at 36w. Head circumference increased 5cm from 27w to 36 w (0.6cm weekly) remaining consistently at the 10th percentile. At 36w gestation age the infant exhibited myoclonic tremor mainly of upper limbs after a stimulus attributed to premature jitteriness. EEG showed no abnormal findings. It was not considered appropriate to perform a magnetic resonance imaging of the brain, instead electing to monitor the head circumference and developmental progress. Developmental assessments until 18 months corrected age showed normal motor and cognitive functions.

Discussion: Ventricular dilatation is a frequent finding observed in approximately 0.5% to 2% of births and has a very diverse etiology. Pathological dilatation of lateral ventricles, Hydrocephalus is presents a diameter above 15mm with disproportionate increase in the head circumference and occurs at a frequency of 1/1000 births. The majority of embryos with ventricular dilatation do not develop a hydrocephalus, particularly if it is a marginal dilatation (hindpaw diameter 10-15mm in at gestation age over 18w or more than 9-10mm below 18w.) The pathophysiology of marginal dilatation is unknown. In most cases it represents a normal anatomic variant. In other cases, chromosomal abnormalities (trisomy 18, 21, 13), endometrial ventricular hemorrhages and congenital infections (cytomegalovirus, toxoplasmosis) are involved. However, most cases have unknown causes and have been attributed to genetic and environmental factors. The male fetuses present more often marginal ventriculomegaly although with better outcome (5% versus 24%). An abnormal outcome happens when ventriculomegaly combines with aneuploidy (3.8%) or other developmental malformations of the brain (8.6%) and may be result in perinatal death (3.7%) or mental and/or motor growth retardation (11.5%). Abnormal outcomes are more common in a lateral ventricular diameter greater than 11mm (9% vs. 24%).
Conclusion: Premature or term infants with marginal ventriculomegaly (10-15mm), without brain or other abnormalities can develop normally, but they need meticulous follow-up.
INTRODUCTION Retinopathy of prematurity (ROP) is a disorder of the developing retinal blood vessels affecting premature and low birth weight newborns. It is caused by disorganized growth of retinal blood vessels which may result in scarring and retinal detachment. ROP can be mild and may resolve spontaneously, or it may lead to blindness, in serious cases. International studies have reported a wide range of ROP incidence, starting from as low as 29.2% in Singapore, to as high as 47% in the USA. The variation in ROP incidence may be attributed to the difference in neonatal practice, studied subjects, as well as genetic and racial background.

AIM The aim of our work is the study of ROP incidence in our NICU.

MATERIAL-METHOD It is a retrospective cohort study, over a two years period (January 2017-December 2018). The inclusion criteria were all premature newborns, with GH age less or equal to 32, and low birth weight, with GW less or equal to 1500gr, with ROP, who were hospitalised in our NICU.

RESULTS Among a total of 531 neonates who were admitted to NICU during the 2-year study period, 64 had GH less or equal to 32 weeks, and 68 were less or equal to 1500gr of BW. 15 neonates developed ROP (of any stage) in one or both eyes, giving the incidence of 23.4%, during this 2-year study. Higher incidence of ROP was found with neonates with lower GA and lower BW. Seven of them (10, 9%) presented with severe ROP and needed laser photocoagulation therapy. All of them had a favourable outcome. Only one treated additionally with anti-VGF injection.

CONCLUSION ROP is still commonly encountered in neonatal practice. Our results are in accordance with the literature.
TOPIC: Miscellaneous - Other

ABSTRACT ID: 125

TITLE: SERIAL NEONATAL CRANIAL AND CARDIAC SONOGRAPHY: CHANGES DURING THERAPEUTIC HYPOTHERMIA AND REWARMING. A CASE REPORT

AUTHORS: P. Mexi Bourna,1 P. Triandafyllidou,1, A, Daskalaki, 1 V. Sideri, 1 E. Kapsabelli, 1 N. Podimatas, 1 Adamopoulos K1, E. Alexopoulou. 2

AFFILIATIONS: 1. Neonatal Intensive Care Unit, Attikon University Hospital Athens Greece
2. Radiology Department, Attikon University Hospital Athens Greece

CONTENT:

Hypoxic-ischemic encephalopathy (HIE) is a major cause of morbidity and mortality in neonates. Throughout the world each year, an estimated 23% of the 4 million neonatal deaths and 8% of all deaths in <5 years of age are associated with signs of asphyxia at birth.1 Therapeutic hypothermia using whole body cooling is the current treatment of choice to reduce brain injury and improve long-term neurodevelopmental outcomes.

OBJECTIVE: Prior to therapeutic hypothermia Doppler brain sonography resistive indices (RI) were studied as a bedside non-invasive measure of cerebral hemodynamics in neonates who suffered from hypoxic-ischemic encephalopathy (HIE). In this report we have studied the structure and hemodynamic changes of the brain and the heart during cooling and rewarming.

MATERIAL AND METHOD: A full-term male infant (GA 38w BW 2750 gr) was transferred to our NICU on the seventh hour of life. He was born by emerged CT due to placental abruption. He started hypothermia treatment the 10th hour of life; whole body cooling was achieved with the use of ice packs to an anal temperature of 34.0-34.5°C. He started gradual rewarming after 72 h. He presented first 24h seizures and started received anti-convulsive treatment. During the cooling and rewarming we performed a series of brain ultrasounds, Doppler ultrasound examination of the anterior cerebral arteries and functional cardiac ultrasound.

RESULTS

<table>
<thead>
<tr>
<th>Time (h)</th>
<th>Brain ultrasound findings</th>
<th>Cardiac ultrasound findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>* Visible ventricles</td>
<td>0.47</td>
</tr>
<tr>
<td>34(24h**)</td>
<td>Bilateral symmetric increased echogenicity, Slit-like Ventricles 0.63</td>
<td></td>
</tr>
<tr>
<td>46(36h**)</td>
<td>Bilateral symmetric increased echogenicity, Slit-like Ventricles 0.49 Interventricular septal thickening, hypokinetic heart walls</td>
<td></td>
</tr>
<tr>
<td>70(60**)</td>
<td>Mild signs of edema 0.65</td>
<td></td>
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<tr>
<td>77(7)</td>
<td>Slit-like ventricles without signs of edema. Negative wave during diastolic phase 1</td>
<td></td>
</tr>
<tr>
<td>32h</td>
<td>Slit-like Ventricles increased echogenicity 0.63 Decrease Interventricular septal thickening and hypokinetic heart walls</td>
<td></td>
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RESUMING

Hypoxic-ischemic encephalopathy (HIE) is a major cause of morbidity and mortality in neonates. Throughout the world each year, an estimated 23% of the 4 million neonatal deaths and 8% of all deaths in <5 years of age are associated with signs of asphyxia at birth. Therapeutic hypothermia using whole body cooling is the current treatment of choice to reduce brain injury and improve long-term neurodevelopmental outcomes.
48h\(^\text{^\text{\textsuperscript{\text{\textcircled{^}}}}}\) Normal appearance of ventricles increased echogenicity of in the distribution of thalamostriate vessels 0.62
Before exit Normal appearance of ventricles 0.83
*beginning of hypothermia
**Time from the beginning of hypothermia
\(^\text{\textsuperscript{\text{^\text{\textcircled{^}}}}}\) rewarming
After the rewarming the baby had an uneventful course and was normal at the 2 year follow up.
DISCUSSION: Diffuse brain edema deteriorated during the cooling and rewarming phase of treatment. Slit-like ventricles, rise of systolic and a negative wave in the pattern of Doppler ultrasound of anterior cerebral artery were patterns that would not have been revealed without close examination. RI values in the anterior cerebral artery were between 0.47-1 in this infant. In our patient these values were associated with a favorable outcome. In a recent study it was reported that neonates with RI values <0.60 prior to and following cooling were more likely to die or have severe neurodevelopmental disability by ages 20-32 months than compared with those whose RI values after cooling were>0.60.2
In this study we also observed impaired heart appearance and function as previously reported.3
CONCLUSION Although further studies are needed, Doppler ultrasound could potentially be a useful bedside tool for the evaluation of the HIE insult treated with mild hypothermia.
TOPIC: Morbidity associated with early infection by Respiratory Viruses

ABSTRACT ID: 1

TITLE: RESPIRATORY ILLNESS AND RESPIRATORY SYNCYTIAL VIRUS HOSPITALIZATION (RSVH) IN THE CANADIAN REGISTRY OF PALIVIZUMAB (CARESS; 2005-2017)

AUTHORS: B. Paes1; A. Li 2; M. Saleem 2; K. Lanctot 2; I. Mitchell 3

AFFILIATIONS: 1. Pediatric Dept, McMaster University, Hamilton, Ontario, Canada
2. MORE Research Group, Sunnybrook Health Sciences Centre, Toronto, Canada
3. Pediatric Dept, University of Calgary, Calgary, Alberta, Canada

CONTENT:

Palivizumab safely reduces RSVH in high-risk children. Data are necessary to identify which infants receive prophylaxis and establish RSVH incidence in specific sub-populations. The objective of this study was to determine respiratory-related illness hospitalization (RIH) and RSVH in children who received palivizumab for approved indications (prematurity less than 35 weeks gestational age, bronchopulmonary dysplasia [BPD], hemodynamically significant congenital heart disease [HSCHD]) and complex medical disorders (CMD) using a Canadian registry database (CARESS).

A prospective, observational, registry of infants who received ≥1 dose of palivizumab during the 2005-2017 RSV seasons in 32 sites. Neonatal and demographic data were collected at enrollment. Data on palivizumab utilization, adherence, and outcomes related to respiratory illness events were collected monthly. Data were analyzed using t-tests, chi-square tests and Cox proportional hazards adjusted for potential confounders.

25,003 infants aged (mean=5.7 ± 6.4 months) were enrolled. Participants were typically male (56.3%), Caucasian (68.6%), mean gestational age 32.6 ± 5.0 weeks. Indications for palivizumab included (n, %): prematurity (15821; 63.3%), BPD (2104, 8.4%), HSCHD (2626, 10.5%), and CMD (4452, 17.8%). Patients received an average of 4 ± 1 injections, and 109579 doses overall. Across the 12 RSV seasons, 20,964 (83.8%) children received at least all of their expected injections, 73.9% of children received their expected injections per season and 74.8% were adherent based on inter-dose intervals. 1724 infants had 2054 hospitalizations for respiratory-related events. Compared to preterms, children with HSCHD and CMD had a 2-fold higher RIH rate (11.5% vs. 4.3%, χ² (1) = 238.5, p<0.0005) and (10.2% vs. 4.3%, χ² (1) = 399.0, p<0.0005) respectively, while the BPD rate was 3-fold higher (13.8% vs. 4.3%, χ² (1) = 227.1, p<0.0005). Unadjusted RSVH rates following prophylaxis were similar across groups; prematurity (1.1%), BPD (2.2%), HSCHD (1.9%), CMD (1.5%) but were significantly higher in BPD (Hazard Ratio [HR] =1.8 [1.3-2.6], p=0.001) and HSCHD (HR=1.5 [1.1-2.2], p=0.02) but not CMD (HR=1.2 [0.8-1.6], p=0.34) compared to preterms. Risk factors for RSVH included: siblings (HR=1.8, 95%CI 1.3-2.5, p=0.001), siblings in daycare (HR=1.5, 95%CI 1.1-2.0, p=0.005), a family history of atopy (HR=1.3, 95%CI 1.0-1.7, p=0.022), exposure to smoking in the household (HR=1.5, 95%CI 1.2-2.0, p=0.001), more than 5 people in the
household (HR=1.7, 95%CI 1.3-2.2, p<0.0005) and subject in daycare (HR=1.7, 95%CI 1.1-2.6, p=0.029). Infants with 5 risk factors were 9.0 times (p<0.0005) more likely to be hospitalized with RSV than infants with no risk factors. Overall RIH and RSVH rates across the 12 seasons were 6.9% and 1.6% respectively.

Preterm infants had the lowest RIH and RSVH rates following prophylaxis, compared to the other sub-populations. The RSVH rate in CARESS aligns closely with reports from other international registries (range 0.7%-5.3%), and is relatively low despite the fact that the database encompasses the largest group of children who have received prophylaxis for CMDs. RSVH rates may be decreasing overall in high-risk infants due to improved adherence with prophylaxis, variability in RSV epidemiology across countries, hospital admission criteria and preventive education.
TOPIC: Morbidity associated with early infection by Respiratory Viruses

ABSTRACT ID: 9

TITLE: RESPIRATORY SYNCYTIAL VIRUS (RSV) INFECTION IN THE FIRST TWO YEARS OF LIFE REQUIRING INTENSIVE OR HIGH DEPENDENCY CARE

AUTHORS: J. Coutts 1; R. Thwaites 2; J. Fullarton 3; E. Grubb 4; C. Morris 5; B. Rodgers-Gray 3; X. Carbonell-Estrany 6

AFFILIATIONS: 1 Royal Hospital for Children, Glasgow, UK; 2 Queen Alexandra Hospital, Portsmouth, UK; 3 Strategen Ltd, Basingstoke, UK; 4 AbbVie Inc, North Chicago, USA; 5 Information Services Division Scotland, Edinburgh, UK; 6 Institut d’Investigacions Biomediques August Pi i Sunyer (IDIBAPS), Barcelona, Spain

CONTENT:

This study assessed the clinical and economic burden of RSV on intensive care units (ICU; Level 3/highest care) and high dependency units (HDU; Level 2 care) in Scotland.

National Health Service hospital care and costs in Scotland from the Information Services Division (ISD) were used to identify all children born 2000-2011 who has ≥1 confirmed RSV hospitalisation (RSVH, ICD-10 codes J12.1, J20.5 & J21.0) over the first 2 years of life. Information on HDU or ICU care required for RSVHs was analysed.

Of 13,362 children with a RSVH, 782 (5.9%) required HDU/ICU admission (63.6% [497/782] in ICU only), with the rate being 47.3/1,000 children with RSVH (Table). The median length of stay in HDU/ICU was 10 (interquartile range: 6-16) days, and was similar for those in HDU (10 [6-16] days) and ICU (11 [7-17] days). Median age at admission to HDU/ICU (59 [31-133] days) was significantly (p<0.0001) younger than age at admission for all RSVHs (137 [62-264] days). Median age at admission was similar for those in HDU (59 [32-147]) and ICU (58 [31-122]). Children admitted to HDU/ICU were significantly more likely to be part of a multiple birth (9.0% vs. 5.6%) and have lower birthweight (mean 2840g vs. 3180g) and gestational age (mean 36.7 vs. 38.2 weeks), than their counterparts not admitted to HDU/ICU (all p<0.0001). RSVHs accounted for 12.6% (667/5298) of all HDU/ICU admissions in October–March and 19.8% (394/1991) in December-January. The average cost per admission (using 2017 costs) was £35,574 for HDU/ICU, £29,989 for HDU and £38,027 for ICU, equating to £2,768,881, £712,236 and £2,056,645, respectively, per RSV season. These results demonstrate the substantial burden of RSV on HDUs and ICUs, particularly during the colder (October-March) months.
TOPIC: Morbidity associated with early infection by Respiratory Viruses

ABSTRACT ID: 25

TITLE: RESPIRATORY SYNCYTIAL VIRUS HOSPITALISATION (RSVH) IN BABIES BORN PREMATURELY AND AT TERM FOLLOWING RESPIRATORY PROBLEMS (RP) IN EARLY INFANCY: TRENDS OVER TIME AND IMPACT OF CHRONOLOGICAL AGE

AUTHORS: J Coutts 1, R Thwaites 2, J Fullarton 3, E Grubb 4, C Morris 5, B Rodgers-Gray 3, X Carbonell-Estrany 6

AFFILIATIONS: 1 Royal Hospital for Children, Glasgow, UK; 2 Queen Alexandra Hospital, Portsmouth, UK; 3 Strategen Ltd, Basingstoke, UK; 4 AbbVie Inc, North Chicago, Illinois, USA; 5 Information Services Division Scotland, Edinburgh, UK; 6 Institut d’Investigacions Biomediques August Pi i Sunyer (IDIBAPS), Barcelona, Spain

CONTENT:

RP, such as chronic lung disease, are associated with increased rates of RSVH in young children. This study provides further information on: 1. Epidemiology of RP and RSVH over a 12-year period in a national population; and, 2. RSVH rates in the first vs. second year of life in these children.

All children with RP (ICD-10 codes: P25, P27.0, P27.1 & Q30-34) born between 2000-2011 in NHS Scotland were identified from the Information Services Division (ISD) datasets. RSVHs (J12.1, J20.5 & J21.0) over the first 2 years of life were assessed.

Of 623,770 children born during the study period, 3,264 (0.52%) were diagnosed with RP. The most common diagnoses were: P25 Interstitial emphysema and related conditions (39.8%); Q31 Congenital malformations of larynx (24.8%); and P27.1 Bronchopulmonary dysplasia (17.6%). Incidence ranged from 0.43-0.62% over the study period (p=0.28). During the first 2 years of life, RSVH incidence was 8.8% (286/3,264) and RSVH rate was 107.2/1,000. Median age at first RSVH was 211 (interquartile range: 105-356) days. RSVH incidence varied annually (range: 6.5-11.8%), with no significant trend over time (p=0.88). RSVH incidences and rates were 6.6% (216/3,264) and 77.5/1,000, respectively, in the first year of life and 2.5% (83/3,264) and 29.7/1,000 in the second year of life. Intensive care unit (ICU) admissions, length of stay (LOS) in ICU, and overall LOS in hospital decreased with increasing chronological age (Table). RSVH incidences and rates were significantly (p<0.0001) higher in children with RP than in those without such problems in the first (3.6% [22,626/620,506] & 42.6/1,000) and second (1.2% [7,408/620,506] & 13.6/1,000) year of life. This study shows that RP remain a significant risk factor for RSVH in children through 2 years of age, where over a quarter (27.7%) of RSVHs occurred in the second year of life.
TOPIC: Morbidity associated with early infection by Respiratory Viruses

ABSTRACT ID: 74

TITLE: EPIDEMIOLOGICAL OUTBREAK OF RSV INFECTIONS IN THE NEONATOLOGY CLINIC OF THE UNIVERSITY OBSTETRICS AND GYNECOLOGY HOSPITAL, SOFIA, FEBRUARY-MARCH 2019

AUTHORS: L. Vakrilova 1; B. Slancheva 1; N. Korsun 2; S. Angelova 2; Z. Emilova 1; P. Radulova 1; St. Hitrova - Nikolova 1

AFFILIATIONS: 1 Neonatology Clinic, University Hospital of Obstetrics and Gynecology, "Maichin dom", Medical University of Sofia, Bulgaria
2 National Laboratory "Influenza and ARD", National Center of Infectious and Parasitic Diseases, Sofia, Bulgaria

CONTENT:

Respiratory syncytial virus (RSV) is the predominant cause for lower respiratory tract infections (LRTI) in infancy. Preterm infants are at higher risk of RSV-LRTI and severe morbidity, but full-term infants can be affected too. Premature infants with BPD are more susceptible to the RSV infection and may develop serious disease due to the impaired development of the lung and the immune system. The aim of our presentation is to report a nosocomial outbreak of RSV infections in February-March 2019 among inborn infants in the University O&G hospital "Maichin dom", Sofia. Two groups of newborns without contact with each other were affected: 1. Healthy term infants; 2. Premature infants who were treated in the NICU.

1. The group of the term infants: 148 healthy term infants were born in the period 5-18 February 2019; 3 - 7 days after discharge respiratory symptoms were observed in 14 of them; 12 babies were hospitalized in Pediatric Departments with LRTI and were discharged home few days later after recovery. In 4 of these babies, as well as in the 2 outpatient infants, the RSV-PCR was positive, in the other hospitalized newborns RSV etiology was suggested, but PCR was not performed.

2. The group of premature NICU-patients (table 1):
The first symptomatic patient was a 3 months old extremely premature twin (26 GW at birth) with severe BPD, who was already stable and had received 3 doses of Palivisumab prophylaxis. A critical deterioration with symptoms of bronchiolitis occurred, the baby was put back on mechanical ventilation, RSV-PCR (+) was established. In the period 15 Feb-15 Mar 26 immature babies, who were treated in NICU and were in contact with the RSV (+) patient, were tested for RSV (33 nasal/throat swabs). All these babies received a prophylactic first or subsequent dose of Palivisumab. The detection of RSV was performed using Real Time PCR. Subgroup-specific primers and probes targeting F and N genes of the RSV were used to determine the RSV-A and RSV-B, respectively using Multiplex Real Time RT-PCR. In 9 of the samples RSV-B was typified, in 2 samples typing was not possible.

We identified 11 positive samples in 7 of the babies who were put in isolation. In 4 of them the second RSV-PCR, which was performed from 1 to 3 weeks after the first sample, remained positive, but the
clinical symptoms of LRTI were resolved. Due to respiratory deterioration 3 babies were re-tested after negative first samples and found to be RSV-PCR positive. In 6 of all 7 RSV (+) premature infants symptoms of LRTI (bronchiolitis) occurred, 2 of them were with severe respiratory failure and assisted ventilation was performed. At the time of the submission of the abstract all RSV positive babies were stabilized, 2 of them – discharged home, 3 expected to be discharged in the next days. There were no more babies with respiratory deterioration due to RSV-infection.

The reported epidemiological outbreak of RSV infections in neonates was the most serious since the RSV-PCR diagnostic in Bulgaria was introduced. It happened at the end of the RSV-season, which starts from October-November and terminates in February-March for our country. The majority of the affected immature infants had no prophylaxis yet or had received only a single dose of Palivizumab before the respiratory symptoms occurred.

**IMAGES:**

https://www.eiseverywhere.com/eselectv3/v3/events/354183/submission/files/download?fileID=e90660359b3b0e692e5ce1484da95ce4-MjAxOS0wNCM1Y2FiMTk0ODczOTQx
Aim: The purpose of the research was to evaluate premature infants born with A(H1N1) flu during the 2018-2019 season.

Materials and methods: The study included 33 children with SARI and suspected influenza, admitted to the Pneumology Clinic, the Mother and Child Institute between December 2018 and February 2019. Of these, 7 preterm children (21%: 95CI, 9-38.9 cases) were the main group and 26 children were born in time (78%: 95CI, 61.1-91 cases) - the control group. Detection of influenza serotypes (Type A H1, H3, B virus RNA) was assessed by the rRT-PCR method. The age of children in the study ranged from 0.4 months to 2.3 years (1.13 ± 0.36 years) and from 0.3 months to 17.1 years in the control group (4.9 ± 0.98 years), p > 0.05. The materials were analyzed in Microsoft Excel, Epi Info - 3.5.

Results: Influenza was confirmed in 4 premature babies in the baseline group (57.1%: 95CI, 18.4-90.1 cases) and 13 term infants from the control group (50%: 95CI, 29.9-70 cases) \( \chi^2 = 0,1; p > 0.05 \). Significant differences in sex were not observed. In the base group there were fewer boys 42.9%: 95CI, 9.9-81.6 cases, and in the control group - fewer girls 46.2%: 95CI, 26.6-66.6 cases. Flu infection conditioned the progression of sepsis in a preterm infant from the baseline group (14.3%: 95CI, 0.4-57.9) versus four children in the control group (15.4%: 95CI, 4.4 -34.9; p>0.05). From preterm infants diagnosed with Flu, one child had sepsis, that means 25% : 95CI, 0.6-80.6, and from children born with a Flu diagnosis had sepsis 3 children 23.1%: 95CI, 5-53.8 (p>0.05). One child of the baseline group died (14.3%: 95CI, 0.4-57.9 cases) and one of the control group (3.8%: 95CI, 0.1-19.6 cases); \( \chi^2=1,06; p > 0.05 \).

Conclusion: Influenza A (H1N1) in children evolves with SARI, severe pulmonary complications, on the background of prematurity, which produce a severe impact on the evolution of influenza and cause major risks of death.
MULTIRESISTANT ORGANISMS: CHALLENGES AND SOLUTIONS

ABSTRACT ID: 96

TITLE: NOSOCOMIAL INFECTION IN THE NEONATAL INTENSIVE CARE UNIT OF MONASTIR (TUNISIA).

AUTHORS: FZ Chioukh, T Khemis, A Chaabane, H Ben Hmida, M Bizid, K Monastiri

AFFILIATIONS: Department of ICU and Neonatal Medicine, Teaching Hospital of Monastir, Tunisia.

CONTENT:

Epidemiology of nosocomial infections (NI) in neonatal intensive care units in developing countries has been poorly studied. The objectives of our study were to determine the epidemiological, clinical, paraclinical and evolution characteristic of NI, to identify risk factors, prognostic factors and analyze treatment’s modalities.

A retrospective case-control study in the Newborn and intensive care unit (NICU) of Monastir was implemented from June 12, 2009 to June 30, 2010. All patients remaining in the N ICU were included. NI were identified according to the CDC definition. Data were analyzed with descriptive statistics. Among 240 hospitalized NICU, 63 patients presented with 74 NI. The incidence and the density incidence rates were 26.25% and 29 per 1000 patient-days, respectively. There was a male predominance, the sex ratio was 1.7.

Two thirds of infections had occurred during the first week of hospitalization. The average time between admission and the development of NI was 7 days. The average time between the instrumental operation and the development of NI was 6 days. Clinical signs were polymorphic and nonspecific dominated by respiratory signs. Risk factors identified in our study as statistically significant were: prematurity, low birth weight, mechanical ventilation, central line, lack of breastfeeding, surgery and prolongation of hospital stay. Sepsis was the most common location (50.6%). Germs were dominated by Klebsiella pneumoniae (70%), and by coagulase-negative Staphylococcus (14%). Imipenem- Amikacin was the most-used combining first-line antibiotics (95%). Mortality associated with NI was 16% and the lethality rate was 55.5%.

The profile of newborn susceptible to have a NI in our ICU was: a premature, low birth weight, immunologically incompetent subjected to multiple invasive cares and subtracted from breastfeeding. Prevention at the individual and collective means is necessary to fight against the scourge of neonatal NI.
CONTENT:

The Preterm Arginine INTake (PAINT) study was an exploratory physiological study using transcriptomics and metabolomics to assess the impact of parenteral nutrition arginine supplementation on the immune system and metabolism of very preterm infants.

Very preterm infants born <29 weeks’ gestation and/or <1200g were eligible for PN. Infants were assigned to receive standard PN only or standard PN alongside a range of doses of arginine supplementation until day 10 (D10) of life. Blood samples were taken on day 3 (D3) and D10 of life for AA levels, microarray and metabolomics. Plasma AA levels were measured using ion exchange chromatography, RNA was extracted and used for microarray and qPCR and plasma metabolomics were analysed by 1H-NMR spectroscopy.

Results

The study included 26 infants with a mean gestational age at birth of 26+4 weeks and a mean birth weight of 855g. 8 infants received standard PN only (6% arginine), 12 received 12% arginine and 6 received 15% arginine. Plasma arginine levels were significantly higher on D10 of life in the supplemented infants (mean 72.8 v 45.5umol/L, p=0.03). Microarray and qPCR validation experiments showed significant changes in gene expression associated with immune system development between D3 and D10 of life. Gene expression profiling indicates expression changes between infants with low versus normal plasma arginine levels to be similar to changes from D3 to D10 of life. Metabolomic analysis showed different metabolomic profiles on D10 of life for infants with normal arginine levels following supplementation versus non-supplemented infants. (Graph 1)

Arginine supplementation can reduce arginine deficiency in PN dependent very preterm infants. Arginine supplemented infants with normal plasma arginine levels exhibit different D10 metabolomic profiles to unsupplemented infants. Infants with normal (versus low) plasma arginine levels exhibit changes in immune pathways similar to the temporal changes seen from D3 to D10 of life. These gene expression changes are consistent with the development of a functional immune system.
TOPIC: “Omics” in neonatology

ABSTRACT ID: 104

TITLE: DOES FETAL UNDERNUTRITION INCREASE THE CHANCE OF EARLY NEONATAL MORBIDITIES?

AUTHORS: (R. Rushdi 1; A. Abdel-Razek 2; S. El-Anwary 3; N. Musa 3)

AFFILIATIONS: 1 Master of Science in Pediatrics, Department of Pediatrics, Kasr-Alainy Faculty of Medicine, Cairo University, Cairo, Egypt
2 Professor of Pediatrics, Department of Pediatrics, Kasr-Alainy Faculty of Medicine, Cairo University, Cairo, Egypt
3 Lecturer of Pediatrics, Department of Pediatrics, Kasr-Alainy Faculty of Medicine, Cairo University, Cairo, Egypt

CONTENT:

Background: Fetal undernutrition (FU) is the state of deficiency of placental supply to satisfy the fetal nutrient demand needed to build the subcutaneous fat and muscle mass during the fetal intrauterine development. This might be due to maternal causes, placental insufficiency or failure of fetal adaptation mechanisms. Neonatal morbidities are potential direct consequences of FU, which in turn contribute to long-term permanent effects on growth, structure and metabolism. Indeed, malnourished newborns are more likely to exhibit long-term risks of stunting, impaired growth and susceptibility to certain adult-onset non-communicable diseases such as diabetes and hypertension. Moreover, malnourished babies face the highest risks of death in utero, in the neonatal period or throughout infancy and early childhood.

Objectives: To investigate FU impacts on major early neonatal morbidities, namely hypoglycemia, polycythemia, respiratory distress syndrome (RDS), neonatal sepsis, hyperbilirubinemia and feeding intolerance.

Materials and Methods: A multicenter cross-sectional study of full-term and preterm infants was conducted between November 2016 and October 2017 at Cairo University and Al-Galaa Teaching Hospitals in Cairo, Egypt, as part of the thesis work of the first-named author. The study sample consists of live born, singleton neonates of both genders with gestational ages between 28-40 weeks. Early neonatal morbidities were detected within the first week of life for a subgroup (n = 50) of this population who required NICU admission. The Clinical Assessment of the Nutritional Status (CANS) score was evaluated for this subgroup of newborns that were enrolled in the study within 48 hours of birth. The fetal undernutrition status was assessed with an FU cutoff value of CANS score < 25. The association between the neonatal nutritional status and early neonatal morbidities in the NICU admitted neonates was statistically tested.

Results: Table 1 summarizes the chi-squared (χ²) statistics for testing the association between the neonatal nutritional status and early neonatal morbidities in the NICU admitted neonates. First, the statistical outcomes show that such a proposed association could not be proved to exist in any of the
following morbidities: hypoglycemia (p = 0.372), polycythemia (p = 0.115), and feeding intolerance (p = 0.171). By contrast, we were able to assert the existence of a strong association (p < 0.001) between the neonatal nutritional status and both of RDS and hyperbilirubinemia. Our results fall short of reaching a decisive conclusion on the potential association between the nutritional status and neonatal sepsis (p = 0.038). Further extensive and verifiable results are still needed to test the coincidence of neonatal morbidities with FU, prematurity problems and maternal illnesses. Conclusions: It is important to monitor all newborns with FU for possibly higher incidence of early neonatal morbidities. Early and accurate detection of FU and the associated morbidities, as well as the provision of appropriate follow-up care and rehabilitation are needed to improve neonatal outcomes and the health of future generations, especially in developing countries.

IMAGES:

https://www.eiseverywhere.com/eselectv3/v3/events/354183/submission/files/download?fileID=8f68822291c8974d5bd20accc015451f-MjAxOS0wNCM1Y2FiM0tk0NzkkYmU
Necrotizing enterocolitis (NEC) remains one of the leading causes of neonatal morbidity and mortality especially in extremely preterm infants. The aim of the study was to investigate the incidence of NEC and associated mortality in extremely preterm infants group from Czech Neonatal Network.

Czech Neonatal Network database records of 712 infants who were born at <28 weeks' gestation from 2015 to 2017 were analyzed. Infants were divided into four groups: less or equal than 24 weeks', 25 weeks, 26 weeks' and 27 weeks' gestation. The infant's mortality and NEC rate were analyzed. Statistical significances of the results were analyzed by the Chi-square test.

The overall mortality rate was 21% during the study period. NEC rate was 12% and the mortality rate of infants with NEC was 51% compared to 16% in infants without NEC. The NEC rate was 18% in ≤24 weeks', 17% in 25 weeks, 9% in 26 weeks' and 7% in 27 weeks' gestation. Mortality rate were higher in infant with NEC in 25 weeks' (71% vs. 14%, p < 0,001), 26 weeks' gestation (38% vs. 4%, p < 0,05) and in 27 weeks' gestation (30% vs. 4%, p < 0,05), but not significantly differ in ≤24 weeks' gestation.

The NEC rate in an extremely preterm infant was influenced by gestational age. A mortality rate of infants is strongly associated with NEC at 25 to 27 weeks of gestation.
TOPIC: NEC: an update

ABSTRACT ID: 52

TITLE: ISCHAEMIA-MODIFIED ALBUMIN AS MARKER IN DIAGNOSIS OF NECROTIZING ENTEROCOLITIS

AUTHORS: S. ELMeneza, A. Okasha, M. Abd El-Hafez and N. Hussein

AFFILIATIONS: Pediatrics department and *clinical pathology, Faculty of Medicine for Girls Al-Azhar University

CONTENT:

Necrotizing enterocolitis (NEC) is a gastrointestinal disease that involves infection and inflammation that causes damage and death of cells in some or the entire intestine. NEC is the most common gastrointestinal (GI) emergency.

Ischaemia-modified albumin (IMA) is a marker of oxidative stress and ischaemia. The role of Ischaemia-modified albumin in early diagnosis of NEC is still not fully documented.

Our research question was; can Ischaemia-modified albumin be a marker for early diagnosis of NEC among newborn infants? The main objective was to study the role and efficacy of serum Ischaemia-modified albumin in diagnosis of NEC among newborn infants.

The study was carried out on 80 neonates divided into two groups; group I (case group):40 neonates with NEC, group II (control group):40 apparently healthy neonates age and sex matched with group I. Group (I) was classified into their subgroups; subgroup (A) 20 preterm neonates with NEC≤36 weeks of gestation, subgroup (B) 20 full term neonates with NEC≥37 weeks of gestation. The neonates in the study were selected from NICU of Al Zahraa university hospital during the period from May 2014 to January 2015.

All neonates were subjected to detailed medical history through clinical examination laboratory and radiological investigations including complete blood count, CRP, serum (Na, K, Ca, Ph, urea, creatinine), serum IMA by ELISA, X-ray abdomen for detection and confirmation of NEC grades.

The results: There was a highly statistically significant increase in IMA serum level in both preterm (60.59 ± 34.97) U/Ml and full term (60.50 ± 29.88) with NEC compared to their controls (11.28 ± 3.09) (5.34 ± 1.88). The positive predictive value of IMA in preterm and full term with NEC were respectively (100 %) and (94.74), while the negative predictive value of the marker were respectively (80 %) and (90.48 %). There was a statistically significant increase in serum level of IMA serum level in stage II NEC compared to stage I NEC in both preterm and full term with NEC. Our data showed also highly statistically significant increase in IMA serum level in (non survivors) compared to (survivors) in both preterm and full term with NEC. There was a highly statistically significant positive correlation between IMA serum level and duration of recovery from NEC in both preterm and full term with NEC.
Risk factors included RD, sepsis, blood transfusion, use of H2 blocker, enteral feeding, and oxygen therapy) in both preterm and full term with NEC.

Conclusions: Necrotizing enterocolitis (NEC) can affect both preterm and full term neonates but with different risk factors. Perinatal asphyxia and hypoxic-ischaemic encephalopathy were found as important risk factors in full term neonates while decreased birth weight was found as important risk factors in preterm neonates. There was a positive relation between blood transfusion, formula feeding and elevated IMA serum levels. IMA can predict the severity of NEC and its outcome.

Recommendations: Ischaemia modified albumin can be used as a sensitive and specific marker for detecting and predicting the outcome of NEC. Further studies on a large number of preterm and full term neonates to assess the diagnostic value of IMA.
TOPIC: NEC: an update

ABSTRACT ID: 115

TITLE: NECROTIZING ENTEROCOLITIS: 5 YEAR EXPERIENCE AT A PORTUGUESE NEONATAL INTENSIVE CARE UNIT

AUTHORS: A. Meireles 1,2; L. Rodrigues 1,3; M. Figueiredo 1,4; T. Nelumba 1,5; D. Malveiro 1; F. Vieira 1

AFFILIATIONS: 1- Neonatal Intensive Care Unit, Hospital São Francisco Xavier, Lisboa, Portugal; 2- Pediatrics Department, Hospital Pedro Hispano, Unidade Local de Saúde de Matosinhos, Porto, Portugal; 3- Pediatrics Department, Hospital do Espírito Santo de Évora; Portugal; 4- Pediatrics Department, Hospital São Francisco Xavier, Lisboa, Portugal; 5- Pediatric Cardiology Service, Hospital de Santa Cruz, Lisboa, Portugal; 6- Neonatal Intensive Care Unit, Hospital São Francisco Xavier, Lisboa, Portugal; 7- Neonatal Intensive Care Unit, Hospital São Francisco Xavier, Lisboa, Portugal.

CONTENT:

Necrotizing enterocolitis (NEC) is the most frequent gastrointestinal emergency in the neonatal period.

Retrospective chart review of all newborns diagnosed with NEC between January 1st, 2014 and December 31st, 2018 admitted to our neonatal intensive care unit (NICU). Statistical analysis was performed using SPSS® v20 software.

RESULTS: From a total of 1184 newborns admitted to the NICU, 2.3% (n=27) were diagnosed with NEC, of which 55.6% (n=15) were male, 66.6% (n=18) were less than 32 weeks and 37.5% (n=10) had birthweight equal to or less than 1000 g. Several known identified risk factors were analyzed: intrauterine growth restriction (14.8%; n=4), fetal abnormal Doppler blood flow (25.9%; n= 7), maternal infection (40.7%; n=11), previous antibiotic treatment for equal to or more than 5 days (77.8%; n=21), anemia requiring red blood cell transfusion (40.7%; n=11) and hemodynamically significant patent ductus arteriosus (22.3%; n=6). All newborns were on enteral feeding, 48.2% (n=13) after 48h of life, 37% (n=10) with formula and 7.4% (n=2) with an advancement rate of feed volumes equal to or more than 20 mL/kg/day. Clinical presentation included abdominal distension (88.9%; n=24), bilious gastric residuals (66.7%; n=18), hematochezia and/or mucus stools (74%; n=20) and hemodynamic instability (33.3%; n=9). Laboratory findings included anemia requiring red blood cell transfusion (63%; n=17), thrombocytopenia requiring platelet transfusion (29.6%; n=8) and neutropenia (37%; n=10). Blood cultures were positive in 33.3% (n=9). Pneumatosis intestinalis was present in 18.5% (n=5) and abdominal free air in 33.3% (n=9). One third (33.3%, n=9) had a stage IIIIB diagnosis according to Bell staging system.

All patients were treated with NPO diet and antibiotics. Transfer to a facility with pediatric surgical expertise was necessary in 63% (n=17) and 25.9% (n=7) underwent laparotomy.
Non abdominal complications included grade equal to or more than 2 periventricular/intraventricular hemorrhage (14.8%; n=4), white matter injury (33.3%; n=9) and death (18.5%; n=5).

CONCLUSIONS: Our results are similar to those reported in previous articles. As there are so many possible risk factors for NEC, controlling all of them is impossible. We emphasize that early-prolonged antibiotic therapy and breastmilk feeding are risk factors more accessible for intervention by neonatologists.
TOPIC: NIDCAP and family-centered care

ABSTRACT ID: 5

TITLE: SYNACTIVE CARE MODEL AND POLYSOMNOGRAPHIC PREDICTORS FUNCTION BRAIN INTEGRATION IN PRETERM INFANTS.

AUTHORS: Daria Kostiukova 1, Thomas Erler 2, Ielyzaveta Shunko 3, Tetiana Orlova 1, Tetiana Ivanova 1

AFFILIATIONS: National Children Specialized Hospital „OHMATDYT“, Kyiv, Ukraine 1 Klinikum Westbrandenburg, Klinik für Kinder- und Jugendmedizin, Potsdam, Germany 2 Shupyk National Medical Academy of Postgraduate Education 3

CONTENT:

Sleep is a natural biomarker of brain functions. There are many studies of the importance sleep maturation in ontogenesis that show the importance sleep research as a complex integrative natural function of the brain. A PSG study of premature babies with an assessment of brain activity, maturity / immaturity and compliance with conceptual age, differential diagnosis of paroxysmal conditions is necessary. We conduct supervised observation and follow-up of premature babies in an ergonomic environment, NIDCAP and kangaroo mother care.

Method: PSG (Alice 6 LDE, Philips Respironics) conducted during physiological sleep for 2-4-6 hours (AASM standards).

Results: PSG was done to 260 premature infants GA 25-37 weeks at the PMA 32-44 weeks. According to the protocol (Polysomnographie-Report «Infant Sleep») assessment was conducted of the formation of sleep stages, accordance of the sleep structure and morphology to PMA, differential diagnosis of epileptic and non-epileptic states, quantitative and qualitative assessment of severity sleep-related breathing disorders (obstructive, mixed and central sleep apnea, hypopnea, periodic respiration); apnea / hypopnea index. The delay of the maturation brain bioelectrical activity can need the revision of the NIDCAP. In case of identifying that the child has a high index of respiratory insufficiency, moderate or severe sleep apnea / hypopnea the clinical assessment is conducted and therapy correction is done (CPAP, prolongation methylxanthines). At PMA 52-54 weeks it is important to repeat PSG study for assessing the compliance of the structure of sleep with the child’s age, maturation of the autonomic nervous system, cardio-respiratory compensation. These indicators correlate with the clinical features and neurological outcomes.

Polysomnography as a component of complex neuromonitoring is a new technology in medical care and assessment of sleep maturation premature infants. PSG- predictors of developmental disorders in premature infants includes: patterns of the maturation stages of sleep and compliance bioelectrical activity of the postmenstrual age, epileptic and nonepileptic paroxysmal states, the severity of sleep-related breathing disorders of infants.
TOPIC: NIDCAP and family-centered care

ABSTRACT ID: 36

TITLE: NURSING EXPERIENCE OF MOTHERS OF A PREMATURE NEWBORNS

AUTHORS: E. Krakauskienė 1;
R. Tamelienė 2;
D. Stonienė 3;
N. Skorobogatova 4.

AFFILIATIONS: 1 Neonatology Dept., Lithuanian University of Health Sciences, Kaunas, Lithuania;
2 Neonatology Dept., Lithuanian University of Health Sciences, Kaunas, Lithuania;
3 Neonatology Dept., Lithuanian University of Health Sciences, Kaunas, Lithuania;
4 Neonatology Dept., Lithuanian University of Health Sciences, Kaunas, Lithuania.

CONTENT:

Many scientists say that the family is a constant - a fixed size - in a child's life. Services provided by healthcare professionals include not only premature newborn care but also support for the whole system of the family. Parents should be recognized as main persons who nurse their premature newborn and treated as equivalent partners in providing healthcare. Family-oriented nursing combine family, newborn and specialists and that is the way to take care of all family members by providing healthcare for a newborn in hospital. Collaboration between parents and healthcare personnel is a crucial factor in building an effective and trustful relationship with the family in order to find the best way to meet the needs of the newborn and whole family. Healthcare professionals applying family-oriented care in their practice believe that by ensuring the family's role in nursing of newborns throughout the stay in a hospital has a positive impact on developing newborn's attachment to its emotional and development evolution as well as well-being of the whole family. Emotional and social support for the parents is an integral part of this theory. It provides possibilities in reaching better results in caring for newborns, as well as in communicating and collaborating with parents and professionals working with newborns.

Pilot study was performed in Kaunas Center of Perinatology Neonatal Intensive Care Unit. An individual interview method was chosen for the study. Duration of interview varied from 1 hour to 1 hour and 20 minutes. The sample of subjects was composed from 3 mothers of preterm newborns who signed informed consent forms. All of them were living in the city, age median was 40 years, and all of them have had children.

The interview was conducted in accordance with a prepared interview plan. Following questions were asked during the interview:
- What does the birth of premature baby mean to you;
- Did you take a part in a nursing of your baby;
- What was the impact of personnel on your engagement in newborn care;
What is your favorite nursing procedure.

The obtained study data were analyzed using the thematic analysis method described by Braun and Clarke (2006). This method is described as a method of highlighting the structure of data identification, analysis and presentation of results.

All the subjects of the study stressed that the birth of a premature newborn caused great stress. The main identified cause of stress was fear of newborn life. All mothers took part in the nursing of their newborn from day one. They stressed that they wanted to stay with their newborns all the time in the same room regardless of the severity of the newborn condition. The involvement of each mother in newborn nursing was initiated by nurses who trained mothers and provided encouragement and psychological support. One of the favorite procedures was the use of the kangaroo care method.

IMAGES:

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CONTENT:

Family-Centered Care (FCC) is a care approach involving the healthcare team and the planning, presentation and evaluation of health care services based on cooperation between the families of patients. It includes basic elements such as reputation and respect, information sharing, family involvement in care and cooperation with the family. The purpose of FCC; to support the child and family of health workers, to inform, to reduce the problems associated with the disease and treatment and to improve the quality of life of children and parents. Although it is argued that the FCC approach in many countries and Turkey is appropriate for the child and his / her family, it is not implemented at the desired level in practice. This study was conducted to assess the status of the FCC in Turkey. A few studies have been carried out in our country regarding FCC. In a study conducted with 11 nurses and 4 physicians at the pediatric oncology clinic by Günay and Polat (2017), most of the nurses stated that FCC was providing support and information to the family. Physicians have defined FCC as informing the family and the child and asking for help from the family when necessary. Both nurses and physicians stated that they did not apply adequate FCC in the clinic. In the study of Boztepe and Yıldız (2017) the views of 18 nurses working in different departments of a child hospital in Turkey were evaluated for FCC activities. In this study, it is stated that nurses have positive views about FCC but cultural characteristics of families are an obstacle to the implementation of this care. Tosun and Tüfekçi (2015), conducted a study with 186 mothers. In this study, family-centered care practices in pediatric clinics were not at the desired level. Boztepe and Çavuşoğlu (2009), in the study, found that mothers were more responsible for the physical care of their children in the hospital and therefore could not meet their own needs. In the same study, it was determined that mothers were not able to ask and share their concerns with nurses due to the reasons that nurses are busy and do not respond to the questions.

A literature review on the subject “Family Centered Care, Turkey, current status, nursing” keywords were entered in PubMed, Cinahl, Wiley Interscience, Sciencedirect, Ovid, Cochrane, Ulakbim Turkish Medical Index, Google Academy, Turkish Medline in national and international databases. All publications were systematically examined in terms of study methods and findings.
Although there is no health policy for FCC in Turkey, parents are generally allowed to stay with their child in the hospital. Parents usually meet the physical requirements of the child in the hospital. FCC practices are not carried out adequately.
TOPIC: NIDCAP and family-centered care

ABSTRACT ID: 62

TITLE: DEVELOPMENTAL CARE – IMPORTANT COMPONENT OF PRETERM INFANTS MANAGEMENT

AUTHORS: H. Pavlyshyn 1; I. Sarapuk 2; O. Klishch 3

AFFILIATIONS: Pediatrics Department №2, I. Horbachevsky Ternopil State Medical University, Ternopil, Ukraine

CONTENT:

Increased survival among very preterm infants leads to higher levels of neonatal morbidity and complications associated with premature birth. At the other hand, these rates differ among the neonatal centers and depends on many factors. Type of neonatal care plays a significant role in this. So, our aim was to compare the short-term outcomes of premature infants who had standard care and developmental care.

Materials and methods. The study involved 197 premature infants with gestational age (GA) less than 32 weeks. 78 infants (I group) had developmental care with NIDCAP program and 119 infants (II group) - standard care. Such short-term outcomes as necrotizing enterocolitis (NEC), intraventricular hemorrhage (IVH), retinopathy of prematurity (ROP), duration of ventilation and parenteral feeding, breastfeeding at discharge, growth of infants were studied.

All computations were performed using „EXCELL FOR WINDOWS” and „STATISTICA 13.0. FOR WINDOWS”. Quantitative data are presented as the mean ± standard error of the mean (SEM) or as the median and interquartile range (IQR; 25th to 75th percentiles), depending on the distribution of the data. For qualitative parameters, absolute and relative frequencies are presented. The Mann-Whitney U-test (for two independent groups) was used to compare numerical data. Qualitative parameters were analysed by use of a 2 × 2 contingency table and Fisher’s exact test. Significance was assumed at p < 0.05

Results. Infants who got developmental care had lower incidence of IVH of I-II degree comparing with group II (20.51% vs 33.61%, OR = 1.96; 95% CI: 1.01-3.83; p=0.046), ROP III (2.56% vs 10.08%, OR = 4.26; 95% CI: 0.93-19.59; p=0.04), NEC (2.56% vs 18.49%, OR = 8.62; 95% CI: 1.96-37.79; p=0.0008), the duration of antibacterial therapy significantly prevailed in group II (38.0 [26.0; 54.0] vs 12.0 [9.0; 17.0] days; p<0.001). Duration of ventilation in group I was shorter comparing with group II (4.5 [2.0; 22.0] vs 10.0 [7.0; 16.0] days, p<0.001). The percentage of infants who were breastfed at the discharge prevailed in group I compared to group II (39.74% vs 21.00%, OR = 2.48; 95% CI: 1.32-4.67; p=0.004). Daily weight gain was higher in group I than in group II (21.20±5.89g vs 18,62±4.36g; p=0.0006).

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1.96-37.79; p=0.0008), the duration of antibacterial therapy significantly prevailed in group II (38.0 [26.0; 54.0] vs 12.0 [9.0; 17.0] days; p<0.001). Duration of ventilation in group I was shorter comparing with group II (4.5 [2.0; 22.0] vs 10.0 [7.0; 16.0] days, p<0.001). The percentage of infants who were breastfed at the discharge prevailed in group I compared to group II (39.74% vs 21.00%, OR = 2.48; 95% CI: 1.32-4.67; p=0.004). Daily weight gain was higher in group I than in group II (21.20±5.89g vs 18.62±4.36g; p=0.0006).

Conclusion. Developmental care prevents neonatal morbidities, improves short-term outcomes, promotes breastfeeding and weight gain of preterm infants.
TOPIC: Nutrition of preterm infants

ABSTRACT ID: 8

TITLE: FEASIBILITY OF NIRS IN EARLY DETECTION OF MESENTERIC ISCHEMIA IN PRETERM INFANTS DURING PROGRESSIVE ENHANCEMENT OF ENTERAL FEEDING

AUTHORS: T. Kurilina 1; A. Pysariev 2


CONTENT:

Necrotizing enterocolitis is a challenge in care of preterm infants. The question about timely diagnosis of early stage of NEC during progressive increasing of enteral feeding is particularly acute. The aim: to determine of absolute data of abdominal oxygenation and calculated indices after NIRS

Material and method: Continuous NIRS was provided in 58 newborn with gestational age 28-32 weeks (average weight 1285±250g) on 10-30 day of life during progressive enhancement of enteral feeding. Obtained data were analyzed with a glance of velocity of feeding volume and its type (breast milk versus milk formula for preterm infants). We used INVOS 5100C (Covidien, USA) with abdominal saturation measurements over the anterior abdominal wall. Exclusion criteria were unstable hemodynamic, artificial ventilation and severe infection. Splanchnic-cerebral oxygenation ratio (arSO2/crSO2), fractional tissue oxygen extraction (FTOE = (SpO2 - rcSO2)/SpO2) and burden of hypoxia (%-hours) were counted.

Results and discussion. NIRS technology can detect launching ischemia during progressive enlargement of feeding volume. The increasing of frequency and time (length) of mesenteric ischemia were observed in all infants after high rate of increasing of feeding volume (more than 10 ml/kg/day). There was an increasing of %-hour на 20 % with EBM and 23 % with MF. The tight correlation with feeding volume ranging from 0,79 to 0,83 respectively was revealed. Duration of severe abdominal ischemia period (less 40%) consisted in 33 % from total burden of hypoxia (%-hour). Significant difference between abdominal NIRS data depending on type of milk was not revealed. Splanchnic-cerebral oxygenation ratio decreased lower of references threshold (<0,7) and it was ranging from 0,54 to 0,61 in case of more than 10 ml/kg/day feeding volume increasing rate. FTOE rising was founded. Moreover, duration and level of this changing of FTOE did not depend on kind of enteral substrate and increasing of feeding volume rate.

Conclusion: NIRS technology is feasible and useful noninvasive method for application in intensive care of preterm infants. Abdominal NIRS data are an early indicator of splanchnic ischemia/NEC and may be the base for feeding decision making.
**TOPIC:** Nutrition of preterm infants

**ABSTRACT ID:** 21

**TITLE:** DONOR HUMAN MILK IMPACT ON PREVALENCE AND FEATURES OF NECROTIZING ENTEROCOLITIS IN HOSPITAL OF LUHS.

**AUTHORS:** V. Ivanauskienė 1; G. Pancekauskaitė 2; R. Tamelienė 3

**AFFILIATIONS:** 1 Neonatology Dept., Hospital of Lithuanian University of Health Sciences, Kaunas, Lithuania
2 Faculty of Medicine, Medical Academy, Lithuanian University of Health Sciences, Kaunas, Lithuania
3 Neonatology Dept., Hospital of Lithuanian University of Health Sciences, Kaunas, Lithuania

**CONTENT:**

Necrotizing enterocolitis (NEC) is one of the most dangerous diseases for newborns with high rates of mortality and serious outcomes. It is also one of diseases whose risk can be reduced by feeding human milk (HM) exclusively. However, mothers of premature newborns are not always able to provide as much milk as the infant needs. To ensure exclusive human milk diet for newborns, donor human milk banks are establishing all over the world. One of them was opened in Lithuanian University of Health Sciences (LUHS) Hospital, Department of Neonatology in December 2016. Even though donor human milk (DHM) should not replace mother’s own milk (MOM), clinical studies suggest using it instead of formula since it lowers rates of NEC, modifies course of disease and improves feeding tolerance.

The authorization of bioethics was received (LUHS Bioethics committee, No. BEC – MF - 21). We performed a retrospective study of 81 patients’ data. All patients were treated in LUHS Hospital department of neonatology, neonatal intensive care unit in 2010-2017 years. Inclusion criteria: 1) gestational age 32 weeks and lower 2) diagnosis of NEC 3) no congenital anomalies of digestive tract. Patients were assigned in two groups according to date of birth - control group (73 patients) – treated before donor human milk was available (2010 – 2016), intervention group (8 patients) – treated once donor human milk became available (late 2016, 2017 years). Groups were compared with the respect to ways of feeding (before the onset of NEC), demand of parenteral feeding, erythrocyte mass transfusion and outcomes of NEC. Chi-square and Man-Whitney U tests were used to identify differences between groups. The data was processed with MS Excel and SPSS/w 17.0. Results were considered significant where p<0.05.

1. Prevalence of NEC decreased significantly once donor human milk bank was established in LUHS Hospital, department of neonatology (7.52% vs 5.03%, p=0.029).
2. Mortality rates in NEC patients did not decrease significantly once donor human milk became available (p=0.084).
3. The duration of feeding either mother’s own milk or formula exclusively did not differ significantly among groups (p=0.808 and p=0.156).
4. The duration of combined feeding (formula and mother’s own milk together) decreased significantly once donor human milk bank was established (2.71±5.69 days vs 0.50±1.41 days, p=0.035).
5. The duration of parenteral feeding did not differ significantly among groups (p=0.106).
6. The number of erythrocyte mass transfusions decreased significantly once donor human milk became available (p=0.029).

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This study was conducted to assess the effect of kangaroo care applied by mothers who have premature babies and who cannot breastfeed on mothers’ stress levels and the amount of milk.

This study was conducted in newborn units of two hospitals, one state and one private hospital, in Elaziğ province between December 2017 and October 2018 as an experimental study with pre-test, post-test and control group. The sample of the study included 80 (study group n=42, control group n=38) mothers whose premature babies that were not breastfed were hospitalized in the newborn intensive care unit. The data were collected through Descriptive Information Form, Parental Stress Scale: NICU and Breast Milk Follow-up Form. The mothers in the study and control group filled in Parental Stress Scale: NIC before and after the study was conducted. The mothers in the study group applied kangaroo care to their babies once a day and five times a week for three weeks. The mothers milked their breasts every day for three weeks with breast milking machine or pump and wrote the amount of total milk in Breast Milk Follow-up Form. Averages, percentage, Pearson Chi-square, t test and one-way ANOVA for repeated measurements were used in the assessment of data.

It was found that post-test total score averages and averages of the sub-dimensions of “images and sounds”, “appearance and behaviours of the baby” and “parental role” of mothers in the study group who applied kangaroo care were found to decrease when compared with the mothers in the control group (p<0.05). It was found that the breast milk amount averages of the mothers in the study group increased in all measurements when compared with the control group (p=0.000).

It was found that kangaroo care application was effective in decreasing the stress levels and increasing the breast milk amounts of mothers who have premature babies and who cannot breastfeed.
TOPIC: Nutrition of preterm infants

ABSTRACT ID: 64

TITLE: SHOULD WE HAVE ACCEPTED DONOR HUMAN MILK FROM LACTATION EXTENDED BEYOND ONE YEAR?

AUTHORS: M. Czosnykowska-Łukacka, B. Królak-Olejnik

AFFILIATIONS: Department of Neonatology, Wroclaw Medical University, University Hospital, Borowska Str.231, Wroclaw, Poland.

CONTENT:

According to recommends mother’s own milk (MOM) is the first choice for all neonates including preterm infants, when it is unavailable or in short supply, pasteurized donor breast milk offers a safe alternative and is considered the next best choice.

Fortification of MOM and DHM is required to meet the high nutritional needs of the preterm infant. Some milk banks excluding donors as early as six months postpartum, others milk banks do not accept milk from donors beyond one year postpartum.

The aim of this study: was to compare concentrations of macronutrients in HM during the prolonged lactation of healthy mothers and pooled HM from the milk bank. The second objective was to compare the results with the ESPGHAN recommendation for preterm infants.

The macronutrient composition of 45 DHM (from 1 to 9 month of lactation) and 111 HM of breastfeeding mothers >12 moths of lactation was determined using Mid-infrared milk analyzer (Miris, Sweden).

Results: Analysis of the composition of long-breastfeeding mother’s milk allows one to assess the nutritional value. For the macronutrient content of milk of mothers breastfeeding for longer than 12 months, fat and protein increased and carbohydrates decreased significantly, compared with milk expressed by donors. Results presents the greater nutritional potential of HM from long breastfeeding mothers.

Using long term breastfeeding mother’s milk for extremely low birth weight preterm infant as a DHM may provide nutritional needs in protein and fat for preterm infants and milk form mothers beyond one year postpartum should be accept to the HMB.

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The problem of increasing premature newborns becomes more relevant every day not only in Ukraine but also in the whole world. It is accompanied with complications and possible disability due to adverse outcomes of diseases and immaturity of organs and systems. However, the effectiveness of care for premature newborns mostly depends on the type of feeding and balance of nutrition.

The study involved 173 premature infants with gestational age (GA) less than 32 weeks. Group I (112 infants) had standard care with predominantly artificial feeding, group II – 61 premature infants with development care and breast or donor milk feeding with fortifiers. To evaluate the physical development Olsen growth calculator for preterm infants was used. All computations were performed using “STATISTICA 13.0. FOR WINDOWS”. Quantitative data are presented as the mean ± standard error of the mean (SEM) or as the median and interquartile range (IQR; 25th to 75th percentiles), depending on the distribution of the data. For qualitative parameters, absolute and relative frequencies are presented. The Mann-Whitney U-test (for two independent groups) was used to compare numerical data. Qualitative parameters were analysed by use of a 2 × 2 contingency table and Fisher’s exact test. Significance was assumed at p < 0.05.

The analysis showed a delay in physical development in 37.5% of cases in group I comparing with patients of group II – 29.5% (OR = 1.43; 95% CI: 0.73-2.80; p = 0.293). Further analysis showed a statistically significant development of severe growth retardation (less than 3 percentiles) among patients in the group I compared with Group II (15.78% vs. 3.28%, OR = 5.28; 95% CI: 1.18-23.68; p = 0.021). Daily weight gain in group II ((21.14 ± 6.30) grams) was higher compared with group I ((18.61 ± 4.53) grams), p <0.003. It should be noted that at the time of discharge from the hospital, 36.1 % of infants of group I had breastfeeding, while among children of group II this index was lower (21.42)%; OR = 2.07; 95% CI: 1.04-4.13; p = 0.038.

Development care and breastfeeding with complex fortification improve physical development and weight gain in preterm infants with GA less than 32 weeks.
TOPIC: Nutrition of preterm infants

ABSTRACT ID: 108

TITLE: MONITORING GROWTH IN PREMATURE INFANTS

AUTHORS: Z. Caferoğlu 1, H. Toklu 2, Ş.E. Özüdoğru 3

AFFILIATIONS: 1 Z. Caferoğlu Erciyes University Faculty of Health Sciences, Department of Nutrition and Dietetics, Kayseri, Turkey
2 H. Toklu Erciyes University Faculty of Health Sciences, Department of Nutrition and Dietetics, Kayseri, Turkey
3 Ş. E. Özüdoğru Erciyes University Mustafa Erarslan Fevzi Mercan Pediatric Hospital, Kayseri, Turkey

CONTENT:

The benefits of early enteral feeding of preterm infants are increasingly accepted. In particular, all preterm infants less than 32 weeks of age or with limited enteral intake should be started immediately after the first hour in the hospital. Infant tolerated over time parenteral nutritional supplementation should be reduced while increasing enteral feeding.

The aim of our study is to evaluate feasibility and consequences of combined enteral and parenteral nutrition on short-term outcomes in preterm infants who stayed in our institution for >28 days.

Methods:
The 18 preterm infants (n=11 boys, n=7 girls) who received both enteral and parenteral nutrition were monitored for 28 days. Their energy and protein intakes and body weights were recorded daily. SDs for weight were calculated, and complications were noted. Infants born before 37th week according to gestational age were included in the study.

Results:
According to the results of the study, it was found that 77% of preterm infants started to enteral feeding in the first 3 days. The median (25.p-75.p) birth weight was 1252 (1050-1540) g; gestational age was 31 (28-32) weeks; weight gain was 5 (1.88-8.42) g/kg/day; and no feeding-related complications were observed in any infants. Energy and protein intakes and body weights on the 28th day were 98 (83-112) kcal/kg/day, 3.8 (3.29-4.24) g/kg/day and 1455 (1203-1741) g respectively. The energy and protein intakes from enteral feeding were 31 (8.8-81.4) kcal/kg/day and 0.7 (0.1-1.7) g/kg/day. Infants' weight gain charts were given below.

According to our study results, it was concluded that combined enteral and parenteral nutrition could be tolerated without any feeding-related complications in preterm infants. Infants were fed in small increments to prevent complications, but more weight gain can be achieved by advanced studies with controlled and rapid feed increases.
The first commercial RhD immunoglobulin was approved in 1968 for use in immunoprophylaxis. In Uruguay, it started to be used in the early 1970s. In February 2011, the Ministry of Public Health established antenatal and postnatal anti-RhD immunoprophylaxis as mandatory throughout the country and also approved the monitoring algorithm of immunohematological gestation, diagnosis and treatment of fetal-neonatal hemolytic disease (FNHD). If we prevent maternal alloimmunization we avoid FNHD. At present there is only immunoprophylaxis to prevent RhD alloimmunization.

The objectives of this study are: 1 – to carry out a retrospective, noninvasive, non-intrusive and multicenter observational epidemiological study in order to find out the prevalence of anti-RhD immune antibodies in pregnant women, 2 – to compare this prevalence with other antibodies different to RhD, 3 – to determine whether the mandatory national standard approved in 2011 for antenatal and postpartum immunoprophylaxis has eradicated FNHD for maternal anti-RhD antibodies in Uruguay. The Banco de Previsión Social (BPS), Centro Hospitalario Pereira Rossell (CHPR) and Asociación Española (AE) have been chosen as sentinel centers.

In total, for 54217 venous blood samples the blood group and anti-erythrocyte antibodies (AEAb) investigation were determined using the gel agglutination technique. The laboratory results were retrieved retrospectively from the three sentinel centers anonymously. In the period 2000-2016, 6711 were RhD negative (12.4%). The prevalence of antibodies anti-RhD in the BPS center decreased from 3% (11 per year) between 2000-2005 to 0% in the 2014-2015 period. Similarly, in the CHPR the prevalence of antibodies anti-RhD was 5.4% (34 per year) in 2004 and 0.2% in 2015-2016 (3 per year). In the AE, in 2016 the prevalence of antibodies anti-RhD was 0% in the 2264 pregnant women studied. A statistically significant difference (value p = 0.031) was obtained between the start of the study and the closure of it in the case of antibodies anti-RhD. From the total of 38,403 pregnant women in the three assistance centers, 246 (0.64%) had AbAE different to the RhD of which 0.31% could cause FNHD. There were no statistically significant differences between the study start and finish dates for this type of AEAb (valor p = 0.627) nor for those that could produce FNHD (valor p = 0.429). Among the invasive procedures performed for the prenatal treatment of FNHD, there were
227 intrauterine transfusions (IUT) performed in the CHPR reference center in the period 1997-2006 (23 per year) and 35 between 2007-2016 (3.5 per year) with 0 (zero) in the last year. In the postnatal therapeutic procedures, 57 exsanguinated transfusions were performed in the CHPR on 24 patients during the period 2011-2015, with only one 1 exsanguinated transfusion in the last year. In the other two sentinel centers (AE and BPS) exsanguinated transfusions were not performed in the treatment of FNHD during the years 2014-2016, nor were cases of FNHD due to the RhD antibody recorded.

With the global data provided by the sentinel surveillance in the three Uruguayan assistance centers we can affirm that:1 – At present, there are practically no RhD negative pregnant women alloimmunized to the Rh system D antigen.2 – FNHD produced by maternal anti-RhD antibodies has been eradicated.3 – What is expressed in the above two points is mainly due to the antenatal and postnatal IP standard which has been mandatory since 2011 and to the Voluntary Interruption of Pregnancy Law, in effect since 2012. 4 – The eradication of FNHD due to anti-RhD and the decrease of invasive procedures such as EST and/or IUT have influence the decline in neonatal morbidity.5 – FNHD continues to exist but has changed. It is produce by maternal alloantibodies different to RhD, which are more frequent in RhD positive pregnant women and its prevalence have remained the same over the years.
TOPIC: Other

ABSTRACT ID: 14

TITLE: THE CONCENTRATION OF SERUM URIC ACID IN NEWBORNS WITH EXPOSURE TO MATERNAL DIABETES DURING PREGNANCY

AUTHORS: A. Wasilewska 1; M. Kamianowska 2; M. Szczepański 3; B. Bebko 4, A. Koput 5

AFFILIATIONS: 1 Department of Neonatology and Neonatal Intensive Care, Medical University of Bialystok, Poland 2,3,4 Department of Pediatrics and Nephrology, Medical University of Bialystok, Poland 5 Department of Pediatric Laboratory Diagnostics, Medical University of Bialystok, Poland

CONTENT:

It is known that diabetes contributes to the damage of kidney tubules. Therefore, whether the mother's diabetes during pregnancy may affect the function of kidney tubules in the newborn? Uric acid is the end product of purine metabolism. In the proximal tubule, almost complete reabsorption, secretion and postsecretory reabsorption take place sequentially. Therefore, damage to the kidney can lead to changes in uric acid excretion.

The study included 88 term neonates: forty-two newborns (30 boys, 12 girls), born after diabetes in pregnancy and forty-six healthy newborns. The concentrations of serum uric acid in the material obtained in the first or second day of life were determined by a colorimetric assay using uricase and peroxidase.

We found significantly higher serum uric acid concentration in babies from diabetic pregnancies when compared to reference group (median (Q1-Q3) 4.70 (3.30 -5.70) and 5.45 (4.60-6.30) mg/dl respectively, p= 0.009). We did not find statistically significant differences between the concentration of serum uric acid in the group of boys and girls.

To the best of our knowledge in this study, we have been the first showing that maternal diabetes mellitus during pregnancy may causes tubular kidney damage in newborns.
Bronchopulmonary dysplasia (BPD; used interchangeably with chronic lung disease of infancy [CLDi]) is a common complication of prematurity. There is a need for improved assessment of the severity of CLDi after discharge from the neonatal intensive care unit (NICU). Therefore, we developed a CLDi severity score (CLDiSS) for preterm infants after NICU discharge through 12 months corrected age (CA). Here we report on a study conducted to: (1) identify factors that reflect CLDi severity in preterm infants, and (2) develop a weighted scoring algorithm to quantify the relative importance of these factors.

An online survey utilising Delphi methodology was conducted. In the first Delphi round, clinicians rated the importance of various factors used to evaluate the severity of CLDi, from 0 (not at all important) to 10 (very important) for the period between discharge home from the NICU and 12 months CA, and ranked the relative importance of these factors in determining severity. Fourteen factors were considered in the survey; these included respiratory-related hospital readmissions after NICU discharge, respiratory-related emergency room (ER) visits without hospital readmissions, use of home mechanical ventilation, bilevel positive airway pressure (BiPAP), nasal intermittent positive pressure ventilation (NIPPV), supplemental oxygen (thresholds of < 2 L/min or ≥ 2 L/min), which includes continuous positive airway pressure (CPAP), and use of bronchodilators, corticosteroids (inhaled and systemic), diuretics, and pulmonary vasodilators. The round one survey was completed by 91 clinicians experienced in treating prematurity-related lung diseases such as CLDi (paediatric pulmonologists, n=51; paediatricians, n=20; neonatologists, n=20). Participants came from 11 countries across North America, Europe, Asia, and South America. Findings from round one of the survey indicated that home mechanical ventilation was the most important factor in determining the severity of CLDi, receiving a mean absolute importance rating of 8.38 (on the scale of 0 to 10). This was followed by supplemental oxygen ≥ 2 L/min (8.14), hospital readmissions (7.97), and ER visits
without hospital readmissions (7.82). Physicians considered intermittent use of diuretics to be the least important factor (5.65). Home mechanical ventilation was also ranked highest in terms of the relative importance in determining severity.

Results from the first Delphi round of survey questions indicated the importance of selected factors in the assessment of the severity of CLDi from NICU discharge through 12 months CA. Up to two additional rounds of the survey will be completed to reach consensus among clinicians. The final findings will be used to guide development of the CLDISS.
Preterm newborns are the largest group of patients that are in need of long-term parenteral nutrition to promote growth and development related to intrauterine levels. Local standards of procedures providing parenteral nutrition in preterm newborns were estimated and tested during 3 mo in the intensive care unit. For the first time in the city there were used special equipment of compounding technology and assessed in terms of its clinical and economic effectiveness.

The protocol of the administration of parenteral nutrition of new-born and pre-term newborns included strict adherence of the non-contact methodology, the application for the collection of comprehensive solution with the aid of a metering pump – compounder (collection of infusion solutions for all patients simultaneously and one-time) with the subsequent application of closed infusion systems. The research was carried out at the intensive care unit for 30 beds for new-born in a large children's hospital. This technology was applied over the course of a 3 month period (trial group) and compared with a prior conducted routine administration practice and the carrying out of parenteral nutrition (infusion therapy with the use of conventional quality infusion systems, with a set of solutions to each patient separately) for the previous period of similar duration in the same hospital unit (comparison group). Treated patients in the research groups were compared based on demographic parameters, weight distribution at birth and gestation periods, post-natal risk factors for infectious complications and the diagnosis of disease. The expenses of drugs used for the treatment of nosocomial infections (carbapenems, complex immunoglobulin preparation – Pentaglobin®) were calculated in each period. The drugs were prescribed based on the same medical indications. Experimental period in the same 30-bed NICU were treated 16% children more than in previous (control) period. The average hospital stay was significantly reduced in the NICU by 28% (from 10,5 to 7,6). The use of disposables devices was reduced in the unit based; infusion systems by 66% (from 50 to 17 on a single patient), syringes of different sizes by 26% (from 65 to 47); the number of medical drugs used was reduced: imipenem by 41% (0,54 to 0,32 bottle per patient); meropenem by 14% (0,44 to 0,38 bottle per patient); solutions glucose by 57% (7,4 to 3,2 bottle per patient); Pentaglobin® by 63% (1 to 0,37 bottle per patient), every third patient in the control group received Pentaglobin®, and in the trial group it was
every tenth patient. In the trial group the set of solutions for parenteral nutrition was 1 day per patient and required 80% less time (the reduced time went from 25 to 5 minutes).

The financial expenditures per patient for 1 day in NICU in the trial group were reduced: the cost of disposables for administering parenteral nutrition went down by 44% (from 2647,60 rubles to 1481,20 rubles); the average hospital stay expenditures for disposables and drugs were reduced by 60% (from 30700,90 rubles to 12518,80 rubles).

The standardization of the procedures of parenteral nutrition including special equipment for compounding the neonatal intensive care unit, including equipment for compounding, may bring an economic benefit more than 16 million rubles per year (16000248,00 rubles).
CONTENT:

The World Health Organisation (WHO) recommends delayed cord clamping (DCC) of at least one minute following all births, including caesarean sections, and births where the mother is known to be, or may be at risk of being HIV positive (WHO 2012a). Current evidence demonstrates that both pre-term and term infants benefit from DCC and this is now standard practice in the UK. However, in situations where concerns exist about the condition of the baby at birth and immediate resuscitation is required, it may not be possible to practice DCC. Immediate cord clamping (ICC) enables transfer of the infant onto a resuscitaire where assessment and intervention can be carried out by maternity or paediatric care providers. While mother's bedside resuscitation is possible allowing delayed cord clamping some clinicians may consider bedside resuscitation a compromise to neonatal safety (Katheria 2018). WHO guidelines and UK Neonatal Life Support guidelines which do not recommend DCC in cases of neonatal compromise (Girish et al 2018). In such cases, umbilical cord milking (UCM) is an alternative. UCM facilitates a rapid transfer of placental or cord blood to the neonate, although the volume may vary depending on whether the procedure is done prior to cord clamping or after separation of the neonate from the placenta (Al Wassia and Shah 2015). AIM: Evaluation of the risks and advantages of Umbilical Cord Milking.

We undertook a retrospective case note study comparing term and near term infants (> or equal to 35 weeks of gestation), born over a 11 month period in 2017 who received umbilical cord milking at birth versus immediate cord clamping.

GROUPS: We classified babies into four groups for the data collection: those with umbilical cord milking with delayed cord clamping (DCC+UCM)(45 babies), umbilical cord milking with immediate
cord clamping (ICC with UCM) (41 babies), no cord milking with delayed cord clamping (only DCC) (48 babies), no cord milking with immediate cord clamping (ICM) (72 babies).

Data collected: MATERNAL DETAILS: age, parity, interval of delay in clamping the cord (in the DCC group), history of maternal medical problems and diabetes, last predelivery haemoglobin levels, if the baby's delivery was expedited for foetal condition, mode of delivery, shoulder dystocia, cord gases, presence of cord around neck, presence of a knot in the cord, maternal estimated blood loss, use of prophylactic or treatment uterotonic, maternal length of stay in hospital. NEONATAL DETAILS (Clinical and laboratory information): APGAR scores (1, 5 and 10 minutes), birthweight and if 90th centiles, gestation, sex, if neonatal unit admission was needed, hypothermia on postnatal ward or at admission to NICU, length of hospital stay, respiratory support, haemodynamic stability, sepsis, Hypoxic Ischaemic Encephalopathy. If they had blood tests, we collected data on Full blood counts, bilirubin levels, C reactive protein, Direct Coomb's test. We then compared Umbilical cord milking vs standard management to check for any increased adverse events or advantages in one arm over the other.

We collected data on a total of 206 babies (86 in umbilical cord milking group and 120 in the non cord milked group). From a maternal point of view, there was estimated mean blood loss of 300 ml in the cord milked group vs 350 mls in the non-cord milked group. This was not statistically significant, but reassuring that cord milking is not associated with increased blood loss from the mother. There were more caesarean sections in the cord milking group. This may be due to practitioners not doing delayed cord clamping in caesarean sections. From a neonatal point of view, the two groups were similar in terms of birth weight centiles, sex and gestation. 2 babies (2.33%) in the cord milked group required neonatal unit admission and 6 babies (5%) required NICU admission in the non-cord milked group. This shows a trend for reduced admission in the cord milked group but the absolute numbers of babies is too small to draw a meaningful conclusion. There was no difference in the numbers of babies diagnosed with jaundice or requiring phototherapy between the groups. There was no difference in respiratory distress rates, sepsis or length of hospital stay. 16% of babies in the cord milking group and 20% of babies in the non cord milked group had haemoglobin levels checked and among these babies there was no significant difference. None of the babies in either group had hypotension, hypertension, cardiac failure, or significant Hypoxic ischaemic encephalopathy requiring therapeutic hypothermia. SUMMARY: There was no significant increase in incidence of adverse effects due to umbilical cord milking, or advantages conferred by cord milking in our group of babies, however a larger study is needed to explore this further.

IMAGES:

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TOPIC: Other

ABSTRACT ID: 29

TITLE: THE EFFECT OF TRANSFUSIONS ON THE MORTALITY IN CRITICALLY ILL THROMBOCYTOPENIC NEWBORNS

AUTHORS: S. Uslu 1; S. Arslan 2; B. Guzel 1; A. Uslu 3; A. Bulbul 1; D. Besnili 1; E. Turkoglu 1; E. Bas 1

AFFILIATIONS: 1 Department of Neonatology, Sisli Hamidiye Etfal Education and Research Hospital, Istanbul, Turkey
2 Department of Pediatrics, Division of Neonatology, Mustafa Kemal University, Antakya, Turkey
3 Department of Pediatrics, Kagithane State Hospital, Istanbul, Turkey

CONTENT:

Thrombocytopenia affects one in 4 of the patients in the NICU and 25-33% of thrombocytopenic neonates are reported to require transfusion at least once due to the underlying disease. This study was performed to determine the effects of transfusion with different materials on the mortality of newborns with thrombocytopenia.

Materials & Methods:
The records of thrombocytopenic neonates in the NICU were retrospectively analyzed in two centers that applied the same transfusion protocol. The study was approved by local ethical committee. The relationship between mortality and transfusion was discussed with data accompanied by previously created standard forms. Descriptive statistics; categorical variables were given as numbers and percentages and mean, standard deviation, minimum, maximum, median, IQR were given for numerical variables. Since the differences between the numerical variables did not meet the normal distribution condition, independent two group comparisons were made by Kruskal Wallis test.

Results:
A total of 216 thrombocytopenic neonates were included in this study. Of 81 patients were dedected of transfusing with at least one blood product. Mortality in transfusion-treated thrombocytopenic infants was found to be statistically significant higher for all blood products (p≤0.001). The numbers of transfusions were determined respectively as follows for infants who died and survived; platelet transfusion (0.9 ± 1.8 vs. 0.3 ± 0.9), erythrocyte transfusion (2.5 ± 3.1 vs. 0.5 ± 1.3), fresh frozen plasma transfusion (5.5 ± 7.8 vs. 0.8 ± 2.0), albumin transfusion (0.4 ± 0.8 vs. 0.3 ± 0.3) and intravenous immunoglobulin administration (0.6 ± 1.0 vs. 0.3 ± 0.7).

In the literature, it is stated that the mortality rate is 2-4 times higher in thrombocytopenic neonates with thrombocyte transfusion. However, a clear explanation for the cause cannot be made. In our study, it was determined that the mortality rate of thrombocytopenic neonates increased with all blood products that were transfused. We speculate that mortality in thrombocytopenic neonates may be due to the cascade caused by the underlying disease rather than the transfused material.
TITLE: PREDICTIVE FACTORS ASSOCIATED WITH MORTALITY IN THROMBOCYTOPENIC SICK NEWBORNS

AUTHORS: S. Uslu 1; B. Guzel 1; S. Arslan 2; A. Uslu 3; A. Bulbul 1; D. Besnili 1; E. Bas 1; E. Turkoglu 1

AFFILIATIONS: 1 Department of Neonatology, Sisli Hamidiye Etfal Education and Research Hospital, Istanbul, Turkey
2 Department of Pediatrics, Division of Neonatology, Mustafa Kemal University, Antakya, Turkey
3 Department of Pediatrics, Kagithane State Hospital, Istanbul, Turkey

CONTENT:
Thrombocytopenia is one of the most common remarkable hematological findings in neonatal intensive care units (NICU) where prevalence can be as high as 20-35%. In the literature, neonatal thrombocytopenia is defined as a platelet count less than <100,000 / mm3 and it is different from other age groups. There are few studies related to neonatal thrombocytopenia, and there are a limited number of articles related to the effects of clinical and laboratory findings on mortality. This study was carried out to determine the clinical and laboratory findings of mortality in sick newborns who were diagnosed as having thrombocytopenia treated in NICU.

Materials & Methods:
The data of the infants who were diagnosed with thrombocytopenia in NICU were retrospectively recorded in standard data file. Ethics approval for the study was obtained from local ethical committee. Differences between the numerical variables were not achieved by normal distribution condition and two groups were compared by Kruskal Wallis test. The MedCalc Turkey program was used to evaluate the clinical and laboratory findings affecting mortality with Logistic Regression Analysis.

Results:
Of the newborns included in the study, 216 (19.8%) had thrombocytopenia. The comparisons were made between the dead infants (n = 44, 20.4%) and the surviving and discharged infants (n = 172, 79.6%).

There was no effect of gender, delivery methods, presence of bleeding was observed at any time during the follow-up period, the presence of birth trauma and leukocyte/erythrocyte count on the mortality. Low gestational age and birth weight, late-onset thrombocytopenia, degree of intracranial hemorrhage (ICH), systemic blood pressure disorders, presence of anomalies, catheter insertion, mechanical ventilation application, platelets and erythrocyte counts, and Hg, Hct values when the platelet count was found to be the lowest in the blood count were found to be factors affecting the mortality. In logistic regression analysis, grade 3-4 ICH, anomaly, hypotension, fluctuation of hypo/hypertension and percence of catheter were found to be the most significant risk factors.
The systemic blood pressure changes, severe ICH, catheter-inserted neonates and infants with anomalies should be considered as a serious risk factors for mortality of thrombocytopenic newborns in NICU.
**TOPIC:** Other

**ABSTRACT ID:** 31

**TITLE:** THE ASSOCIATION BETWEEN PLATELET TRANSFUSION AND EARLY NEONATAL OUTCOMES IN THROMBOCYTOPENIC NEWBORNS

**AUTHORS:** B. Guzel 1; S. Uslu 1; S. Arslan 2; A. Uslu 3; A. Bulbul 1; D. Besnili 1; E. Bas 1; E. Turkoglu 1; U. Zubarioglu 1;

**AFFILIATIONS:** 1 Department of Neonatology, Sisli Hamidiye Etfal Education and Research Hospital, Istanbul, Turkey
2 Department of Pediatrics, Division of Neonatology, Mustafa Kemal University, Antakya, Turkey
3 Department of Pediatrics, Kagithane State Hospital, Istanbul, Turkey

**CONTENT:**

Thrombocytopenia is seen in around 20-35% of newborns, and especially 70% of low birth weight newborns in the neonatal intensive care units. Platelet transfusion is the second commonly used blood product for the sick newborns. In this study, we evaluated the association between platelet transfusion and early neonatal morbidities, maternal factors and demographic characteristics in thrombocytopenic newborns.

Materials and Methods: The study was performed in two different NICUs that applied the same transfusion protocol. Newborns who were hospitalized for thrombocytopenia between January 2015 and January 2017 were enrolled in this study. Patients were evaluated in two groups with and without platelet transfusion. The demographic data, maternal factors and early neonatal morbidities (NEC, RDS, PDA, Sepsis, HIE, ICH) were recorded as a standard data file and compared between groups. The study protocol was approved by the local ethics committee.

Results: Thrombocytopenia was determined in 216 of the newborns, and platelet transfusion was performed to 19% (n=41) of them. Birth weight and gestational age were on an average of 2016.3 ± 103 g (520-5500 g) and 33.4 ± 5 weeks (23-42 w), respectively. 53.7% of the newborns were male. The presence of NEC, RDS, sepsis, late neonatal thrombocytopenia, low gestational age (<28 w) and low birth weight (<1000g) was significantly higher in platelet transfusion group. No difference was found between the groups regarding gender and maternal factors (preeclampsia, chorioamnionitis, autoimmune disease, maternal thrombocytopenia).

Thrombocytopenia is the most common hematologic disorder in newborns, and 15-25% of these patients requiring platelet transfusion. The need for a platelet transfusion increases with low birth weight, early gestational week, and during late neonatal thrombocytopenia. The risk of platelet transfusion is higher in early neonatal morbidities such as NEC, sepsis and RDS due to pathologic clinical severity.
**TOPIC:** Other

**ABSTRACT ID:** 32

**TITLE:** TO COMPARE THE RESPIRATORY EFFECTS OF EARLY AND VERY EARLY CAFFEINE PROPHYLAXIS IN PRETERM INFANTS

**AUTHORS:** D. Besnili 1; S. Uslu 1; B. Guzel 1; A. Uslu 2; A. Bulbul 1; E. Bas 1; I. Odabasi 1

**AFFILIATIONS:** 1 Department of Neonatology, Sisli Hamidiye Etfal Education and Research Hospital, Istanbul, Turkey
2 Department of Pediatrics, Kagithane State Hospital, Istanbul, Turkey

**CONTENT:**

**Objective:**
To determine the effect of early and very early caffeine prophylaxis on respiratory morbidity and mechanics in preterm infants.

**Materials & Methods:**
The preterm infants were included to this single-center, prospective study, born at less than 32 weeks gestation or 1500 g birth weight admitted to the neonatal intensive care unit between January 1, 2016, and December 31, 2018. Neonates who received caffeine were divided into 2 groups based on the following timing of caffeine initiation: within the first 2 hours after birth (group 1: very early), and on the third day (group 2: early). Neonatal respiratory outcomes were compared between the groups.

**Results:**
A total of 103 preterm met the inclusion criteria (group 1: 37, group 2: 66). The mean birth weights were 1188.1 ± 351.2 g and 1130.5 ± 421.1 g in the group 1 and 2, respectively. The mean gestational ages were 28.0 ± 2.9 (22 -36) and 28.3 ± 2.4 weeks for groups. The demographic characteristics of the groups were similar. The duration of mechanical ventilation was shorter in group 1, but no statistically significant difference was found between the groups. There was no difference between the groups for non-invasive respiratory support and total oxygen uptake time. The results of the groups were similar in terms of BPD development and treatment (Table 1).

Most of the studies related to caffeine timing, first 3 day and after 3 day compared. In our study very early caffeine (first 2 h) prophylaxis is associated with the short duration of invasive mechanical ventilation. It was shown that there was no difference in the development of BPD by addressing the first 2 hours and 48 hours of life.
OBJECTIVE: This study evaluated the frequency of patent ductus arteriosus of very early versus early caffeine therapy in preterm neonates.

MATERIALS & METHODS: This single-center, prospective study, patients included preterm neonates born at less than 32 weeks gestation or less than 1500 g birth weight admitted to a level 3 neonatal intensive care unit between January 1, 2016, and December 31, 2018. Neonates who received caffeine were divided into 2 groups based on the following timing of caffeine initiation: within the first 2 hours after birth (very early), and on the third day (early). Echocardiography was performed by the pediatric cardiologist in the first 1 week of > 28 GH infants and at the 72nd hour of ≤28 GH infants. Infants with hemodynamically significant PDA were treated with ibuprofen or paracetamol according to their clinical status. The groups were compared in terms of demographic data and PDA development. SPSS 15.0 for Windows program was used for statistical analysis.

RESULTS: A total of 103 babies were included in the study. There were 37 babies in Group 1 and 66 in Group 2. The mean birth weight in group 1 was 1188.1 ± 351.2 g, the gestational age was 28.3 ± 2.4 weeks, and the group 2 was 1130.5 ± 421.1 g and 28.0 ± 2.9 (22 -36) weeks. There were no differences between the groups, type of delivery, maternal age and maternal disease. Antenatal steroid ratio was similar in both groups. The ratio of treated PDA was 11.1% in group 1 and 22.2% in group 2. It was detected less frequently in the very early caffeine group but this difference was not statistically significant.

It is expected that the frequency of patent ductus arteriosus will be reduced with the decrease in the frequency of premature apnea with the caffeine treatment and the decrease of the patient's oxygen saturation fluctuation. Results from meta-analysis of cohort studies also showed that early caffeine was associated with 29% decrease in the incidence of PDA compared late caffeine. However, no such benefit was noted in in the meta-analysis of randomized trials. Katherina et al. reported that the hemodynamics of babies who started caffeine in the first 2 hours of postnatal course were better, but
they did not find any difference when compared with the infants who started caffeine at the 12th hour in terms of the frequency of hemodynamic PDA. Considering the increase in oxygenation with birth and closure mechanism of patent ductus arteriosus, we thought that PDA could be correlated with the onset time of caffeine treatment.

It was thought that the initiation of caffeine treatment in the first 2 hours may benefit the physiopathological process related to closure of patent ductus arteriosus. More comprehensive, prospective studies are needed about this topic.
TOPIC: Other

ABSTRACT ID: 43

TITLE: INTERNATIONAL SURVEY ON PREMEDICATION USED FOR NON-EMERGENCY NEONATAL INTUBATION

AUTHORS: J. Mari 1; P. Franczia 2; W. Margas 3; J. Rutkowski 3; R. Bokiniec 4; J. Seliga-Siwecka 4

AFFILIATIONS: 1 Paediatric Department, University of Szeged, Hungary
2 Frabien Consulting, Budapest, Hungary
3HTA Consulting, Cracow, Poland
4 Department of Neonatology and Neonatal intensive Care, Medical University of Warsaw, Poland

CONTENT:

Despite existing recommendations, a wide variation in frequency and type of drugs used for premedication for neonatal intubation still exists. The objective of this study was to evaluate the use of premedication for non-emergency neonatal intubation in a group of international neonatal providers. Furthermore, attitudes and experiences regarding safety, side effects and efficiency were evaluated.

A survey was sent to physicians and neonatal nurse practitioners with different levels of experience in intubation, working within the neonatal intensive care setting across the world. Respondents were recruited by email. Additionally, a link to this open survey was provided on professional neonatal themed internet discussion groups.

Results

718 completed questionnaires from 70 different countries (n=40 European and n=30 Non-European) were analysed. 69.6% responses were provided by neonatologists and 10.3% by paediatric/neonatal trainees. 76.7% professionals provide care in Level 3 Neonatal Units.

31.6% (n=227) practitioners reported that their unit does not have a protocol for neonatal intubation, and only 6.8% respondents follow available national guidelines. In units without a protocol 60.4% of the practitioners would choose premedication according to personal preference, 37% do not use any drugs for non-emergency intubation, 19.4% use only one drug. The most frequently reported combination for premedication was fentanyl, atropine and succinylcholine (6.8%). Majority of the practitioners (78.5%) use the same drugs for term and preterm infants. Most frequently used drugs for term and preterm infants by European respondents are listed in Table 1.

Only 20.9% of physicians were fully satisfied with their premedication practice.

Despite international recommendations for non-emergency neonatal intubations, a significant percent of practitioners continue not to use premedication or report using only one drug. Education about the potential harms and complications of intubation without analgesia and sedation should be enforced...
world-wide. A well planned, controlled trial is required in order to overthrow existing false convictions regarding drugs used for neonatal intubation.

IMAGES:

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TOPIC: Other

ABSTRACT ID: 49

TITLE: EFFICACY OF A DISCHARGE CHECKLIST FOR NEONATES IN REDUCING NEONATAL MORBIDITY AND MORTALITY

AUTHORS: F. Murila 1; D. Odundo 2; D. Wamalwa 3

AFFILIATIONS: 1 University of Nairobi, Department of Pediatrics, Nairobi, Kenya; 2 University of Nairobi, Department of Pediatrics, Nairobi, Kenya; 3 University of Nairobi, Department of Pediatrics, Nairobi, Kenya

CONTENT:

Introduction: In 2015, 2 million deaths occurred in the first week. Most of these deaths are readily preventable or treatable with proven, cost-effective interventions. The checklist can act as a tool to reduce neonatal morbidity and mortality.

Objective: Primary objective was to determine the impact of introducing a standardized neonatal discharge checklist on the rate of hospitalization during the neonatal period at the Kenyatta National Hospital, the main referral hospital in Kenya. Secondary objective was to determine the acceptability of a structured postnatal discharge checklist among health care workers.

Study design: A mixed method study that included the Quasi experimental pre- post intervention design and focus group discussion was carried out in the post- natal wards. Normal neonates awaiting discharge were enrolled for the study.

Methodology: Structured questionnaires were administered to both the mothers in the postnatal ward and the trained nurses on the checklist for the danger signs of newborns, breastfeeding, immunization and the use of chlorhexidine in cleaning the umbilical stump. Focus group discussions were held.

Results: Hospitalization rates were 7.4% and 3.2 % in the pre intervention and post intervention periods respectively. There was significant improvement in knowledge on cord cleaning after the intervention (p =<0.001) as well as on identifying newborn danger signs (p=0.005). There was a trend noted for reduced hospitalization following introduction of the neonatal discharge checklist.

Conclusion: There was a trend for reduced hospitalization following implementation of the neonatal discharge checklist. Acceptability of the discharge checklist was appreciated by health care workers.
Infant mortality, which is one of the most important health indicators in a country, is slowly declining relative to the decreasing trend of infant mortality rate. Factors associated with reducing mortality include midwifery development and management of neonatal intensive care units. More than a decade ago, the clinical risk assessment system for neonates has been used to assess the status of newborns and predict their mortality in hospital care units, including CRIB and CRIBII. CRIB is very important in predicting the severity of the disease and even predicting the death of infants, and CRIBII helps predict the mortality rate of premature infants. Therefore, we decided to study CRIB and CRIBII clinical indicators for predicting mortality and short-term complications of preterm infants such as precocious retinopathy, neurological deficits, etc.

Methods: In this cross-sectional study, 145 infants admitted to the neonatal intensive care unit of Shahid Bahonar Hospital in Karaj during the years 2017-2018 were evaluated and the required information were collected through the patient records files. Data were analyzed by SPSS 19.

Results: The results showed that CRIB and CRIBII are both valuable in predicting infant mortality (P-value = 0.000). The mean score of crib in dead babies was 9.24 and the mean score of CRIBII in that neonates was 9.04, so CRIB score was more predictive of mortality than CRIBII. CRIB is associated with the prevalence of retinopathy in premature infants (p value: 0.01) with a score of over 5, but no correlation was found between CRIBII and precocious retinopathy. There was also a significant correlation between CRIB and CRIBII with a neurology deficiency (Pvalue = 0.000). CRIB score = 8.68 and CRIBII = 8, and CRIB score has more predictive power than CRIBII in predicting neurology deficits.

CRIB also was associated with the rate of chronic respiratory problems in premature infants. The mean score of CRIB among neonates with chronic respiratory problems was 5.63 and others 3.12 (P-value = 0.011), but there was no significant relationship between CRIBII and this problem.

The results of this study showed that CRIB and CRIBII can be used to predict mortality and neurological defect of premature infants. Also, CRIB score can predict complications such as retinopathy of prematurity and chronic respiratory problems in preterm infants.
Aim: Quality of life (HRQoL) was assessed in children and adolescents with cerebral palsy and was compared with control children.

Method: Prospective cohort study. Children's HRQoL was self-reported with the KIDSCREEN 52 questionnaire. The opinions of 8-12 and 13-18 year-old children with cerebral palsy and their parents were given. 99 family with children with cerebral palsy and 237 from the general population were enrolled. HRQoL scores of each dimension were compared between both age groups, sex, severity and type of cerebral palsy, gross motor function score, associated diseases for child and parent reports and for the cerebral palsy and general population.

Results: Patients and their parents rated quality of life lower than their counterparts did in the general population, except the parent relation and home life and social support and peers dimensions. Reports by children and parents were correlated. 8-12 years old children and adolescents had similar scores; there were significant gender differences, girls had lower scores. Severity of motor disability manifested lower scores of physical well-being. The lowest HRQoL scores were measured in children with unilateral spastic type of CP. Children with epilepsy had worsen social acceptance, they parents meant worsen school environment. Parents of children with incontinence rated lower the autonomy, financial resource and social support and peers dimensions. Intellectual impairment influenced the friendship as these children felt. Severe disability made more difficult the friendship and social acceptance.

Conclusion: Our study is based on the perspectives of children with cerebral palsy, not just on their opinion of their parents. Cerebral palsy itself, female sex, higher gross motor function score and severity of the disease and comorbidities (epilepsia, incontinence, intellectual impairment) had a negative impact on HRQoL of children and adolescents with cerebral palsy. Some part of them originated from negative cultural meanings and attitudes.
Health systems around the world work to provide quality care services. A method for assessing the quality of care, which has won particular interest over the last decade, is the analysis of omitted nursing activities, because the reduction of this phenomenon could help improve the quality of care itself. In Newborn Intensive Care Units (NICUs), care left undone has been studied highlighting its dimensions and characteristics, however these studies are very few, and carried out mainly in the United States. The objective of this study is to photograph and investigate the phenomenon of care left undone in the context of pediatric nursing care provided in NICUs in Italy.

A quali-quantitative study was conducted: for the quantitative phase, a secondary analysis was carried out, using the database of the RN4CAST@IT-Ped study with a cross-sectional observational design, by drawing the data related to NICUs. For the qualitative phase a qualitative descriptive study was conducted, by conducting semi-structured interviews in a NICU. Convenience sampling was chosen for both phases, and involved pediatric nurses and nurses, dedicated to providing direct care during the last 24 hours, coming from at least one of the 13 hospitals affiliated with Associazione Ospedali Pediatrici Italiani (AOPI). The quantitative nurse survey was conducted between September 2017 and January 2018, through an online survey, while the semi-structured interviews were conducted in January and February 2019. The quantitative data were analyzed using SPSS 22.0 software and by conducting a descriptive analysis, the qualitative data were analyzed through a verbatim transcription and the conduction of a thematic analysis.

Results
For the quantitative phase, 324 surveys were collected. Of the total sample, 90.1% were female, 47.2% held a university degree in Nursing, and 31.5% held a university degree in Pediatric Nursing. The average age of the respondents was 38.2 years (SD ± 9.52), average seniority, as a nurse, was 14.2 (SD ± 9.98), while average service seniority in the pediatric area was 13.12 (SD ± 10.22). The most frequent care activities left undone were ‘Informing and educating patients or family members’ (43%), and ‘Developing or updating nursing care plans’ (42%); followed by ‘adequately documenting nursing care’ (40%), and ‘planning care’ (39%). The least frequent care activity left undone was ‘oral hygiene’ (28%) (see Figure 1).

For the qualitative phase, seven semi-structured interviews were conducted, which produced a thematic pattern consisting of seven themes, which described the experience of providing nursing
The thematic analysis confirmed and supported the quantitative data, showing that the most frequently omitted activities and the mostly unmet needs were those related to the relational aspects with the parents.

This is the first study that measures care left undone in Italian NICUs. Our results are consistent with international literature showing that nurses miss some activities more frequently. Understanding the aspects of this phenomenon, also thanks to the in-depth qualitative analysis, could be a starting point for a more in-depth analysis of the related costs. This is a current perspective consistent with health economization and spending review policies of which our country has been a protagonist in recent years, and of the respective patient outcomes, to guide health care towards the centrality of the patient, and to improve the quality of care.

IMAGES:

https://www.eiseverywhere.com/eselectv3/v3/events/354183/submission/files/download?fileID=23de5a754190b3d100243e5afe9e8b02-MjAxOS0wNCM1Y2FiMTk0N2FlODg0
TOPIC: Other

ABSTRACT ID: 66

TITLE: TIMING OF OPEN COT NURSING IN PRETERM INFANTS

AUTHORS: D. Rallis 1, 2
C. Longley 1
A. Kage 1

AFFILIATIONS: 1. Imperial College Healthcare NHS Trust, Neonatal Unit, London, UK
2. Neonatal Unit, University of Ioannina, Greece

CONTENT:

The management of preterm infants includes nursing in thermoregulated incubators until moving to open cots, usually at 1700-1800 g, though practice varies widely. Our aim was to evaluate the practices in two neonatal units, with respect to timing of moving infants to an open cot. Additionally, to compare infants moved with body weight ≤1400 g (early group) to those with body weight >1400 g (standard group) regarding the use of heated mattress, cold stress episodes, length of hospital stay, mode of feeding at discharge and the rates of common neonatal morbidities such as bronchopulmonary dysplasia, necrotizing enterocolitis, sepsis and retinopathy of prematurity.

We retrospectively reviewed the medical records of all infants admitted to our NICU during 2016-2017. Infants with birth weight ≤1500g that were discharged home were included in the analysis.

A total of 185 preterm infants were enrolled over 2 years with mean gestational age 29 ± 2.4 weeks and birth weight 1142 ± 257 g. Small for gestational age infants were 28% of the cohort. The mean weight of moving to open cot was 1368 ± 160 g at corrected age 33 ± 1.8 weeks. Approximately half of the infants (48%) developed at least one episode of hypothermia. The median length of stay was 50 (37-71) days, the corrected age at discharge 37 ± 1.7 weeks and the weight 2196 ± 381 g; 69% of the infants were breastfed.

Of the total, 115 infants were transferred early at a mean corrected age of 32 ± 1.6 weeks and weight 1277 ± 95 g compared to 70 infants of standard transfer with a mean corrected age of 33 ± 1.9 weeks and weight 1516 ± 132 g. No differences were noted between the two groups in the daily weight gain, episodes of hypothermia, breastfeeding at discharge or any clinical outcomes. Infants of early transfer group were discharged earlier compared to standard group, at a mean of 36 ± 1.3 weeks versus 37 ± 2.0 weeks (p=0.039) and weight 2141 ± 370 g versus 2286 ± 385 g (p=0.011) (Table).

In conclusion, stable preterm infants can be moved to an open cot at <33 weeks and weight <1400 g without significant adverse effects. Earlier transfer to open cot was associated with earlier home discharge.
Background:
Perinatal asphyxia is a significant cause of morbidity and mortality in neonatal population. It has an influence on neurological and mental development of the infants.

Objective:
The main aim of our study is to determine and to identify the occurrences, clinical manifestations and immediate outcomes of perinatal asphyxia at Intensive care unit of the University Clinic for Children’s Diseases- Skopje

Methods:
In this retrospective study, a total of 227 hospitalized patients, 22 (227/22, 9.69%) neonates with perinatal asphyxia at Intensive care unit of University Clinic for Children’s Diseases during the period of 1 January 2018 – 31 December 2018 were included. From neonates data records first we analyzed demographic parameters (age, gender, birth weight) and perinatal conditions (delivery, comorbidities). Inclusion criteria included Apgar score 0-3 in first five minutes (asphyxia pallida), Apgar score 4-7 in first five minutes (asphyxia livida), requirement of pressure ventilation in delivery room and signs of fetal distress (less 100 heart beats per minute, hypotonia, poor breathing, skin color and etc), need of mechanical ventilation or noninvasive respiratory support.

Results:
Twenty two neonates were included in the study; 5 (22.7%) were females, 17 (77.2%) males, the mean birth weight (± standard deviation) was 3.530 ±398.9 g, and the mean gestational age was 36.3±2.2 weeks. Most of the infants were born by normal vaginal delivery (22/13, 59.0 %), by section cesarean CS (22/8, 36.3%) and with Vacuum extractio (22/1, 4.54%). Requirement of positive pressure with bag-mask ventilation in delivery room had nine neonates (22/9, 40.9%) and four of them (22/4, 18.1%) were intubated. Asphyxia pallida were confirmed in six neonates (22/6, 27.2%) and asphyxia livida in 16 neonates (22/16, 72.7%). All twenty- two neonates were admitted to the tertiary intensive care unit (ICU). Fourteen of asphyxiated neonates required conservative mechanical ventilation (22/14, 63.6%) and eight neonates (22/8, 36.3%) noninvasive respiratory support. In all twenty- two neonates were made neurological examinations and hypoxic ischaemic encephalopathy...
(HIE) was confirmed in two asphyxiated neonates (22/2, 9.09%). Of the 22 neonates, discharged from ICU seventeen (22/17, 77.2%), and five neonates died (22/5, 22.7%).

Conclusions:
Despite advances in post delivery management of neonates, perinatal asphyxia is still the leading cause of neonatal mortality. Long-term follow up of asphyxiated neonates is a major challenge for any society in order to minimize unwanted sequel in the development of these infants.
Neonatal sepsis is a common disease among preterm infants which is associated with high morbidity and mortality. Based on the period of the infection, neonatal sepsis is classified into early-onset sepsis (EOS) and late-onset sepsis (LOS). Early-onset sepsis (EOS) is referred as the onset appeared in the first 72 h due to maternal intrapartum transmission of invasive organisms. Late-onset infections present after delivery, or beyond 3 to 7 days of age, and are attributed to organisms acquired from interaction with the hospital environment or the community. Neonatal sepsis can be the result of infections with bacteria, virus, or fungal microorganism. EOS are most commonly associated to Streptococcus agalactiae (GBS) and Escherichia coli, meanwhile LOS may also be associated with other pathogens such as Gram negative aerobes, L. monocytogenes, Staphylococcus Aureus. The rate of sepsis in preterm newborns in our NICU since 2015 to 2017 has increased from 15 % to 23%. In order to improve this outcome we have revised our internal protocols focusing on late onset sepsis modifiable risk factors such as contact with hospital personnel, family members, nutritional sources, hand contamination, central venous accesses and invasive respiratory devices.

All analyzed data are provided by Vermont Oxford Network Annual Report, an international network which include characteristics, outcomes and interventions for infants weighted 501 to 1500 grams at birth in more than 1200 hospitals. In order to reduce sepsis rate in 2018 we have applied some modifications to our internal protocols concerning hand hygiene, numbers and timing of central venous access and other invasive devices, nutritional sources.

The last VON report (2018) has shown a reduction of sepsis rate in our center of 12 percentage points (Sepsis rate: 11% in our center versus 8% in all hospitals). Besides none of our sepsis cases got worse evolving in septic shock or needing inotropic drugs. This result is also related to the introduction of HRC monitoring (HeRo monitoring) a continuous measure system which detects decreased heart rate variability and transient repetitive heart rate decelerations. HeRo, through a specific algorithm, gives us a numeric value which is predictive of sepsis in a beginning phase when inflammatory biomarkers are still negative.
Noonan syndrome (NS) is an autosomal dominant disorder characterized by short stature, facial dysmorphism, and a wide spectrum of congenital heart defects. The incidence of NS is between 1 in 1000 and 2500 live births. Phenotypic variability makes difficult to diagnose NS.

The case of Noonan syndrome. The NGS analysis of RAF1 gene and Sanger sequencing next conformation was performed after birth. The boy was referred for clinical genetic diagnostics at the age of 3.5 weeks. He was born at term after an uneventful pregnancy; the parents were healthy (mother 29 yrs, father 30 yrs) and unrelated and birth weight was 3580 g, length 52 cm, 8/9 Apgar score. After birth, echocardiography was performed and heart defect was detected (ventricular septal defect, artial septal defects, patent ductus arteriosus, mitral valve dysplasia). After repeated echocardiography at the age of 23 days were found: hypertrophic cardiomyopathy with severe obstruction, reduced contractility of the left ventricle myocardium, severe pulmonary hypertension, patent ductus arteriosus. Dysmorphological examination showed characteristic of craniofacial features including hypertelorism, downslanding palpebral fissures, low-set posteriorly rotated ears, short neck, cryptorchidism. The genetic testing revealed pathogenic variant c.770C>T (p.Ser257Leu), it was identified in RAF1. This variant is not present in population databases. This variant has been reported in many individuals affected with Noonan syndrome, both with and without multiple lentigines. Severe pulmonary arterial hypertension and hypertrophic cardiomyopathy became fatal at the age of 3 months. The sequencing of RAF1 gene of both parents did not detect mutations.

Detection of neonatal pulmonary arterial hypertension and hypertrophic cardiomyopathy are necessary to differentiate with the Noonan syndrome.
TOPIC: Other

ABSTRACT ID: 91

TITLE: FREQUENCY AND STRUCTURE OF THE CONGENITAL HEART DEFECT AMONG THE NEWBORN IN COMPARISON WITH THE CHILDREN OF LVIV REGION OF UKRAINE

AUTHORS: Ye. Sharhorodska 1,2. A. Malska 2. A. Samokhvalova 1. O. Hnateyko 1,2. H. Makukh.

AFFILIATIONS: 1 Institute of Hereditary Pathology of the National Academy of Medical Sciences of Ukraine, Lviv. Ukraine.
2 Danylo Halytsky Lviv National Medical University. Lviv. Ukraine.

CONTENT:

Annually, more than 5,500 children with congenital heart defects are born in Ukraine. 14% of children with cardiac anomalies die during the first week of life and 25% die during the first month, while about 40% do not survive by 1 year. An important factor is the time of diagnosis of the congenital heart defects (CHD) (prenatal, early postnatal, at an early age), and the actions to be taken.

Collection of information and retrospective analysis of clinical-epidemiological and medical-statistical data of primary medical documentation was performed: 170 prenatal records of pregnant women who gave birth to children with CHD and medical records of children with CHD, residents of the Lviv region of Ukraine.

RESULTS: In the analyzed data, among 15429 newborns 172 children were born with heart defects. The incidence of congenital heart disease was 1.1%. It was established that in the spectrum of this disease in the first place there are congenital malformations of the heart with arteriovenous blood discharge (“pale”) – 102 (59.6%); in the second place – heart diseases with a decreased or normal blood flow – 49 (28.5%); in the third place – heart diseases without blood discharge, with the presence of obstacles at the level of valves or large blood vessels – 14 (8.1%). In the fourth place – rare heart diseases – 7 (4.1%). In 28 (16.3%) of children there was found concomitant congenital pathology: multiple congenital deformities – 12 (7.0%), chromosomal disorders – 7 (4.1%), and congenital malformations of the nervous system – 6 (3.5%). 40.1% of heart defects were diagnosed prenatally. For one patient (1.5%), heart defect was detected during the first trimester, for 24 (35.8%) patients – during the second trimester, for 42 (62.7%) patients – during the third trimester of pregnancy.

Among children with CHD from the Lviv region, the average age of the diagnosis with CHD was 7.02 ± 0.11 months. The most common were the diagnoses "Defect of interventricular septum" – 28.01 ± 1.09%, "Open oval window" – 14.42 ± 0.86% and "Atrial septal defect" – 12.11 ± 0.79% of cases. Atrioventricular communication was diagnosed predominantly by 1 month of age (67.63%), in a quarter (24.46%) of patients – from 1 month to 1 year, and in 7.91% of children – between 1 year and 11.5 years. In the patients under examination, complete AVCD was detected by 6.3 times more often than incomplete AVCD. In almost half of the cases AVCD was combined with Down
syndrome, quite often – with Edwards syndrome, and only a few patients under examination had syndromes of Aarskog, Lenz, and Patau. In 53.24% of children AVCD was combined with other malformations of the cardiovascular system. In children with Down syndrome, AVCD was most often combined with ASD type II, ductus arteriosus and PFO, in children without chromosomal pathology – with pulmonary artery hypoplasia and aortic coarctation.

Perinatal pathology due to congenital heart defects was found in 1.1± 0.1% of the total number of newborns. In the structure of congenital heart defects among newborns, the most common are breakages of arteriovenous blood discharge (59.6%). In 16.3% of children, a combination with concomitant congenital pathology was found, including 4.1% of chromosomal abnormalities. Quarter of all CHD was not diagnosed in the pre- or neonatal period. According to ultrasonic prenatal diagnostics, 40.1% were diagnosed with congenital heart defects, 59.9% with timely diagnosis – a reserve for reducing perinatal morbidity and mortality.
TOPIC: Other

ABSTRACT ID: 94

TITLE: EARLY NEONATAL MORTALITY IN MONASTIR REGION (TUNISIA)

AUTHORS: FZ. Chioukh, T. Khemis, A. Chaabane, T. Zaidi, H. Ben Hmida, M. Bizid, K. Monastiri

AFFILIATIONS: Department of Intensive care and Neonatal medicine, Teaching hospital of Monastir, Tunisia

CONTENT:

Neonatal mortality still in Tunisia and other low income countries. Early neonatal mortality (neonatal mortality within the first week of life) is a good quality indicator of perinatal health. Aim: To evaluate the neonatal mortality epidemiology in our area: factors and essential causes.

A prospective study of early neonatal mortality in the centre of maternity and Neonatology of Monastir between the 1st of January 2010 and the 31th of December 2017. Every death of a newborn was analyzed (gestationnel age, condition, morbidity, maternal factors, etc.) by the medical staff and a senior neonatologist.

During the 8 years study we had 52,162 live births in the hospital, we admitted 22,861 in all units of the neonatology department (43.8%). We had 628 deaths (12.3 % of live births). We had 316 early neonatal deaths (50.3% of neonatal mortality), 6.05 ‰ live births. Two hundred were preemies (63.29%) and 79 (39.5%) were prematurissima (Gestationnal Age < 28 WG). 54 newborns were outborns. 117 newborns (37.02%) had major or lethal congenital malformations. 82 newborns (25.9%) had perinatal asphyxia with 40 preemies and 18 had malformations. 49 death by nosocomial sepsis (15.5%). 259 death (81.96%) were inevitable. Nosocomial infections were associated to prematurity and to perinatal asphyxia.

In view of the high number of "inevitable" deaths, additional efforts are needed to improve obstetric management by early detection of severe or lethal malformations, prevention of asphyxia and extreme prematurity. An effort is also needed to further reduce nosocomial infection in our department. Combination of these measures would significantly reduce neonatal mortality in our region.
ABSTRACT ID: 105

TITLE: A CASE REPORT OF HEMOLYTIC DISEASE OF NEWBORN ASSOCIATED WITH ANTI-E ANTIBODY REQUIRING EXCHANGE TRANSFUSION TWICE

AUTHORS: SH.Youm 1; BK.Lee 2; HM.Kim 3

AFFILIATIONS: Department of Pediatrics, Yonsei University Wonju College of Medicine, Wonju, the Republic of Korea

CONTENT:

ABO and Rh(D) incompatibilities are the most common causes of hemolytic disease of newborn (HDN) that can result in neonatal hyperbilirubinemia. However, minor blood group incompatibilities often lead to severe hyperbilirubinemia. We report an unusual case of HDN due to anti-E antibody who was treated with intensive phototherapy and exchange transfusion twice but eventually result in heart failure and kernicterus.

A full-term male baby was admitted at our hospital because of icteric skin color and elevated capillary bilirubin within the first 24 hours of his life. He was born from a 32-years-old multipara mother whose second baby had intensive phototherapy due to HDN for unknown reason. The newborn’s indirect and direct coombs tests were positive, and an Anti-E antibody was confirmed on irregular antibody test. He was treated with exchange transfusion twice on postnatal age 1 and 3 day, IV immunoglobulin were administered 4 times during intensive phototherapy. In addition to hemolytic anemia, he suffered heart failure requiring inotropics treatment. After improving of HDN, he had a tremor of hand and we confirmed kernicterus on Brain MRI scan.

ABO and RhD typing of RBC samples were performed using an automated analyzer (QWALYS). The antibody screening, identification, and DAT were done with a gel-based analyzer (DiaMED). The subclass characterization of immunoglobulin G (IgG) antibodies in DAT-positive samples was done using gel technique. Compatibility testing between donor red blood cells (RBCs) and maternal serum was done by gel technique. All the packed RBC units used were reconstituted in AB plasma.

We suggest that Clinician should be aware of minor group incompatibilities which can result in severe hyperbilirubinemia, heart failure and kernicterus considering to check for irregular antibodies of mothers whose baby had be diagnosed as a HDN.
TOPIC: Other

ABSTRACT ID: 107

TITLE: DYNAMIC PRE- AND POSTDUCTUAL MONITORING OF SYSTOLIC ARTERIAL PRESSURE IN DIAGNOSTICS OF COARCTATION OF AORTA IN NEWBORNS

AUTHORS: E. Bockeria, O. Shumakova, A. Burov, I. Kazanceva

AFFILIATIONS: National Medical Research Center for Obstetrics, Gynecology and Perinatology (NMRCOGP) named after Academician V. I. Kulakov of Ministry of Healthcare of Russian Federation, Moscow, Russia

CONTENT:

The juxtaductal coarctation of the aorta is a congenital heart disease (CHD) that manifests in the neonatal period, which is about 10% of critical CHD. A high percentage of mortality from this defect and the complexity of echocardiographic diagnosis, both prenatal and postnatal, determines the relevance of its early diagnosis with additional methods of research to prevent the development of cardiovascular failure, as well as timely transfer of patients to a cardiothoracic hospital. A high percentage of false-negative pulse oximetry screening for aortic coarctation postulates the use of additional methods for assessing systemic blood flow.

Purpose. Optimization of tactics of observation and routing of newborns with a previously excluded prenatal diagnosis of aortic coarctation

In the department of neonatology and pediatrics of the NMRCOGP 29 newborns were examined whose diagnosis of coarctation of the aorta was preliminarily excluded after birth or allowed to continue monitoring under conditions of the perinatal center. The dynamic pre- and postductual measurement of systolic blood pressure was continued at least daily. With the increase in systolic blood pressure gradients, an echocardiogram was performed to determine the size of the aortic isthmus.

Results. From the group of studied newborns in 24/29 (82.8%) children, the diagnosis of coarctation of the aorta was finally removed (according to echocardiography data before discharge, at least 7 days of age). With a daily assessment of the indicators of monitoring of pre- and postductual systolic blood pressure, there were no significant gradients in dynamics (10 mmHg and more) in the children of this group. In 4/29 (13.8%) children, there was an increase in systolic blood pressure gradients pre- and postductually up to 10 mm Hg and more (Me; (R) = 25; (22-26) mm Hg), which was an indication for repeated echocardiography. In all children (4/4) with increasing and maintaining high gradients in systolic blood pressure, the diagnosis of coarctation of the aorta was confirmed (one of them had an adult type of coarctation of the aorta). In 2/4 children of this group, the PDA (5–5.8 mm) was functioned, but with a left-right direction, therefore, no gradient in saturation was observed pre- and post-ductally. In 1/29 (3.4%) children (with an established diagnosis of coarctation of the aorta and the presence of a subaortic VSD, with a right-left PDA direction) there was no gradient of systolic blood pressure or/and saturation and hemodynamic interruption of the aortic arch was verified. It should be noted that this child had a birth weight of 1600. Given the stable condition, an
adequate level of diuresis and the need for a large amount of operational correction, the girl was in our department for the purpose of preoperative preparation and achieving the maximum possible body weight. All 5 children with CHD were transferred to the cardiac surgery hospital for prompt correction up to 20 days of life and were successfully operated.

Newborns with prenatally suspected aortic coarctation (in the absence of a confirmed CHD by an echocardiogram after birth) should be monitored at the hospital for at least 7 days with a mandatory daily measurement of systolic blood pressure pre- and post-ductally. Appearance or increase of pre- and post-ductal gradient in systolic arterial pressure of 10 mm Hg and more in children with suspected coarctation of the aorta, requires repeated ECHO-CG examination, including in cases where the diagnosis was previously excluded.
Bronchopulmonary dysplasia (BPD) - a pulmonary, polyetiologica chronic disorder, developed in premature infants with morpho-functional immaturity of lungs undergoing oxygen therapy, which is manifested by pulmonary affection with the development of emphysema, fibrosis, bronchoobstructive and various radiological changes in the first months.

Aim. The aim of the research was to evaluate preterm infants born with bronchopulmonary dysplasia (DBP) based on birth weight, gestation term and oxygen therapy

Material and Methods: Children hospitalized in the Clinical Pneumology were evaluated, showing a positive history of premature delivery and oxygen treatment for respiratory distress syndrome. Research is part of a cohort study that continues. Of all patients - 48 children (66.7%: 95CI 54.6-77.3) who did not have bronchopulmonary dysplasia constituted the baseline group and 24 preterm infants without bronchopulmonary dysplasia - the control group (33.3%: 95CI 22.7-45.4). The materials were analyzed in Microsoft Excel, Epi Info - 3.5.

Results: In the base group 78.7%: 95CI, 64.3-89.3 cases (37 children) were born up to 32 weeks and in 21.3%: 95CI, 10.7-35.7 cases (10 children) born after 32 weeks and in the control group 66.7%: 95CI, 43-85.4 cases (14 children) were born up to 32 weeks, and only 33.3%: 95CI, 14, 6-57 cases (7 children) born after 32 weeks, $\chi^2 = 1.13; p>0.05$. Mean mass at birth - 1412.8±112 gr. in the base group and equal to 1402.3±106.9 gr. in children in the control group, $F=0.04, p>0.05$. Children who achieved bronchopulmonary dysplasia were evaluated for oxygen therapy. Of 28 children, 18 children were ventilated on average 17.7 ± 4.99 days (maximum 95 days and minimum - 1 day) at an average concentration of 34% (maximum 50% and at least 21%). Of these 28 children, 17 children were at CPAP on average 12.9 ± 4.12 days (maximum 56 days and minimum - 2 days) at an average concentration of 29% (maximum 40% and at least 21%).

Conclusions: preterm infants born long-lasting oxygenoterpic and at elevated concentrations perform bronchopulmonary dysplasia
TOPIC: Teamworking in the NICU

ABSTRACT ID: 13

TITLE: LIMITS OF PROFESSIONAL COMPETENCY IN NURSES WORKING IN NICU

AUTHORS: N. Skorobogatova 1; R. Tamien 2; D. Stonien 3; E. Krakauskien 4

AFFILIATIONS: 1 Neonatology Dept., Lithuanian University of Health Sciences, Kaunas, Lithuania
2 Neonatology Dept., Lithuanian University of Health Sciences, Kaunas, Lithuania
3 Neonatology Dept., Lithuanian University of Health Sciences, Kaunas, Lithuania
4 Neonatology Dept., Lithuanian University of Health Sciences, Kaunas, Lithuania

CONTENT:

Competencies of intensive care nursing and how to obtain them are quite widely covered in scientific research. It is noted that the concept of competence is a complex one. It is described as the professional ability to act, i.e. to determine knowledge, abilities, skills, attitudes, personality traits, and values. It can be argued that the concept of "competence" can be equated to successful activity, efficient use of resources, and adequate choices. The structure of competence in terms of nursing can be divided into six parts, five of which are the same for all clinical nursing areas, i.e. practical, communication, and management skills, raising professional qualifications (learning) and scientific research. The sixth aspect of nursing competencies is specific and reflects the needs of the particular clinical area. This establishes an holistic understanding of excellence, which encompasses the ability to evaluate new situations, to choose the most appropriate methods of professional action, and to continuously integrate knowledge both in the field and the profession as a whole. It should be emphasized that besides observed competence of qualification (knowledge and skills), there is an unobserved part, which affects general competency. It includes self-perception, personal characteristics (physical and mental attributes), and motivation.

Research shows that there are key attributes of nurses determining their professional competence: skills, intelligence, altruism, and responsibility. Our study aimed to find out the views of nurses working in neonatal intensive care units about the limits of professional competencies and to identify situations where the limits are crossed.

The study was conducted in NICUs of 2 perinatology centres in tertiary health care in Lithuania. The research employed the focus group method, which allows the questions of interest to be discussed in a short time. For this research we had three focus groups with nurses working in neonatal intensive care units. The length of each discussion ranged from 1 hour and 5 minutes to 1 hour and 20 minutes. To ensure comprehensive and effective research of the issue and a sufficient number of participants, each focus group involved 5 nurses in a discussion. The sample consisted of 15 mid-age intensive care nurses. Most are married, live in the city, and had no university education. They had an average of over 22 years of work experience in neonatal intensive care units. The characteristics of the research participants are presented in Table 1.
Two researchers participated in each of the focus groups. One of them, the author of this article, was moderating the discussion, and the other was observing the process. The main criteria for selecting the observer of the discussion were her ability to be objective and her level of experience in moderating and participating in focus groups.

The discussions were arranged in a circle format for both participants and researchers. This allowed everyone to observe each other, maintain eye contact, and encourage engagement in the discussion. Discussions were led according to the framework of the conversation, which was developed in advance. The following leading questions were used to open or direct the discussion:

- What kind of preparation do nurses need to be able to work in a neonatal intensive care unit?
- How would you describe your interaction with a team of doctors and parents of newborns?

At the beginning of the discussion, participants introduced themselves, answered questions about work, how they felt after a day of work (e.g., "Did you get very tired at work today?"). This made it possible to get acquainted with the participants of the focus group, to establish contact with them. Gradually, the discussion was led to the research questions. Questions were formed freely, stimulating the discussion process (e.g., "So, what are the tasks that rightfully belong to doctors, but, from your perspective, are often performed by you?"; "What do you often talk about, what information do you provide to the parents of newborns? Are there any forbidden topics or things you shouldn’t do or say to parents in cases when a baby dies?").

The results of the study were analysed using the thematic analysis described in Braun and Clarke (2006). This method was used to highlight the structure of data identification, analysis, and presentation of results. Following the recommendations of the methodologists, the data analysis process involved 6 steps.

The study was approved by the Kaunas regional committee for bioethical research (permission No. BE-2-15).

The nurses involved in the study paid much attention to discussing the limits of professional competence. Many controversial issues were expressed in terms of competencies. On the one hand, the limits of professional competence are defined and sufficiently clear, but when working in neonatal intensive care units, those limits are often crossed. This happens due to the choices of nurses themselves (e.g., when trying to save a newborn’s life in an emergency situation, nurses carry out actions that exceed their competencies) and also because doctors often delegate their functions to nursing professionals, thus forcing them to go beyond the limits of their professional competence. Such confidence of physicians in nurses is controversial: on the one hand, it is pleasing, but at the same time it can be dangerous that the functions defined in job descriptions are exceeded.

IMAGES:

https://www.eiseverywhere.com/eselectv3/v3/events/354183/submission/files/download?fileID=04f12fac31f16c963ba64133be735815-MjAxOS0wNCM1Y2FiMTk0NzRiODI2
TOPIC: Teamworking in the NICU

ABSTRACT ID: 46

TITLE: NEWBORN TEAM’S OPINIONS AND PRACTICES ABOUT FAMILY-CENTERED CARE

AUTHORS: First Author: ULVİYE GÜNAY
Second Author: DIİEM COŞKUN

AFFILIATIONS: Inonu University, Faculty of Health Sciences, Campus 44280, Malatya, TURKEY
Fırat University, Faculty of Health Sciences, Campus 23100, Elazığ, TURKEY

CONTENT:

Family-Centered Care (FCC) is an approach of care that includes the planning, presentation, and evaluation of collaborative healthcare service between the healthcare service team and the patients’ families. This study was conducted to find out newborn team’s opinions and practices about family-centered care.

This study was conducted with 19 health professionals (18 nurses and one new-born specialist) working in the newborn intensive care unit (NICU) of a tertiary level in Turkey between September and November 2018 by using a qualitative method. The data were collected by using focus group discussion method and semi-structured questions. Ethical approval and participants’ permission were taken. The interviews were recorded with voice recording. The data were evaluated with content analysis method and main and sub-themes of the study were determined.

Average age of the newborn team in the study was 32.5 years, all the members were female, nine were undergraduates and they had newborn care experience between 2 and 6.5 years. Three main and nine sub-themes were determined as a result of content analysis. Themes of the study;
1- Opinions
   a. Parental participation,
   b. Cooperation,
   c. Self-confidence and confidence in NICU team,
   d. Preparing the parent to home care,
   e. Providing parental and team satisfaction.
2- Application
   a. FCC is not applied enough
3- Obstacles
   a. Excessive work load,
   b. Hospital policies not supporting FCC,
   c. Parents’ not visiting their babies regularly.
The results of this study showed that newborn team is aware that FCC is a useful practice, but it is not applied enough in practice and there are various obstacles in application.
Healthcare team is a professional group consisting of different healthcare professionals working together so that patients can receive top-level and high quality health care. Team work contributes to health professionals' giving effective, efficient and low cost care. Healthcare team does not include only health professionals. One of the most important members of the healthcare team is the patient and patient's family. Today, one of the most effective care approaches supporting this is family centered care approach. In this approach, healthcare professionals should support the participation of the patient and the family. The purpose of the present study is to assess whether there is association between NICU nurses’ attitudes about team work and their parental participation attitudes.

This study was conducted with 120 newborn nurses working in the newborn intensive care unit of a tertiary level in Turkey between September 2018 and January 2019 by using a qualitative method. In the study, "Introductory Information Form" “Teamwork Behavior Scale (T-TAQ)” and "Parent Participation Attitude Scale (PPAS)” were used as the data collection tools. Ethical approval and participants' written permissions were taken. In analysis of the data, percentage, arithmetic average, frequency, standard deviation, median, minimum, maximum, Mann-Whitney U, Kruskal-Wallis, and Spearman’s correlation tests were used.

38.6% of the nurses were between 29 and 37 years of age, their average working time in the NICU was 5.13±4.14 years and 73.9% were undergraduates. Nurses' average “Teamwork Behavior Scale” total score was 107.09±14.63, while their average "Parent Participation Attitude Scale” total score was 84.98±7.31. The scores of nurses from both scales were found to be high. A positive and strong association was found between nurses’ T-TAQ averages and their PPAS score averages (p <0.05). NICU nurses’ attitudes about team work and parental participation are high.