ID: 72  

**TITLE:** GENETIC PREDICTORS OF EARLY-ONSET NEONATAL SEPSIS AND PNEUMONIA IN PRETERM NEONATES WHO REQUIRE RESPIRATORY SUPPORT  

**AUTHORS:** Nikitina I.V. 1,2, Donnikov A.E. 1, Krogh-Jensen O.A. 1,2, Lenushkina A.A. 1, Ionov O.V. 1,2, Kryuchko D.S.1,3, Zubkov V.V., 1,2 Degtyarev D.N. 1,2  

**AFFILIATIONS:** 1 Federal State Institution “National Medical Research Center for Obstetrics, Gynecology and Perinatology named after Academician V.I. Kulakov” of the Ministry of Health of the Russian Federation, Moscow, Russia.  
2 Federal state autonomous educational institution of higher education. I.M. Sechenov First Moscow state medical university of the Ministry of Health of the Russian Federation (Sechenov university), Moscow, Russia.  
3 The Federal state autonomous institution «National Medical Research Center for Children's Health» of the Russian Federation Ministry of Health, Moscow, Russia.  

**CONTENT:**  
The aim of this study was to evaluate gene polymorphisms in preterm neonates, who required respiratory support, in order to find genes potentially involved in the response to invasion of infectious agents and inflammation process.  

The study included 313 preterm newborns (24-36 weeks of gestation) admitted to the neonatal intensive care unit (NICU) of the National Medical Research Center for Obstetrics, Gynecology and Perinatology, Moscow, Russia, between January 2013 and December 2015. All neonates had signs of respiratory distress and required ventilatory support. Peripheral blood samples for genotyping DNA were taken in all patients at the same time of sepsis-workup. Depending on the reason of respiratory distress (infectious or non-infectious), all patients were divided into two main groups: the first group included 121 neonates with respiratory distress syndrome (RDS) or transient tachypnea of neonate (TTN), the second - 192 newborns with early-onset neonatal sepsis (EOS) or pneumonia.  

Based on the gestational age, the neonates of the two main groups were divided into 3 subgroups: 24-28 weeks, 29-32 weeks and 33-36 weeks. We identified statistically significant differences in gene polymorphisms in preterm neonates of various gestational ages having infectious and non-infectious cause of respiratory distress. According to our data the distribution of the following genotypes and alleles was statistically different: in subgroup 29-32w - NOS3-786, NOS3-894, IL1b; in subgroup 33-36w - AGTR2, IL4R1902, IL8, GNBB25, HTR2A. Almost all patients (33 of 34) in subgroup 24-28 weeks of gestation had EOS or pneumonia, thus comparative analysis was impossible.  

Our findings show that several genetic predictors seem to play an important role in realization of early-onset neonatal sepsis and pneumonia in preterm neonates. Different genetic polymorphisms associated with early-onset sepsis and pneumonia were detected at different gestational ages.  

**COI:** None declared
ID: 248

**TITLE:** UNILATERAL DIAPHRAGMATIC PARALYSIS IN THE NEWBORN: A RARE COMPLICATION OF CHEST DRAINAGE

**AUTHORS:** Kaiet Echeverria 1; Pilar Jarque 2; Pilar Cobo 3; Marina Roldán 4; Carmen García 5, Eva Beltran 6

**AFFILIATIONS:** Departament of Neonatology, University Hospital Son Espases, Palma de Mallorca, Spain.

**CONTENT:**

Diaphragmatic paralysis is a well-known complication of cardiac surgery. The damage to the phrenic nerve during the surgical procedure can occur due to traction, section or stretching of the nerve but it could also be caused by a malpositioned chest tube. In that case, direct compression of the nerve by a deeply positioned chest tube causes the paralysis and it may follow a benign course if promptly recognised.

Chest tube insertion is considered as a safe procedure but as an invasive technique it is not free of risks. We report a case of unilateral diaphragmatic paralysis caused by malpositioned chest tube to raise awareness of this rare complication.

A male newborn was delivered after 35 5/7 weeks of gestation, with a birth weight of 2785 grams. He was diagnosed with bilateral pneumothorax that was successfully drained after chest tube insertion. Despite pneumothorax resolution, the patient failed to wean from invasive ventilation with marked elevation of right diaphragm visualized in an X-ray taken 24 hours after tube placement. Diagnosis of right diaphragmatic paralysis was confirmed by ultrasound examination. The absence of other causes and that the previous X ray showed a deeply inserted chest tube, reaching the spinal column, with both diaphragms well aligned made us to assume that the inserted chest tube was the cause of damage to the phrenic nerve. The tube was removed and a conservative surgical attitude was taken.

Weekly monitoring by ultrasound showed gradual recovery, that allowed successful weaning from ventilatory support. After 4 weeks, the right diaphragm was functioning normally. At the moment of discharge from the hospital, the patient showed adequate respiratory function and satisfactory percutaneous oxygen saturation.

Diaphragmatic paralysis is a rare complication of chest drainage but described in medical literature. When unexplained respiratory failure occurs following chest tube insertion, its diagnosis must always be considered. Prompt recognition and removal of the tube led to successful recovery of complete diaphragm function. Recovery time is variable but clearly lower that the paralysis due to cardiac surgery.

**COI:** None declared
ID: 343

TITLE: EYE-TRACKING DURING NEONATAL AIRWAY MANAGEMENT

AUTHORS: Michael Wagner 1; Peter Gröpel 2; Katharina Bibl 1; Monika Olischar 1; Marc A Auerbach 3; Isabel T Gross 4

AFFILIATIONS: 1 Division of Neonatology, Pediatric Intensive Care and Neuropediatrics, Department of Pediatrics, Comprehensive Center for Pediatrics, Medical University of Vienna, Vienna, Austria
2 Department of Applied Psychology: Work, Education and Economy, University of Vienna, Vienna, Austria
3 Department of Pediatrics, Section of Pediatric Emergency Medicine, Yale School of Medicine, New Haven, Connecticut, United States of America

CONTENT:

Eye-tracking devices are an innovative tool to understand provider behavior during stressful medical tasks. Eye tracking technology enables simulation instructors as well as researchers to analyze the focus of different health care providers during critical simulated and real situations. Analysis of gaze behavior has shown that novice providers are more dependent on vital signs monitoring than experts, which leads to more distraction from clinical assessment of the newborn. The goal of this study was to assess participants’ gaze behavior and experience with an eye tracking device during airway management in a simulated neonatal resuscitation.

This study was as observational simulation-based study. Medical students and emergency medicine residents at Yale University School of Medicine participated during a simulated newborn resuscitation training session. The team member assigned to airway management wore head-mounted eye-tracking glasses that recorded gaze behavior during the scenario. Main outcome measures were airway providers’ gaze, dwell time (total amount of time a participant fixates) and usability of eye tracking glasses. We assessed distractors during airway management and the visual attention of healthcare providers while ventilating at different times of interest (TOI) including during ventilation only, chest compressions, umbilical vein catheter insertion, and endotracheal intubation.

Data from 13 participants were included. There were significant differences in dwell time (total amount of time a participant fixates on a specific area) during the scenario (p < 0.001), with participants spending twice as much time on the newborn and instruments as on the monitor and other staff. Participants spent about 25% more time focusing on another provider while the provider was inserting the umbilical vein catheter than in all other TOIs (p = 0.04). The use of the glasses was perceived easy and not disturbing.

Eye tracking glasses enhance our understanding of providers gaze and perspective during simulated neonatal airway management. The gain of knowledge with identifying the participant’s perspectives during training, could be used to augment and adapt future training. Future studies will better characterize the ideal use in real situations.

COI: None declared
ID: 389

TITLE: ACOUSTIC ANALYSIS OF PRETERM AND TERM NEONATAL BREATH SOUNDS USING DIGITAL STETHOSCOPE TECHNOLOGY

AUTHORS: Lindsay Zhou 1, 2
Ashwin Ramanathan 2
Pramodkumar Pharande 1
Faezeh Marzbanrad 3
Davood Fattahi 3
Atul Malhotra 1, 2

AFFILIATIONS: 1. Monash Newborn, Monash Children’s Hospital, Melbourne, Australia
2. Department of Paediatrics, Monash University, Melbourne, Australia
3. Department of Electrical and Computer Systems Engineering, Monash University, Melbourne, Australia

CONTENT:

Digital stethoscope (DS) technology has been used to assess normal and abnormal breath sounds in children (Ref 1). However, this technology has not been used to characterize breath sounds of preterm or full-term neonates. This study aims to use DS to record, characterize and compare breath sounds of preterm and full-term newborns using computerized spectral analysis.


A commercially available DS was used to record breath sounds for 1 minute of preterm and term babies at a tertiary neonatal unit in Melbourne, Australia. Babies were self-ventilating in air, 24-48 hours old; those with respiratory distress or known lung anomalies were excluded. Recordings were extracted, filtered, and computerized spectral analysis performed using Fourier transform. Spectral characteristics analysed included avg. frequency, spectrum slope (SL), power at different frequency bands, and mel-frequency cepstral coefficients (MFCCs). Frequency, SL and power relate to the distribution of sound power in the frequency domain; MFCCs represent smoothed log magnitude spectra in the nonlinear mel-scale of frequency, and are known to depend on chest shape and resonance of breath sounds.

Fifty self-ventilating term and preterm infants were recruited and recordings made after informed consent. 3 recordings were excluded due to poor sound quality. After exclusions, there were 23 babies in the term group (mean gestational age 39 weeks, mean birth weight 3495g), and 24 babies in the preterm group (mean gestational age 32 weeks, mean birth weight 1801g). Average frequency (median, IQR) was 231.85 (178.52-311.53) Hz in the term group, and 247.41 (207.45-350.06) Hz in the preterm group (p=0.23). There were significant differences in MFCCs (mean, sd) between the term and preterm groups – MFCC2: 3.02 (0.3) vs 2.73 (0.21) (p<0.001), MFCC3: 0.77(0.11) vs 0.56(0.18) (p<0.001), MFCC5: 0.30(0.07) vs 0.22 (0.07) (p=0.002), and MFCC6: 0.22(0.05) vs 0.26(0.06) (p=0.028). Differences between SL and power between the two groups were not statistically significant.

Recording breath sounds using DS is quick, feasible and showed statistically significant differences in the MFCC values comparing self-ventilating preterm and term infants. This may relate to inherent chest wall and lung resonance characteristics of preterm babies. Further study using this novel method is required to characterize breath sounds of preterm babies over time, those on respiratory support, and those with clinical disease.

COI: There are no conflicts of interest to declare.
ID: 520

TITLE: PARENTAL OPINIONS OF DEFERRED CONSENT IN NEONATAL RESEARCH

AUTHORS: Samantha J. Sloss1, Jennifer A. Dawson1,2,3, Lorraine McGrory2, Anthony R. Rafferty2, Peter G. Davis1,2, Louise S. Owen1,2,3

AFFILIATIONS: 1University of Melbourne, Melbourne, Australia
2Newborn Research Centre, The Royal Women’s Hospital, Melbourne, Australia
3Murdoch Children’s Research Institute, Melbourne, Australia

CONTENT:

Obtaining ethically appropriate prospective consent for emergency research in the perinatal period is challenging. Under certain circumstances, some governing bodies permit a waiver of prospective consent followed by deferred (retrospective) consent. Deferred consent can increase enrolment of eligible infants, and improve scientific validity by including higher risk populations, such as mothers presenting shortly before preterm birth. Parental acceptability of neonatal deferred consent has not been fully explored, therefore we aimed to evaluate the opinions of parents exposed to deferred consent in neonatal research.

This mixed-methods study consisted of structured interviews with parents who had already been approached for deferred consent for their infants for studies in the delivery room and neonatal intensive care unit at The Royal Women’s Hospital, Melbourne, Australia. Parents were asked about their experience of the consent process, reasons for consenting or declining, their thoughts on whether prospective consent was preferable to deferred consent, and whether they thought they would have given consent for the study if the consent process had been prospective. Descriptive statistics are used and thematic analysis was performed on free-text responses.

One hundred of 190 eligible parents were interviewed; 62/100 had also experienced a prospective consent process: 89% were ‘satisfied’ with the deferred process (vs. 92% satisfaction for prospective consent processes). Nine per cent thought improvements could be made to the deferred process; negative comments related to early postnatal approaches for consent, and a few to a perceived loss of parental rights (Table). Those dissatisfied with a prospective approach were also most concerned with timing. In our sample, 24% felt prospective consent may have been a better option but 51% did not, 25% were unsure. Seventy-seven per cent thought they would have consented if approached prospectively for the same study, 7% said they may have declined, their comments related to a prospective approach under stressful pre-birth conditions being unwelcome as stress could impair decision-making (Table).

Almost 90% of parents of infants enrolled in neonatal trials using deferred consent found it acceptable. Negative comments mostly related to timing, a few to perceived loss of parental rights. Ability to make a considered decision, in less stressful circumstances was key to acceptability. A quarter of our sample would have preferred a prospective approach, but this was unwelcome in the immediate pre-birth setting and risked poor decision-making.

IMAGES:
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=5c31207515c741737a5931b95f62fc-MjAxOS0wNSM1Y2UyNjY2YzdmYzZk

Table showing example quotes from interviewees

COI: None declared
EMPIRICAL ANTIBIOTICS IN NON-VENTILATED CASES OF MECONIUM ASPIRATION SYNDROME OF THE NEWBORN

AUTHORS: Sung-Min Kang1
Shin Yun Byun2
Myo-Jing Kim1

AFFILIATIONS: 1 Pediatric Dept., College of medicine, Dong-A university, Pusan, South Korea
2 Pediatric Dept., Pusan National University Yangsan Hospital, Pusan National University School of Medicine, Yangsansi, Gyungnam, South Korea

CONTENT:

Meconium aspiration is assumed to be a risk factor for bacterial infection, and meconium aspiration syndrome (MAS) patients are commonly treated with empiric antibiotics in clinical settings. However, little is known about the effectiveness of this treatment. We compared the short-term clinical outcomes associated with empirical antibiotic treatment in non-ventilated infants with MAS.

A retrospective study was conducted on infants admitted to the neonatal intensive care unit with MAS not requiring ventilation from March 2008 to September 2016. The study infants were divided into two groups based on antibiotic treatment and their clinical outcomes were compared. The incidence of sepsis during the hospitalization period, as well as the incidence of delayed sepsis up to three months was evaluated. The effect of empirical antibiotic use on clinical outcomes was also evaluated. The complications were compared between the two groups.

A total of 109 infants were evaluated; of these, 61 (56.0%) received and 48 (44.0%) did not receive antibiotics. The empirical antibiotics group showed significantly higher mean respiratory rates, C-reactive protein levels, and positive rates, and also had a significantly longer hospitalization period. In terms of clinical outcomes, there were no differences in sepsis rates or duration of respiratory support. There were also no differences in complications.

The empirical use of antibiotics did not affect the clinical outcomes in non-ventilated infants with MAS. The role of empirical antibiotics in these infants may need to be reevaluated.

COI: None declared
ID: 553

TITLE: PULMONARY GAS EXCHANGE IMPROVES OVER THE FIRST YEAR IN VERY PRETERM INFANTS

AUTHORS: Y. Jane Choi* 1,2; Benjamin Stoecklin* 1,2,3; Shannon Simpson 4; Naomi Hemy 4; Dorota Doherty 5; J. Jane Pillow 1,2,3

AFFILIATIONS: 1 Centre for Neonatal Research and Education, University of Western Australia, Perth, WA, Australia
2 School of Human Sciences, University of Western Australia, Perth, WA, Australia
3 Neonatal Directorate, King Edward Memorial Hospital, Perth, WA, Australia
4 Telethon Kid’s Institute, Perth, WA, Australia
5 Women and Infants Research Foundation, Perth, WA, Australia

CONTENT:

Shift of the oxyhaemoglobin saturation ($\text{SpO}_2$) vs inspired oxygen pressure ($\text{PIO}_2$) curve in relation to the oxyhaemoglobin dissociation curve is the most sensitive marker of pulmonary gas exchange in very preterm infants at 36 weeks' postmenstrual age (PMA). The natural history of pulmonary gas exchange in preterm infants after initial hospital discharge is unknown, especially in infants with bronchopulmonary dysplasia (BPD). We aimed to use shift to assess improvement in pulmonary gas exchange over the first year of life in very preterm infants.

Shift was assessed at 36 and 44 w PMA, and at one year corrected postnatal age (cPNA). Paired measurements were obtained by step-wise adjustment of $\text{PIO}_2$ to achieve $\text{SpO}_2$ between 85-98%. Shift values were calculated using customised software. Change in shift over time in preterm infants was examined by generalised linear regression. Shift in term infants was assessed at 44 w PMA to establish a normative data reference.

Estimated mean (95 % CI) shift in infants with BPD decreased significantly from 36 w (13.3 [12.1-14.7] kPa), to 44 w PMA (9.3 [8.4-10.5] kPa) to one year cPNA (6.2 [5.7-6.2] kPa) (all $p < 0.001$). Similarly, shift decreased in infants without BPD between 36 w (10.9 [10.0-12.0] kPa) and 44 w PMA (7.8 [6.9-8.9] kPa; $p < 0.001$), and further decreased at one year cPNA (6.9 [6.3-7.5] kPa; $p = 0.055$). Longitudinally, mean shift was not different between infants with and without BPD. However, cross sectional comparison of median (IQR) shift showed that infants with BPD had higher shift than infants without BPD at 36 w PMA (14.8 [6.5] kPa vs 10.6 [2.6] kPa, $p < 0.001$) and at 44 w PMA (10.4 [5.0] kPa vs 6.7 [1.8] kPa, $p < 0.05$), but not at one year cPNA ($p = 0.97$). Infants with BPD also had higher shift compared to term infants at 44 w PMA (6.6 [1.7] kPa, $p < 0.001$).

Pulmonary gas exchange improves over the first year of life in very preterm infants, regardless of their BPD status. Cross sectional analysis at 44 w PMA shows persisting deficits in gas exchange in infants with BPD compared to infants without BPD and healthy term infants.

IMAGES:
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=30973601316d3b9e479f9cc13c99ecc0-MjAxOS0wNSM1Y2UyNjY2YzhlNTdj

Figure 1. Mean (95 % CI) shift (kPa) decreases over the first year of life in very preterm infants. Dotted line represents median shift in healthy term infants at 44 weeks’ postmenstrual age (6.6 kPa).

COI: None declared
ID: 687

TITLE: RSV Awareness: A National Poll of Parents & Health Care Providers

AUTHORS: Susan Hepworth 1
Mitchell Goldstein, MD 2
Suzanne Staebler, DNP, APRN, NNP-BC, FAANP, FAAN 3

AFFILIATIONS:
1 National Coalition for Infant Health, Executive Director, Washington, District of Columbia, USA
2 Department of Pediatrics, Division of Neonatology, Loma Linda University School of Medicine, Professor, Loma Linda, California, USA
3 Nell Hodgson Woodruff School of Nursing at Emory University, Specialty Coordinator, Neonatal NP Track, MSN Program, Professor, Clinical Track, Atlanta, Georgia, USA

CONTENT:

Respiratory Syncytial Virus (RSV) remains the most prevalent cause of acute lower respiratory tract illness in infants and young children. RSV often resembles the flu or common cold, which is why parents often dismiss the symptoms as a mild illness. While most children are able to fight off RSV on their own, infants, especially those born prematurely, and children with weak immune systems or underdeveloped lungs may get very sick. For these high risk children, RSV can lead to hospitalization, lifelong health complications like asthma, even death. RSV is the leading cause of hospitalization in children younger than one and the most common cause of bronchiolitis and pneumonia.

Two national online surveys were conducted in September of 2018. One survey was conducted September 11-19, 2018, among 600 parents of children three years old and under including 60 first-time expectant parents. Parents ranged in age from 18 to over 45; 47% were male, 53% were female. The second survey was conducted September 12-25, 2018 among 175 specialty health care providers including neonatologists (16%), pediatric pulmonologists (29%), neonatal intensive care unit nurses (18%), neonatal nurse practitioners (15%) and respiratory therapists (22%).

Both surveys sought to gain information about participants’ awareness of and concern about RSV. Additional questions were asked to gauge participants’ confidence in monitoring and preventing RSV. Only 18% of parents said they know “a lot” about RSV; 70% of providers agreed that parents of their patients have low awareness of RSV, but they actively monitor for it. Nearly all providers indicating they are vigilant about monitoring for symptoms during RSV season (98%) and 78% believe required reporting of new cases should be reinstated.

Just 22% of parents consider themselves “very well prepared” to prevent RSV, but when presented with the possibility of an RSV vaccine, 83% said they would “probably” or “definitely” take it if they were pregnant. After hearing statistics about RSV, parents said they were “more concerned” about their child contracting it (65%) and were likely to ask their doctor about RSV (67%).

These surveys confirm that RSV can be a serious, demonstrated threat to infants and young children. Responses indicate parents are largely unaware and feel unequipped to protect their children, but educating parents about prophylactic measures can lead them to protect their children. Health care providers overwhelmingly acknowledge the importance of robust RSV surveillance and believe policy mandating it should be reinstated.

COI: None declared
ID: 698
TITLE: HISTOPATHOLOGIC AND GENETIC FINDINGS IN NEONATES WITH VARIOUS CLINICAL COURSE OF ALVEOLAR-CAPILLARY DYSPLASIA - CASE REPORT

AUTHORS: Zuzanna Kozłowska 1, Zuzanna Owsiańska 1, Joanna P. Wroblewska 2, Andrzej Marszałek 2, Yogen Singh 3, Bartłomiej Mroziński 4, Marta Szymankiewicz-Bręborowicz 1, Tomasz Szczapa 1

AFFILIATIONS: 1 – Department of Neonatology, Poznan University of Medical Sciences, Poznan, Poland
2 - Departments of Pathology, Poznan University of Medical Sciences and Greater Poland Cancer Center, Poznan, Poland
3 – Department of Neonatology and Paediatric Cardiology, Cambridge University Hospitals NHS Foundation Trust, United Kingdom
4 – Department of Pediatric Cardiology and Nephrology, Poznan University of Medical Sciences, Poznan, Poland

CONTENT:

Alveolar-capillary dysplasia (ACD) is a rare condition among neonates who presented with severe pulmonary hypertension. A short asymptomatic period is usually observed before the onset of the disease. Respiratory failure and death are reported in all the described patients up to date. As the pulmonary capillary bed is affected available therapies are ineffective. The diagnostic process of ACD is based on histopathological examination of lung samples and genetic testing, especially focused on underlying FOXF1 gene defects. To our best knowledge, we report the first patients in Poland with diagnosis confirmed by both histopathological examination and genetic testing.

CASE 1. A neonate (2920g) prenatally diagnosed with polyhydramnios, omphalocele, hydronephrosis was born by C-section in 39 week GA. Apgar scores 1'–9, 5'–10. In the 12th hour of life the patient desaturated - noninvasive oxygen therapy was applied (FiO2=0.6). Due to respiratory deterioration after omphalocele surgery the newborn was switched to conventional ventilation (FiO2=0.4). Broad-spectrum antibiotics were started due to suspicion of pneumonia. Echocardiography revealed persistent pulmonary hypertension (PPHN), atrial (ASD) and ventricular septal defects (VSD). PPHN was treated with inhaled nitric oxide (iNO) with marginal improvement. The neonate required invasive ventilation (FiO2=1), surfactant administration and catecholamines infusion. Despite the intensive therapy SpO2 gradually decreased below 60%. The infant was switched to high frequency ventilation without any improvement. The patient died on the 13th day of life after a cardiac arrest and ineffective cardiopulmonary resuscitation (CPR).

CASE 2. A neonate (2400g) with prenatal suspicion of intrauterine growth restriction (IUGR) and coarctation of the aorta (CoA) was born by vaginal delivery in the 39 week GA. Apgar scores 1'–8, 5'–10. Pre- and post-ductal saturation differed by 10%. Due to suspected congenital heart defect continuous infusion of prostaglandins was applied. After initial echocardiography an attempt to stop the infusion was made. It resulted in sudden deterioration. The patient presented symptoms of PPHN with large ductus arteriosus and narrow pulmonary veins. CoA was not confirmed. The patient was intubated, prostaglandins infusion was readministered and iNO was started with immediate improvement. However, the general condition deteriorated with increasing oxygen demand (FiO2=1). On the 9th day of life SpO2 was below 65% despite very high ventilator settings and catecholamines therapy. On the 10th day of life the patient died due to cardiac arrest, CPR was ineffective.

During histopathological examination of lung samples from both patients no development of the capillary network and blood-air barrier in lung samples was found. The results were further confirmed by immunostaining for CD31 and CD34. Performed genetic testing of both patients revealed no point mutation in direct sequencing of FOXF1 coding region, but fluorescent in situ hybridization (FISH) with specific molecular probe showed deletion of one whole 16q.24.1 region in one chromosome 16 and around 180kb deletion upstream of intact FOXF1 gene. Described patients are first confirmed by genetic testing cases in Poland.

Despite the same histopathological findings and genetic abnormalities patients differed in clinical presentation of ACD, response to treatment and extra-pulmonary manifestations. Potentially, surgery and ceasing of prostaglandin E1 infusion might have triggered the onset of ACD. Both genetic testing and histopathological examination occur to be necessary for the diagnosing and decisions making process regarding the management of infants with ACD.
COI: None declared
ID: 905
TITLE: INCIDENCE AND RISK FACTORS ASSOCIATED WITH PULMONARY HEMORRHAGE IN VERY LOW BIRTH WEIGHT PREMATURE INFANTS
AUTHORS: Hadeel Atout1, Aseel Bzoor1, Amir Ataweh1, Hatem Khammash1,2
AFFILIATIONS: Makassed Islamic Charitable Hospital1 – Jerusalem – Palestine Faculty of Medicine – Al-Quds University2 – Jerusalem – Palestine

CONTENT:

Pulmonary hemorrhage is a serious complication of preterm infants with incidence (8%) and high mortality in very low birth premature (VLBW).

Objective: The aim of this study is to calculate the incidence, mortality and the risk factors associated with pulmonary hemorrhage in (VLBW) premature infants (<1500 gm).

A case series study at Al-Makassed Hospital NICU in Jerusalem city, in which all live infants below 32 weeks with birth weight less than 1500 gm reviewed from January 2016 to December 2018, infants who had at least one episode of massive pulmonary hemorrhage (PH) (resulted in cardiopulmonary compromise) selected, all suspected risk factors evaluated in this subgroup and compared with control group.

A total of 23 (12.17%) out of 189 VLBW infants developed massive PH, with 18 (78%) out of 23 died during the episode. The mean gestational age was 27.8 weeks (SD ±2.9) compared with 29.1 weeks (SD ±2) in control group P-value 0.016, the mean birth weight was 928 g (SD ±193) compared with 1150g (SD±264) in control group P-value 0.0004, and the onset age was 3.23(SD±3.71) days after birth with 61% had the episode at age 2-3 days. thirteen (56.5%) neonates had low Apgar score at one minute (<5). Fifteen(65%) neonates had low temperature on admission (<36 degree) with temp average 35.52(SD±0.9) compared with 35.5 (SD±0.9) in control group P-value 0.06. twenty-one (91%) neonates were given surfactant as RDS cases with seven received 3 doses of surfactant. Eleven (48%) neonates had low PaCO2 (<35) at or just before the hemorrhagic episode.

PH occurred in 12.17% of VLBW infants with high mortality 78%. Risk factors include smaller GA, lower BWT, lower Apgar scores at 1, severe RDS with use of 3 doses of surfactant are at a greater risk of PH as previous studies showed, the data suggests that other risks play a role in PH including hypothermia on admission and hypocarbia prior to the hemorrhagic episodes.

COI: None declared
ID: 971

TITLE: COMPASION OF TWO MODES OF INVASIVE VENTILATION FOLLOWING NEONATAL CARDIAC SURGERY

AUTHORS: Kiymet Celik 1, Nilufer Okur 1, Handan Bezirganoglu 1

AFFILIATIONS: 1 Neonatology Unit, Department of Pediatrics, Dr. Gazi Yasargil Education and Research Hospital, Diyarbakir, Turkey

CONTENT:

Post-operative ventilation strategy in critical congenital heart disease (CHD) is complicated by pulmonary and cardiovascular physiological changes during follow up. In this study, we aimed to compare different invasive ventilator modes in neonates who is operated due to congenital heart disease (CHD).

This is a randomized controlled study included patients who were operated with the diagnosis of CHD between February 2018 and February 2019 in our hospital. Patients were classified into two groups according to ventilation mode: volume guaranteed ventilation and pressure controlled ventilation. In both groups, PEEP and inspiration time were started with the same values. Primary outcome was duration of mechanical ventilation. Duration of total respiratory support, ventilation related atelectasis, pneumothorax, pulmonary bleeding, and duration of hospitalization were also evaluated.

Twelve patients were in volume guaranteed ventilation group and 19 patients in the other group were included. There was no difference in terms of birth weight, gestational week, operation day and postoperative first inotropic score. There was no significant difference between the groups in terms of duration of invasive respiratory support and total respiratory support. While extubation failure and atelectasis were more frequent in pressure-controlled group, this difference was not statistically significant.

Although invasive mechanical ventilation responses after surgery in CHD are similar, volume-guaranteed ventilation option should be kept in mind in these patients. Studies with larger samples are needed for the ventilation strategy.

COI: None declared