September 21st, 2023 11:00 - 12:30

4I E-Poster (STATION 3)

ID 700. Optimising kangaroo care to reduce neonatal severe infection/sepsis and resistant bacterial colonisation among high-risk infants in neonatal intensive care: a pragmatic, multicentre, parallel cluster randomised hybrid implementation-effectiveness trial (NeoDeco)

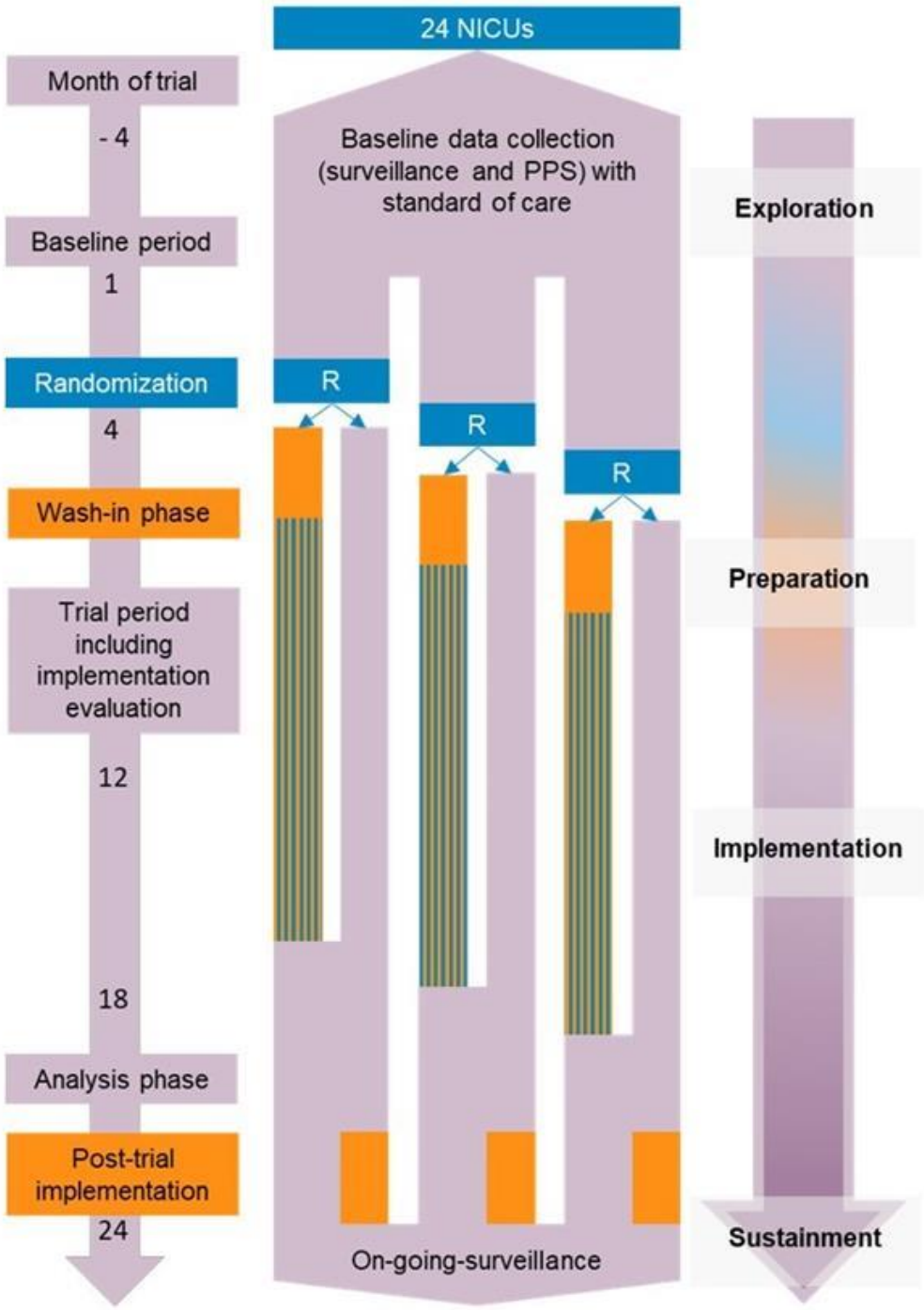
Ms Aislinn Cook, PD Dr Julia Bielicki, Ms Jennifer Martin

Background: Skin to skin contact (StSC) between an infant and a carer has several beneficial effects. It is likely that early, regular and prolonged StSC decreases the risk of resistant bacterial colonisation in infants receiving neonatal intensive care, but this has not been investigated in a robust manner to date. It is currently unknown what the effects of unit-level increases in StSC sessions are on resistant bacterial colonisation pressure in neonatal care. When applied for its potential infection prevention and control (IPC) effects, it may be beneficial to provide StSC to a wider range of infants than the preterm infants usually targeted.

Design: NeoDeco is a Horizon 2020-funded pragmatic, multicentre, parallel group, cluster randomised hybrid effectiveness-implementation trial investigating the effectiveness of and optimal implementation strategies for increasing StSC sessions in high-technology neonatal units. All sites will be offered implementation support for increasing their StSC provision to all infants not yet breastfeeding on demand, however, intervention sites will be randomised to immediate receipt of implementation support whereas standard care sites will be offered this after the study period.

Implementation: 24 neonatal units routinely managing extremely premature infants and with a minimum of 12 beds from Greece, Italy, Spain, Switzerland and Great Britain will participate. A first group of sites will commence a 3-month baseline data/sample collection period in November 2023 at the end of which they will be randomised to immediate (intervention sites) or delayed (standard care sites) implementation support for more extensive StSC. Intervention sites will experience a 2-month wash-in period followed by a 12-month study period implementing optimised StSC with on-going data/sample collection. Standard care sites will continue with data/sample collection and routine care, including StSC as currently offered. The co-primary effectiveness outcomes measured in high-risk infants born at <32 weeks' gestation are the cumulative incidence of hospital-acquired neonatal severe infection and unit-level resistant bacterial colonization .

Conclusion: Evidence to support neonatal-specific IPC interventions is largely lacking. NeoDeco will generate evidence on the potential effectiveness of StSC for IPC, which is known to be safe and to have additional beneficial effects for hospitalised infants.



Proposed cluster randomised trial design with staggered randomisation; at each randomisation (R) one stagger of NICUs is allocated 1:1 to intervention and standard care arms.

ID 632. CLINICAL CHORIOAMNIONITIS AND FACTORS ASSOCIATED WITH ADVERSE MATERNAL AND NEONATAL OUTCOMES: A RETROSPECTIVE STUDY

Doctor Anna Carlotta Milocchi[1], Miss Caterina Zanetti[1], Doctor Livia Ridolfi[1], Doctor Laura Pecoraro[1], Doctor Margherita Magnani[1], Doctor Federica Runfola[1], Doctor Giulia Sattin[1], Doctor Elena Bonafiglia[1], Doctor Renzo Beghini[1], Doctor Chiara Simonetto[2], Doctor Mariachiara Bosco[2], Doctor Simone Garzon[2], Professor Massimo Franchi[2], Doctor Benjamim Ficial[1]
[1]Neonatal Intensive Care Unit, Mother and Child Department, University Hospital of Verona, [2]Department of Surgery, Dentistry, Pediatrics, and Gynecology, University Hospital of Verona

Background: Clinical chorioamnionitis is a common complication of pregnancy, associated with adverse maternal and neonatal outcomes. Its diagnosis relies on maternal fever associated with other clinical criteria, which are not accurate in identifying women with intra-amniotic infection among those with clinical signs and symptoms. Few studies have investigated which characteristics can predict women who will develop histologic chorioamnionitis and associated adverse outcomes among those with clinical chorioamnionitis.
We aimed to assess the incidence of histologically confirmed chorioamnionitis, identify the outcomes associated with it, and investigate which maternal or intrapartum characteristics may predict the risk of histological chorioamnionitis and the associated adverse outcomes.

Methods: We conducted a retrospective study on a cohort of 12,332 women with a singleton pregnancy. Patients diagnosed with clinical chorioamnionitis were n=197, according to ACOG criteria. Histological chorioamnionitis was defined by the presence of severe acute placental inflammatory lesions (Redline stage ≥2 and/or grade 2).

Results: Histological chorioamnionitis was identified in 110 (58%) pregnant women with clinical chorioamnionitis. Factors independently associated with histological chorioamnionitis were maternal age (OR 1.07, 95% CI 1.01-1.14, p=0.03), intrapartum moderate/thick meconium-stained amniotic fluid (OR 3.50, 95% CI 1.77-6.90, p<0.001), intrapartum maternal leukocytosis ≥ 15,000/µL (OR 1.07, 95% CI 1.01-1.15, p 0.03) and nulliparity (OR 0.38, 95% CI 0.14-1.01, p=0.052). Histological chorioamnionitis was associated with a five minutes-APGAR score <7 [4.7% (4/87) vs. 14.2% (15/110), p= 0.03] and respiratory distress syndrome (RDS) [7% (5/87 vs. 22.4% (22/110), p= 0.01].

Conclusions: We found that moderate/thick meconium-stained amniotic fluid, intrapartum maternal leukocytosis ≥ 15,000/µL, maternal age, and multiparity were significantly associated with histological chorioamnionitis in women diagnosed with clinical chorioamnionitis. A 5-minute APGAR score < 7 and RDS were more frequently observed in neonates of women with histological chorioamnionitis.

ID 484. HYDROCEPHALUS AFTER NEONATAL MENINGITIS, CAUSED BY BACTERIUM LISTERIA MONOCYTOGENES

Doctor Tina Perme[1]
[1]Neonatal Intensive Care Unit, Department of Perinatology, Division of Gynaecology, University Medical Centre Ljubljana

Background: Listeria monocytogenes is a facultative anaerobic bacterium, which causes a severe infection in newborn infants, immuno-compromised patients and elderly people, and is particularly dangerous for pregnant women. In case of vertical transmission, there is an 80 % chance of spontaneous abortion, stillbirth or premature birth. Severe sepsis and meningitis can occur in newborns, with significant morbidity and mortality.

Case report: we present a case of a preterm newborn girl, born after a Cesarean section due to chorioamnionitis. Empirical antibiotic therapy with ampicillin and gentamicin was initiated upon admission. A few hours after admission, the baby was intubated and surfactant was administered. Isolated clonic seizures of right arm and leg were observed, the large fontanelle did not appear bulged at the time. Invasive mechanical ventilation was initiated because of prematurity and brain seizures. Ultrasound scan of the head showed slightly enlarged lateral ventricles, completely filled with fibrin linings. There were no signs of haemorrhage, intracerebral blood flow appeared appropriate. Lumbar puncture was performed due to suspected meningitis. On the second day after admission, blood culture was reported positive for Listeria monocytogenes, which was also isolated from ear canal and nasopharyngeal swabs and detected in cerebral spinal fluid with eubacterial PCR. Monotherapy with ampicillin at a dose of 100 mg/kg/8 hours was started and continued for 21 days. Because of growing head circumference and developing hydrocephalus, subcutaneous reservoir was first implanted, which was later changed to a ventriculo-peritoneal drainage system. On follow-up, hydrocephalus appears stable, however, there is neurodevelopmental delay present in the girl.

Conclusion: in the past two years, two preterm newborn girls with listerial infection of the central nervous system were treated in our unit. Neonatal meningitis, caused by Listeria monocytogenes is rare but can lead to hydrocephalus, brain damage and neuro-developmental delay. Empirical therapy appropriate for Listeria is needed when neonatal infection is suspected, which should later be changed to targeted therapy. Ventricular system state and head circumference monitoring is crucial.

ID 488. The Proportion of Recent Thymic Emigrant Lymphocytes in Breast-fed and Formula Fed Term Neonates

Doctor Gergely Toldi[1], Doctor Marco Lorenzini[2]
[1]Liggins Institute, University Of Auckland, [2]School of Paediatrics, Thames Valley Deanery

Background: Recent thymic emigrants (RTEs) represent a distinct T cell subset characterized by a tolerance-prone status. We have recently demonstrated that the proportion of regulatory T cells (Tregs) is nearly two-fold higher in exclusively breastfed compared with exclusively formula-fed neonates. However, it has been unknown whether the type of milk is also associated with the proportion of the RTE cell compartment.

Methods: Cord blood (CB) and, at three weeks of age, peripheral venous blood samples were collected from 19 healthy-term neonates. A maternal blood sample was also taken. The proportion of RTEs, naïve CD4 cells, naïve RTEs, and Tregs was analyzed by flow cytometry in blood samples.

Results: RTE cell proportions were comparable between CB and 3 weeks. At both time points, there was no difference in the proportion of naïve CD4 cells, RTE CD4 cells, and naïve RTE CD4 cells between the feeding groups. The fold change of RTE cells between birth and three weeks of life was highest in mixed-fed babies.

Conclusion: Since RTE counts were comparable across the feeding groups at birth, this most likely reflects a postnatal upregulation, to which the dual antigenic exposure to both non-inherited maternal antigens via breastmilk, as well as to other environmental antigens in formula milk, may contribute.

ID 496. Childhood outcomes following neonatal encephalopathy: association with persistent neutrophil activation and cytokines

Doctor Johana M Isaza-Correa[1,2], Dr. Eman Isweisi[1,2], Dr. Ashanty Melo[1,2], Dr. Arthur White[3], Dr. Jason Wyse[3], Dr. John Murphy[4], Dr. Claudine Vavasseur[4], Dr. Afif El-Khuffash[5], Dr. Adrienne Foran[5], Ms. Elaine Ní Bhraonáin[6], Ms. Mandy Daly[7], Dr. John O'Leary[8,11], Prof. Eleanor J Molloy[1,2,9,10,11]

[1]Discipline of Paediatrics, Trinity College, the University of Dublin, [2]Trinity Translational Medicine Institute & Trinity Research in Childhood Centre (TRiCC), Trinity College Dublin, [3]Discipline of Statistics and Information Systems, School of Computer Science and Statistics, Trinity College Dublin, [4]Neonatology, National Maternity Hospital, [5]Neonatology, Rotunda Hospital, [6]Family Support Liaison, Irish Neonatal Health Alliance, [7]Advocacy and Policymaking, Irish Neonatal Health Alliance, [8]Department of Histopathology, Trinity College Dublin, [9]Neonatology, Children's Health Ireland at Crumlin, [10]The Children's Health Ireland at Tallaght, [11]Paediatrics, Coombe Women and Infants University Hospital

Background: Neonatal Encephalopathy (NE) results in multi-organ dysfunction which may persist in childhood. We examine whether immunological markers of inflammation are present at ages 2 to 5 years.

Methods: Whole blood was stimulated in the presence or absence of lipopolysaccharides (LPS) to evaluate changes in the immune responses to endotoxin. Innate immune cells response from children ages 2-5 years with NE as a newborn (n=21) and control children (n=13) was analysed by flow cytometry. CD66b+ Neutrophil and monocyte (CD14+/CD16+) activation was assessed by the expression of CD11b (cell activation and migration), Toll-like receptor (TLR)-4 (recognition of endotoxin/lipopolysaccharide/LPS) and cytokine production, such as Interleukin-6 (IL-6), IL-10, IL-17a, TNF-α.

Results: Expression of CD11b was significantly increased on neutrophils of LPS-treated samples from children post-NE compared to controls. No differences in CD11b or TLR-4 expression was observed in total, classical, non-classical and intermediate monocytes. Intracellular cytokines expression in neutrophils showed IL-6 and IL-10 were increased in both untreated and LPS treated samples from children post-NE compared to controls. No statistical difference was observed in the expression of IL-17a and TNF-α in neutrophils in the presence or absence of LPS when comparing the two groups. IL-10 and IL-17a were significantly increased at baseline and following LPS, while TNF-α was only increased at basal level treatment in total monocytes of NE children compared to controls. No significant difference was observed in monocytes for IL-6.

Conclusion: In childhood following NE immune responses favour activation of neutrophils following LPS challenge and anti-inflammatory response mediated by cytokines. Exploring systemic inflammation in NE could lead to the development of immunomodulatory adjunctive therapies and biomarkers to predict outcomes.

ID 889. Procalcitonin (PCT) in Neonatal Antimicrobial Stewardship: Is this the way forward?

Doctor Maryiam Zaman[1], Doctor Dyanne Imo-Ivoke[1], Doctor Ourania Pappa[1], Miss Jenny Naylor[1], Doctor Liz McKechnie[1]
[1]Leeds Teaching Hospitals NHS Trust

Background: Procalcitonin (PCT) use is not widespread within the neonatal population during late-onset sepsis (LOS) evaluation. Minimal data exists on appropriate PCT cut-off levels to treat with antibiotics for neonatal sepsis. C-reactive protein (CRP) is commonly used, but it lacks specificity and its response to bacteraemia is proven to be slower. There is promising evidence to support the use of PCT in neonatal sepsis. A PCT rise identifies sepsis quicker and demonstrates good diagnostic accuracy.
A Klebsiella Pneumoniae outbreak in our neonatal unit triggered a review of the specific risk factors for Gram Negative Blood Stream Infections (GNBSI). A collaborative Quality Improvement group was initiated to address the identifiable and correctable causes.

Methods: 3 PDSA cycles were conducted. The first cycle studied the root cause analyses (RCA) of Klebsiella Pneumoniae and Escherichia Coli cases over six years (2015-2021). Amongst others, multiple antibiotic courses was a risk factors for both cohorts.
The second cycle, analysed the total number of antibiotic courses for suspected LOS over three months. Following this, the temporary introduction of PCT with first and second CRPs was decided to review the enzyme response in LOS.
For the third cycle, a seven week audit of 43 antibiotic courses was initiated and completed. PCT results were reviewed (normal < 0.5 ng/ml).

Results: Babies who received antibiotics for LOS between October - December 2021 (46 babies and 75 courses) had 'true' positive blood cultures (BC) in 15% of cases (11/75). There was a significant variation on length of treatment with 37% (28/75) of total cases receiving > 36 hours of antibiotics.
Analysis of the seven week PCT audit showed results on 77% of episodes (33/43). 18/33 cases had 2 CRPs < 5, negative BCs and normal PCTs. 40% of the remaining 15 cases (6/15) had a quicker PCT than CRP response and all six babies had confirmed sepsis with positive BC results.

Conclusion: Given the findings and ongoing concerns around multiple antibiotic regimes, our practice will change and PCT will be requested with the second CRP in suspected LOS with the aim to stop antibiotics within 24 hours on negative results.

ID 1054. Congenital tuberculosis in an extremely premature newborn: report of a case

Director Arturo Cardona, Professor Brenda Frias, Consultant Virginia Díaz, Consultant Noemí Camacho, Copnsultant Humberto Imaña
[1]National Institute of Perintology

Introduction: Tuberculosis is still considered an infectious disease that causes important morbidity and mortality worldwide. According to the WHO in 2015 there were reported 10,4 million new cases in the world, from those 3,5 million were women and 1 million were children. Neonatal tuberculosis is rare and with high mortality, approximately 50% of the cases.
Objective: Describe a case of congenital tuberculosis in an extremely premature newborn (25.5 WGA).

Results: Mother 36 years old, native and resident of Tula de Allende Hidalgo, Mexico. First pregnancy, oligohydramnios and fetal distress. The baby required endotracheal intubation at birth, APGAR 8/9, weight 830 grams, 25.5 WGA. Programmed extubation at 18 hours, good breathing effort and oxygenation index. Patient with parenteral nutrition for 10 days and enteral feeding. At 32 days of life, presented a urinary tract infection, confirmed by urine culture positive for Escherichia coli and she received antibiotics for 7 days.
At 62 days of life, the baby needed CPAP for supplementary oxygen support reason and treatment for neonatal sepsis. The thorax X ray had a bilateral diffuse heterogeneous infiltrate. Hemo tests with leukocytosis, toxic inclusions and high neutrophilic band cells, C-reactive protein 9.65 positive. Due to the sluggish evolution and the lack of improvement. Bronchial aspirate with Ziehl-Neelsen stain and positive baciloscopy, C-reactive protein in bronchial aspirate positive for Mycobacterium tuberculosis sensible to rifampicin. Cephaloraquid liquid yellow clear, glucose 57,3, proteins 166, LDH 47.5, CRP CRL negative, quantiferon for TB positive. Our patient was set in isolation and started the protocol to diagnose congenital tuberculosis.

The baby received specific treatment with Isoniazid, Rifampicin, Pyrazinamide and Ethambutol. Within seven days of treatment, the patient presents a satisfactory evolution. We are running epidemiological tests for possible contacts and infections.

Conclusions: The sequence of events we describe in this case report demonstrates the difficulty of the correct diagnosis and treatment in neonates. To establish a definitive diagnosis in the newborns we need to obtain blood cultures, bronchial cultures, CRL, baciloscopy in gastric secretion and we must consider doing molecular tests such as C-reactive protein with better sensibility and specificity.

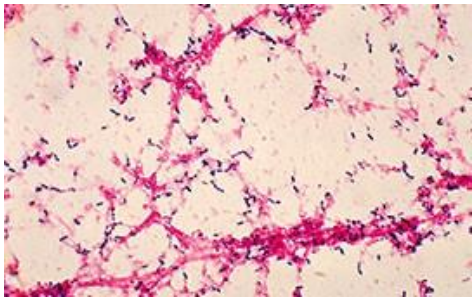
ID 518. PNEUMONOCOCCAL MENINGITIS IN 4 MONTH OLD VACCINATED INFANT

MD, PhD Eyfrosyne Tsekoura[1], MD Eleni Pappa[1], Doctor Athanasios Athanasopoulos[1], Doctor Aikaterini Marathoniti[1], Doctor Paraskevi Lampadaki[1], Doctor Angeliki Lyndiakou[1], Doctor Giannis Kanellopoulos[1], Doctor Maria Malliou[1], Doctor Stavroula Gkini[1], Dr Kalliopi Panteli[1], Dr Sofia Varderaki[1]
[1]Asklepieion General Hospital

Background: The epidemiology of Streptococcus Pneumoniae, a major cause of meningitis, pneumonia and bacteraemia in children and adults, has been altered by the availability of the conjugate vaccines PCV7, PCV10, PCV13. From worldwide studies it is known that pneumococcal invasive diseases (PIDs), meningitis included, that are caused by serotypes included in the current PCV vaccines have fallen significantly. At the same time the incidence of non-PCV strains' infections is increasing and according to recent data these strains tend to cause the majority of PID cases in most developed countries including Greece. Specifically, the most prevalent non-PCV13 serotypes in many Western countries have been reported to be 23B, 15B/C, 11A/D,22F. Serotype 10A is included in the emerging serotypes in some international studies, but recent published data from Greece do not describe it as a dominant serotype.

Case Presentation: Here we report a case of pneumococcal meningitis and bacteraemia in a 4 month old infant immunocompetent and vaccinated with the first dose of PCV 13 who presented with fever, irritability, reduced appetite and remarkably bulging anterior fontanelle. Laboratory evaluation revealed leukocytosis, elevated C-reactive protein and hyponatremia. Blood and cerebrospinal fluid cultures isolated Streptococcus Pneumoniae Serotype 10A. The empirical antibiotic therapy included IV Ceftriaxone and IV Vancomycin. According to antibiogram this specific serotype was only Ceftazidime resistant and multisensitive to all other antibiotics. The infant remained pyrexial with high fever for at least 3 days and gradually became afebrile after day 4 of the disease. Head ultrasound on day 3 revealed signs of ventriculitis without any other pathological findings. Course of the disease was unremarkable.

Conclusion: This case report aims to highlight the importance of serological surveillance of S. Pneumoniae serotypes that are not included in available PCV vaccines as well as development of new vaccines that will include more serotypes.



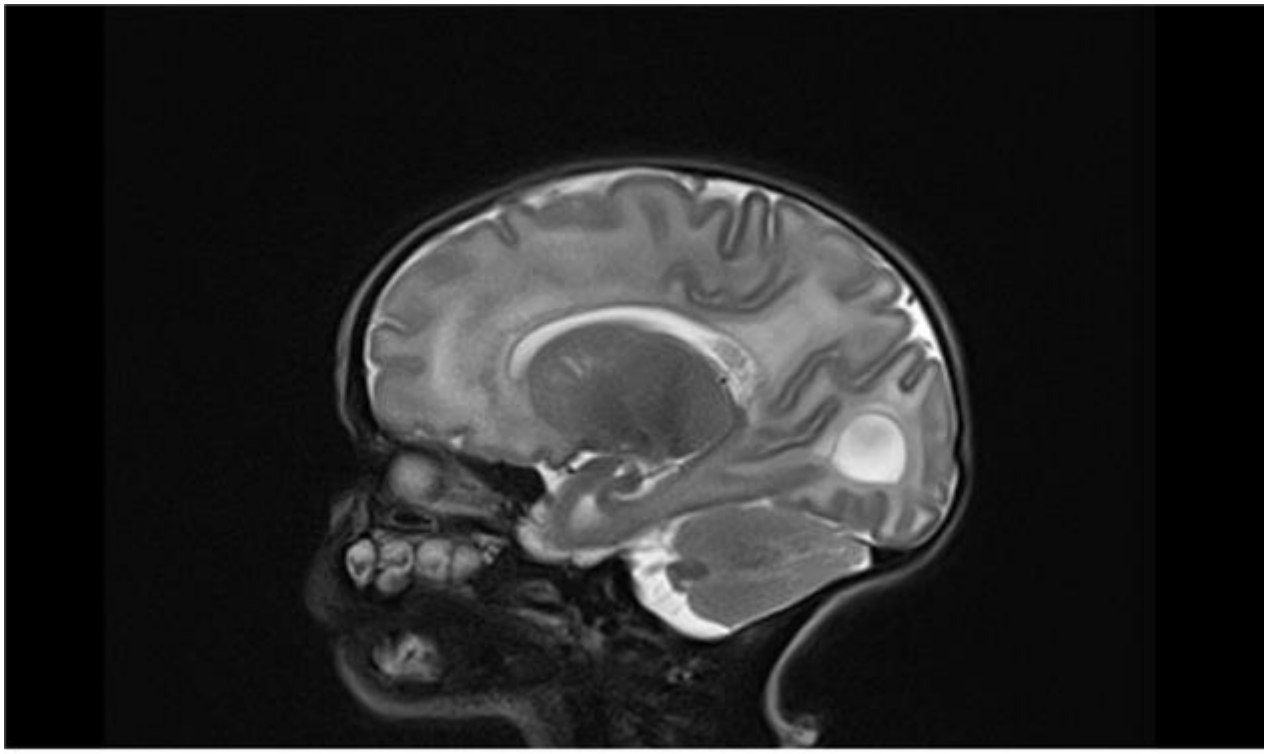
ID 623. CONGENITAL CYTOMEGALOVIRUS INFECTION – COMMON, UNDERDIAGNOSED, DANGEROUS PROBLEM IN A GROUP OF FULL-TERM NEWBORNS

Mrs Dobrochna Wojciechowska[1], Dr. Katarzyna Wróblewska-Seniuk[1], Prof. Tomasz Szczapa[1]
[1]II Department of Neonatology, Poznan University of Medical Sciences

BACKGROUND:
Congenital cytomegalovirus (cCMV) infection is the most common intrauterine infection and the most common cause of non-genetic sensorineural hearing loss in children. Fetal infection may occur during maternal primary CMV infection (40-50% of cases) or as a result of reactivation of CMV during pregnancy (1% of cases). The main risk factor for CMV infection in pregnant women is contact with young children and the course of the infection is usually asymptomatic. Most newborns do not present any signs and symptoms after delivery, which is the main cause of diagnostic difficulties.

CASE REPORT:
We present a case series of 3 full-term newborns diagnosed with cCMV, with different infection course, risk factors, and outcome .
Two full-term newborns, a boy and a girl, with intrauterine hypotrophy (< 10th centile), who failed the hearing screening test. In the boy's cranial ultrasound (CUS), multiple septal subependymal cysts and two large porencephalic cysts were discovered. CMV (PCR) tests were performed – urine [positive], blood [positive], and cerebrospinal fluid (CSF) [negative]. Transient mild thrombocytopenia was observed. Ganciclovir treatment was initiated. The newborn is placed under observation during treatment.
In the girl's CUS, periventricular lenticulostriate vasculopathy was diagnosed. The results of CMV (PCR) tests were urine [positive], blood [positive], and CSF [negative]. Transient mild thrombocytopenia was observed. She was treated with ganciclovir for 6 weeks, then with valganciclovir for up to 6 months. Nevertheless, severe bilateral sensorineural hearing loss, as well as psychomotor development retardation were diagnosed.
The third patient, a boy, was full-term, with hypertrophy (>90th percentile). During screening CUS, bilateral multiple septal subependymal cysts were identified. CMV (PCR) tests were performed - urine [positive], blood [positive], and CSF PCR [negative]. The boy is still under observation, treated with ganciclovir.

CONCLUSION:
cCMV infection in newborns may be asymptomatic or mildly symptomatic. It should be considered to perform the diagnostic test for cCMV (urine PCR test) in newborns whose hearing screening result is abnormal (especially in the absence of risk factors for hearing loss and/or when the newborn is hypotrophic). Cystic lesions in CUS should also prompt the search for cCMV infection as a possible cause.



One of porencephalic cysts (MRI) - cCMV infected full-term newborn diagnosed after birth.

ID 593. Severe case of neonatal alloimmune thrombocytopenia/NAIT/.

MD Borislav Svetlozarov Drenski[1], Doctor Mariya Neshterova[1], Doctor Nikoleta Kuzmanova[1], Doctor Zornitsa Vasileva[1], Doctor Petya Georgieva[1], Doctor Ana Miovska[1], Doctor Petya Belcheva[1]
[1]UHOBGYN "Selena"

Introduction: Neonatal alloimmune thrombocytopenia, (NAIT) is caused by maternal antibodies raised against alloantigens carried on fetal platelets. It is the most common reason for severe thrombocytopenia in the neonate. Although many cases are mild, NAIT is a significant cause of morbidity and mortality in newborns and is the most common cause of intracranial hemorrhage in full-term infants with incidence of 1 per 10000 pregnancies. In this report we are presenting a case of severe NAIT with massive prenatal ICH, hydrocephaly and seizures.

Description: Our case is a 39th week male, G1P1, delivered by emergency cesarean section due to dilation of ventricles found accidently on prenatal ultrasound. The baby was born with head circumference of 39cm. After the delivery room stabilization the baby was transferred in the NICU where the cranial ultrasound showed bilateral intraventricular hemorrhage 3rd grade and right intraparenchymal hemorrhage. During the first 24 hours baby developed seizures and had to be intubated and put on anticonvulsants. Head circumference and size of the ventricles continued to grow and on the second week of birth a neurosurgeon performed an emergency ventricular drainage due to increased ICP. Afterwards baby was stabilized, seizures stopped and the neurological state gradually improved. The baby was discharged after 26 day in the NICU with head circumference of 38cm,no seizures, good feeding tolerance and sucking reflex, improved muscle tone and reflexes, and with recommendations for close follow-up from pediatric neurologist.

Conclusion: NAIT is rare but possibly severe disease that occurs primarily in the term infant. It can have a dramatic clinical picture with mortality rates vary from 1% to 10%, and long-term complications—including neurological sequelae such as mental retardation, cerebral palsy, cortical blindness, and seizures that can be seen in as many as 14% to 26% of cases.

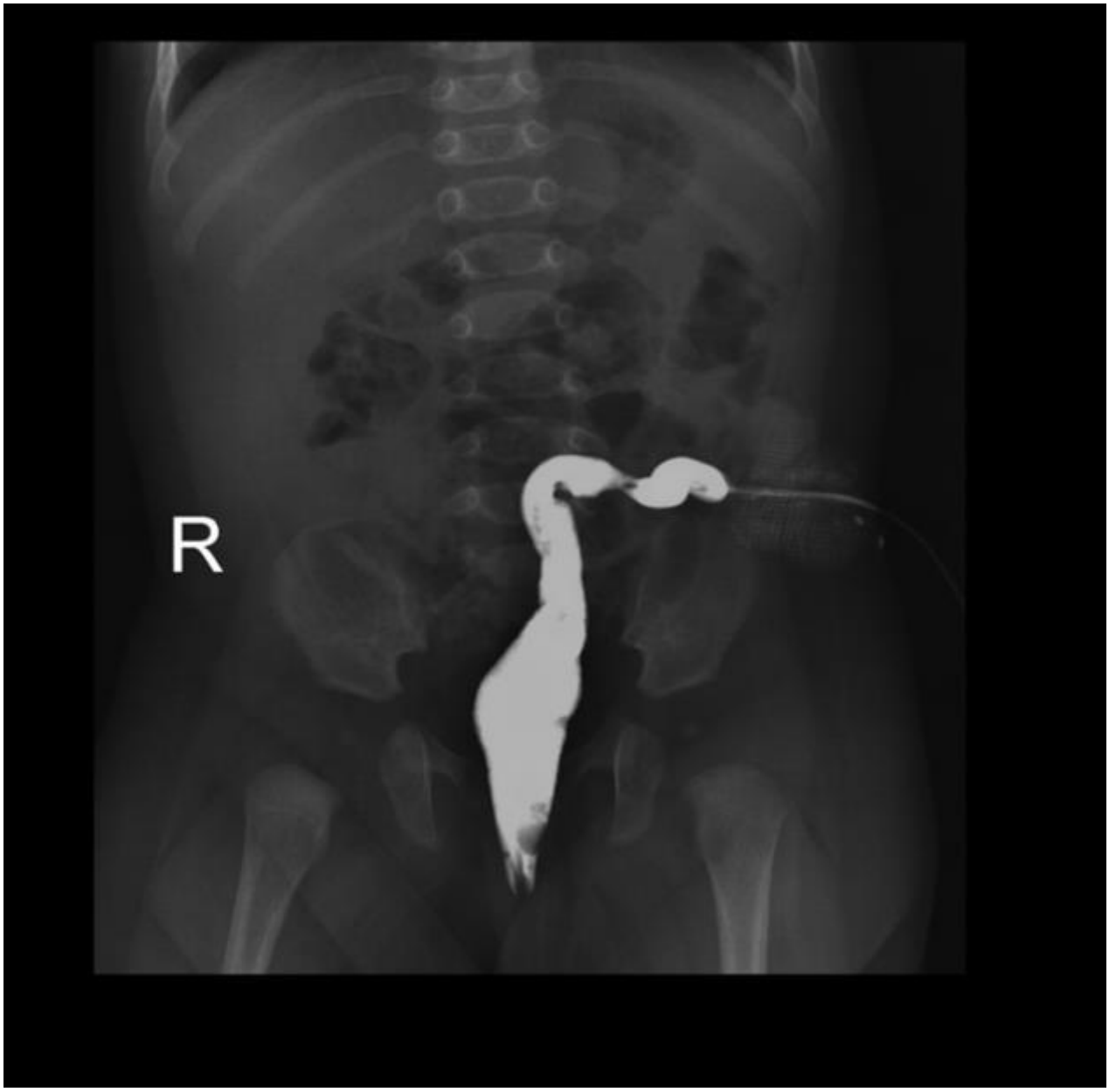
ID 1048. Congenital colonic stenosis as an incidental finding while looking for hirschprung disease in a neonate:A case report

Doctor Fereshteh Karbasian[1], Dr Zahra Vahedi[1], Dr Farhad abolhassan Choubdar[1]
[1]Ali-asghar Children's Hospital/iran University Of Medical Sciences

Background: Congenital colonic stenosis is a condition in which there is a narrowing or blockage of the colon (large intestine) present at birth. This can occur due to a variety of reasons, such as abnormal development of the colon during fetal development or a genetic defect. The condition can lead to symptoms such as abdominal pain, on and off constipation, abdominal distention and vomiting. Treatment may involve surgery to remove or widen the narrowed segment of the colon.

Case report: A 28-year-old female underwent an emergency cesarean section (C-section) at 37 weeks after failed induction. A female neonate was delivered (birthweight: 2.68 kg, length: 49 cm). There was no history of complications during pregnancy, and prenatal sonographic exams were normal. The newborn examination was normal and the baby was transferred to the nursery for routine care and feeding. However, 24 hours post-delivery, the baby was moved to the NICU because it was noticed that the baby was not feeding well. He had begun bilious vomiting, and his abdomen was distended.She was treated as a case of sepsis and her condition got better, but each time breast milk was started for her she only tolerated till 25 cc per each feeding and she again presented bilious vomiting, abdominal distention and a rise in C-reactive protein(CRP).Due to being non responsive to the treatments and further evaluation,she was transferred to Ali-Asghar NICU as a tertiary center.In abdominal X-rays bowel loop dilatation were significant and contrast studies were done according to evaluation of intestinal malrotation and hirschprung disease.Stenosis in sigmoid colon was revealed in Barium enema.The patient was operated by the pediatric surgeon and the stenotic part was excised and colostomy was performed.Afterwards the patient became symptom-free and she showed good weight gain and was discharged from the hospital.On follow up,colostomy was closed in 8 weeks and she is completely well.

Conclusion: Sepsis in neonates can also presents with bilious vomiting and feeding intolerance,but as a rule intestinal obstruction should be evaluated and ruled out too.Although congenital colonic stenosis is a rare diagnosis,it should be considered in cases who are suspicious to hirschprung disease.



Barium enema reveals stenosis is sigmoid colon

ID 653. The Impact of Cord Clamping on Haemodynamic Transition in Term Newborn Infants

Doctor Roberto Chioma[1], Doctor Daragh Finn[2], Doctor David Healy[2], Doctor Vicki Livingstone[2], Doctor Jurate Panaviene[2], Professor Eugene Dempsey[3]
[1]University Of Sacred Heart, Rome, [2]The Irish Centre for Maternal and Child Health Research - INFANT Centre, [3]University College Cork, Department of Pediatrics and Child Health

Background: The transition from fetal to neonatal circulation is a complex physiological phenomenon, influenced by lung aeration, which triggers an increase in pulmonary blood flow and left ventricular preload, and umbilical cord clamping. Although clinical evidence suggests that delayed cord clamping (DCC) prevents complications of haemodynamic instability, such as cerebrovascular injury, the cardiovascular consequences of DCC have not been investigated yet in humans.

Methods: Echocardiography was performed in 46 term vigorous infants before DCC, immediately after DCC, and at 5 minutes of life. Pulsed-wave Doppler-derived cardiac output and the pulmonary artery acceleration time indexed to the right ventricle ejection time, as a proxy of right ventricular afterload, were obtained. As markers of pre- and afterload fluctuations, the myocardial performance indexes and the velocities of the tricuspid and mitral valve annuli were determined with tissue Doppler imaging. Heart rate was derived from Doppler imaging and obtained throughout the assessments. The results of the three measurement points were compared using repeated measures analysis of variance.

Results: DCC occurred at a median of 65 seconds (interquartile range 60-70). Left ventricular output increased throughout the first minutes of life (222.4±32.5 mL/Kg/min before CC vs. 239.7±33.6 mL/Kg/min at 5 minutes, p=0.01), while right ventricular output dropped after CC (309.5±48.2 mL/Kg/min before CC vs. 272.8±55.5 mL/Kg/min immediately after CC, p=0.001). Right ventricular afterload rose after CC, decreasing in the following minutes. The tissue Doppler measurements showed that the loading conditions of both ventricles were transiently impaired by CC, recovering at 5 minutes. The heart rate progressively decreased after birth, following a linear trend temporarily disrupted by CC. Forward stepwise regression indicated that the variation in left ventricular output across the CC was directly correlated to the fluctuation of left ventricular preload over the same period (p=0.03).

Conclusion: This study illustrates the cardiovascular consequences of DCC in term vigorous infants and offers insight into the hemodynamic transition from fetal to neonatal circulation in humans. Strategies that aim to enhance left ventricular preload before CC, such as initiating ventilation with an intact umbilical cord in apneic infants, may prevent complications of perinatal cardiovascular imbalance.

	Mean (SD) or Median [IQR]				*Post Hoc* pairwise comparisons[b]		
	T1 (n = 46)	T2 (n = 46)	T3 (n = 46)	*P*[a]	T1 vs. T2	T1 vs. T3	T2 vs. T3
Mean heart rate, beat/min	171.7 (10.83)	163.22 (13.57)	156.35 (15.51)	<.001	**<.001**	**<.001**	**<.001**
Pulsed wave Doppler measurements							
RV ouput, mL/Kg/min	306.5 (48.18)	272.78 (55.47)	280.58 (55.35)	<.001	**.001**	**.01**	.19
RV stroke volume, mL/Kg	1.74 (0.26)	1.67 (0.3)	1.76 (0.31)	.148	-	-	-
PAATi	0.26 (0.04)	0.21 (0.04)	0.29 (0.07)	<.001	**<.001**	.10	**<.001**
LV output, mL/Kg/min	222.43 (32.5)	228.67 (34.9)	239.68 (33.64)	.004	.68	**.01**	.071
LV stroke volume, mL/Kg	1.28 (0.19)	1.37 (0.19)	1.52 (0.22)	<.001	**.012**	**<.001**	**<.001**
RV tissue doppler imaging							
S' wave, cm/sec	6 [5.65 – 6.6]	5.4 [4.77 – 6.02]	6.55 [5.5 – 7.2]	<.001	**.009**	**.037**	**<.001**
A' wave, cm/sec	12.26 (2.15)	11.22 (1.83)	12.13 (2.35)	.008	**.007**	1	**.036**
Isovolumic contraction time, msec	31.5 [29.25 – 40]	41 [30 – 47]	30 [31.5 – 40]	.001	**.003**	1	**.037**
Isovolumic relaxation time, msec	54.7 (12.43)	72.85 (14.5)	51.63 (11.59)	<.001	**<.001**	.40	**<.001**
Ejection time, msec	162.02 (19.54)	156.41 (27.52)	178.33 (24.51)	<.001	.50	**<.001**	**<.001**
Myocardial performance index	0.54 [0.46 - 0.65]	0.75 [0.62 – 0.86]	0.47 [0.41- 0.58]	<.001	**<.001**	.39	**<.001**
LV tissue doppler imaging							
Interventricular septum							
S' wave, cm/sec	4.75 [4.4 – 5]	4 [3.47 – 4.22]	4.5 [4.07 – 4.92]	<001	**<.001**	.48	**<.001**
A' wave, cm/sec	8.24 (1.15)	7.11 (1.51)	7.41 (1.47)	<.001	**<.001**	**.009**	1
Isovolumic contraction time, msec	33 [30 – 37.75]	40.6 [30 – 50]	37 [30 – 40]	<.001	**<.001**	.69	**.027**
Isovolumic relaxation time, msec	57 [50 – 67.75]	74 [64.25 – 80]	57 [50 – 60]	<.001	**<.001**	.29	**<.001**
Ejection time, msec	154.24 (22.17)	148.74 (19.22)	173.78 (18.55)	<.001	.40	**<.001**	**<.001**
Myocardial performance index	0.59 [0.55 – 0.63]	0.78 [0.70 – 0.87]	0.53 [0.47 – 0.56]	<.001	**<.001**	.037	**<.001**
Lateral wall							
S' wave, cm/sec	5.23 (0.78)	4.63 (0.89)	5.27 (0.96)	<.001	**<.001**	1	**<.001**
A' wave, cm/sec	8.86 (1.9)	8.7 (1.58)	9.37 (1.97)	.054	-	-	-
Isovolumic contraction time, msec	39 [30 – 40]	49.5 [43 – 50]	43 [32.5 – 50]	<.001	**<.001**	.126	**.037**
Isovolumic relaxation time, msec	54 [50 – 55.5]	73 [70 – 80]	57 – [50 – 60]	<.001	**<.001**	.58	**<.001**
Ejection time, msec	152.8 (15.83)	144.06 (19.5)	167.28 (20.02)	<.001	**.001**	**<.001**	**<.001**
Myocardial performance index	0.61 [0.54 – 0.65]	0.86 [0.74 – 0.94]	0.6 [0.52 – 0.69]	<.001	<.001	1	<.001

RV = right ventricle; PAATi = pulmonary artery acceleration time indexed to right ventricle ejection time; LV = left ventricle

[a]Obtained by repeated-measures ANOVA or the Friedman test, as appropriate

[b]*Post hoc* comparisons conducted with Bonferroni adjustment or the Dunn test, as appropriate

Table 1. Echocardiographic measurements during three time points: before cord clamping (T1), after cord clamping (T2), and at 5 minutes of life (T3).

ID 886. The Utility of Point-of-Care Procalcitonin in diagnosing Necrotising Enterocolitis episodes

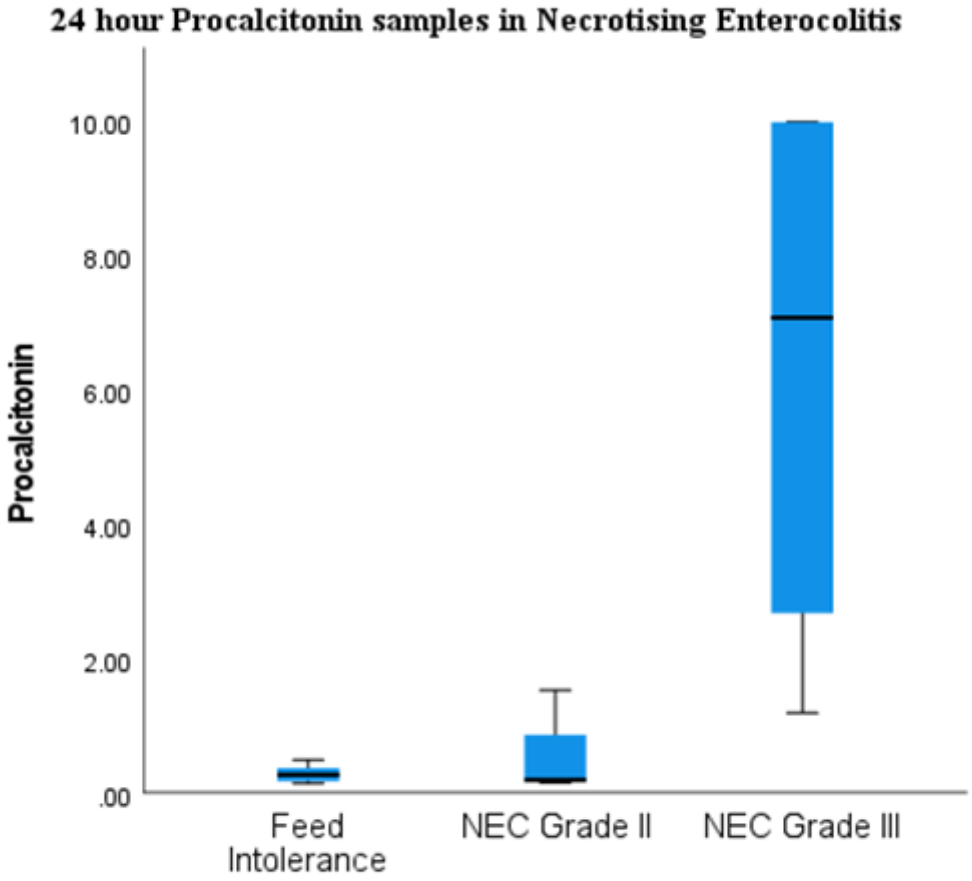
Doctor Sean Armstrong[1], Doctor Richard Drew[2], Professor Adrienne Foran[1]
[1]Rotunda Hospital, [2]Children's Health Ireland at Temple Street

Background: Necrotising Enterocolitis (NEC) continues to challenge neonatal units at a global level, with significant mortality and morbidity burdens. No single biomarker has managed to reliably outrule NEC when performed at episode onset. Meta-analyses and systematic reviews in paediatric and neonatal cohorts have demonstrated that Procalcitonin (PCT) is superior to CRP and leucocyte counts for the diagnosis and serial monitoring of sepsis and serious bacterial infection. One proposed cut-off value for predicting bacterial infections in adult, paediatric and neonatal populations is 0.5µg/L. We hypothesise that PCT levels at 24 hours can discriminate between NEC and other benign intra-abdominal symptomatology in neonates.

Methods: Neonates aged greater than 72 hours of age who were evaluated for suspected NEC were recruited into a wider prospective observational study of Procalcitonin (PCT) trends in infants with suspected Late-Onset Sepsis. The study took place in a tertiary 38-bed NICU. Bell's Modified Criteria were used to grade Necrotising Enterocolitis cases. Point-of-Care (POC) PCT was performed 24 hours after commencement of antimicrobials and at subsequent timepoints whilst on antibiotics.

Results: Thirteen episodes were evaluated for suspected Necrotising Enterocolitis. They were placed nil-per-os (NPO) and received antimicrobials pending (at minimum) the results of abdominal imaging, blood cultures and inflammatory marker trends. A PCT cut-off of 0.5µg/L at a median of 24 hours (range 20-36) after commencement of antimicrobials demonstrated sensitivity of 100% and specificity of >80% when considering the diagnosis of NEC Grade IIIa-IIIb, which was statistically significant [AUC .972 (95% CI .89-1.0) p=0.009]. In comparison, at initial evaluation, there was no statistically significant difference between NLR values (p=0.432) and CRP values (p=0.095) in differentiating NEC Bells Grade IIIa-IIIb from feed intolerance episodes.

Conclusion: PCT is superior to other inflammatory markers in differentiating NEC from other more benign causes of intra-abdominal symptomatology. Combined with clinical examination and imaging, PCT could allow for earlier cessation of antimicrobials and reduction of time spent without enteral feeds.



Boxplot of Procalcitonin values performed 24 hours after commencement of antimicrobials in suspected Necrotising Enterocolitis episodes. PCT: Procalcitonin. Bell's Modified Criteria used. NEC: Necrotising Enterocolitis

ID 832. POSITIVE MATERNAL SEROLOGIES, WHAT DO WE DO NOW? A CASE REPORT SERIES

Mrs Ana Maria GIL FENOY[1], Mrs Esther Aguilera Rodríguez[1], Mrs Tamara Pavón López[1], Mrs Marina De la Vega de Carranza[1], Mrs Ana Isabel Armenteros López[1], Mrs Nazareth Fernández Rosales[1]
[1]Hospital Torrecárdenas Almería

Background: Syphilis is a disease caused by the spirochete Treponema pallidum. In congenital syphilis, the transmission occurs transplacentally, with hematogenous dissemination. Its incidence has increased recently. One million pregnant women are diagnosed in the world annually, with 660,000 cases of congenital syphilis and 200,000 neonatal/fetal deaths.

Case report: A series of 4 cases between 2021 and 2023 are described. These patients were classified as possible congenital syphilis:
- Late preterm (36 weeks gestation). Maternal syphilis treated in 2018. During gestation, rapid plasma reagin(RPR) positive increased to 1/64 in subsequent tests without a new treatment regimen.
At birth, hyperbilirubinemia and increased acute phase reactants in infant. Blood culture, culture and VDRL in cerebrospinal fluid (CSF) negative. Cerebral ultrasound, ocular fundus, and hearing screening were normal. RPR positive (1/2) and positive anti-treponemal antibodies. A regimen of intravenous penicillin was administered for 10 days.
- Preterm (34 weeks gestation). Maternal RPR+ (no titles). Positive syphilitic reaginic antibodies and incomplete maternal treatment. At birth, asymptomatic baby, with normal laboratory tests, cultures and VDRL in CSF negative. Transfontanellar ultrasound and ocular fundus normal. Antitreponemal luetic serology was positive and negative RPR. Treatment with penicillin for 10 days.
- Term newborn. Positive RPR ½ titer with incomplete treatment during pregnancy. At birt, anemia (8 g/dL) and simple bilateral renal cysts. were detected in diagnostic studies. Other evaluation tests were normal. The patient received a 10-day treatment with penicillin.
- Term newborn. Maternal syphilis detected during pregnancy, treated incompletely with 2 doses of penicillin. Positive anti-treponemal antibodies and negative RPR in the baby, with negative evaluation tests. 10-day treatment with penicillin.

Conclusion: Congenital syphilis is a disease with an annual incidence of 1 case per year among 3000 births in our area.
Although patients are usually asymptomatic at birth, those who do not receive treatment can develop symptoms in the first years of life. The risk stratification of congenital syphilis based on mother and neonatal clinical and serological status, entails a great challenge, allowing an optimal and potentially curative therapeutic approach. In the cases presented, possible congenital syphilis was considered, with the pertinent diagnostic-therapeutic evaluation.

ID 690. Varicella Meningitis in a 10-Day-Old Newborn

Doctor Angelamaria Di Lauri[1], Prof Salvatore Grosso[1], Doctor Vincenzo Tipo[2]
[1]Università degli studi di Siena, [2]Ospedale Santobono

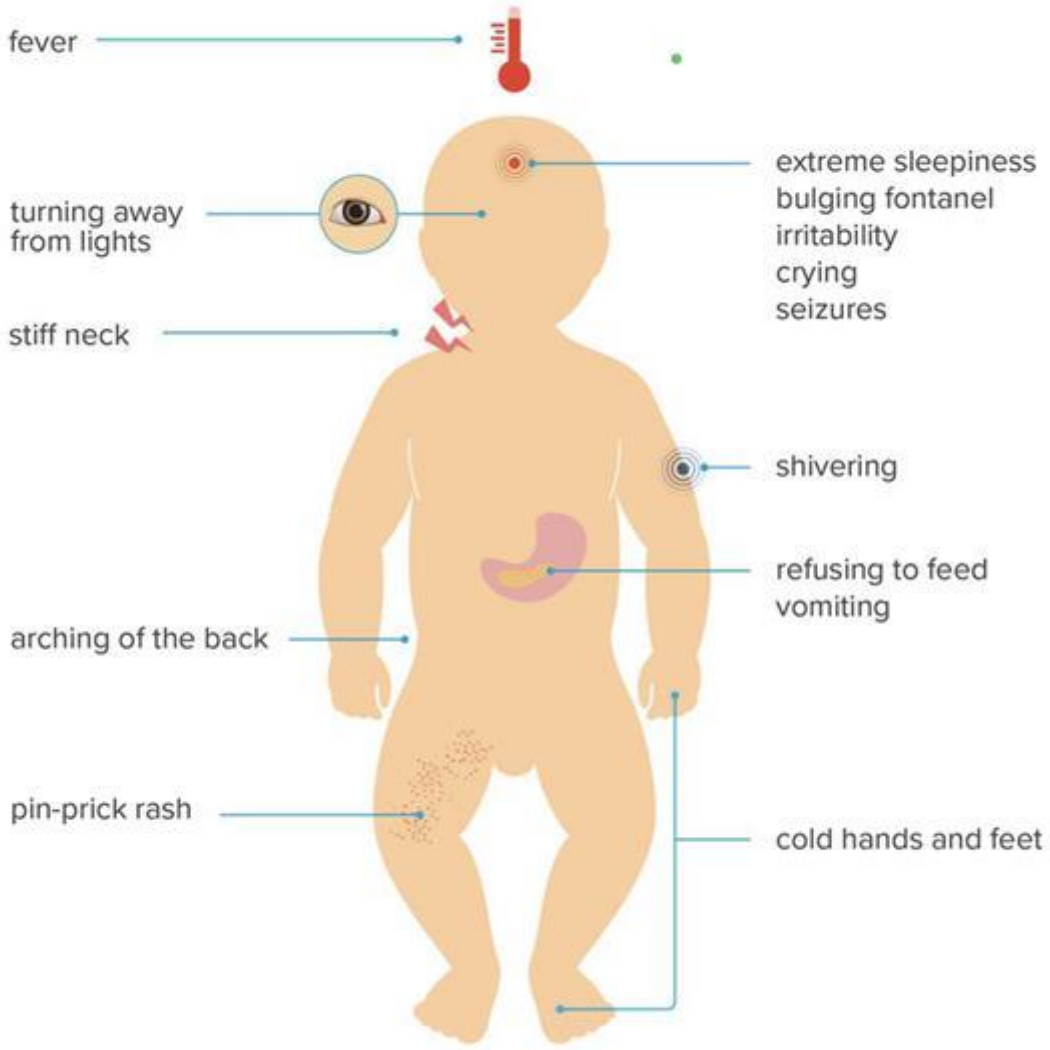
Background: Varicella, commonly known as chickenpox, is a highly contagious viral infection caused by the varicella-zoster virus (VZV). While varicella is typically a mild and self-limiting disease in healthy individuals, it can lead to severe complications in certain populations, including newborns. Varicella meningitis, an uncommon but potentially serious complication, refers to the inflammation of the meninges due to VZV infection. We present a case of varicella meningitis in a 10-day-old newborn, highlighting the challenges in diagnosis and management of this rare condition.

Case Report: A 10-day-old male newborn presented with fever, irritability, and a generalized vesicular rash. The mother reported having a varicella infection during her third trimester. Physical examination revealed meningeal signs, including neck stiffness and bulging fontanelles. A lumbar puncture was performed, and cerebrospinal fluid (CSF) analysis revealed lymphocytic pleocytosis, elevated protein levels, and positive PCR for VZV DNA. The diagnosis of varicella meningitis was confirmed. The newborn was immediately started on intravenous acyclovir and supportive care, including hydration and antipyretics. Throughout the hospitalization, the patient's condition improved gradually. The rash resolved spontaneously within two weeks, without any secondary bacterial infections. The newborn's clinical symptoms resolved completely, and no neurological sequelae were observed during the follow-up period.

Conclusion: Varicella meningitis in neonates is a rare and potentially severe complication of varicella infection. Prompt recognition and management are crucial to prevent morbidity and mortality. This case report underscores the significance of vaccination as a preventive measure against varicella and its complications. Vaccination against varicella has demonstrated remarkable efficacy in reducing the incidence and severity of varicella infections. Implementing and maintaining robust immunization programs can significantly reduce the burden of varicella and its associated complications, including varicella meningitis, in newborns and other vulnerable populations. While this case report highlights the challenges and management strategies specific to varicella meningitis in a 10-day-old newborn, it also emphasizes the broader importance of vaccination as a preventive measure against varicella. Continued research and efforts to improve vaccination coverage can contribute to the overall reduction of varicella-related complications, including meningitis, and ultimately improve the health outcomes of infants and the community as a whole.

Effects on the Body

Meningitis in Infants



ID 712. SARS-CoV-2 placentitis and severe pregnancy outcome after maternal infection: A Danish case series

Doctor Stine Yde Nielsen[1,2], Lone Hvidman[3], Anna J. M. Aabakke[4], Tina E. Olsen[5], Iben B. G. Johnsen[6], Pauline W. Bogaard[7], Astrid Petersen[7], Tine Brink Henriksen[8], Doctor May Murra
[1]Department of Clinical Microbiology, Lillebaelt Hospital, [2]Department of Biomedicine, Aarhus University, [3]Department of Obstetrics and Gynecology, Aarhus University Hospital, [4]Department of Obstetrics and Gynecology, University of Copenhagen, [5]Department of Pathology, Copenhagen University Hospital Rigshospitalet, [6]Department of Pathology, Odense University Hospital, [7]Department of Pathology, Aalborg University Hospital, [8]Department of Pediatric and Adolescent Medicine, Aarhus University Hospital

Background: SARS-CoV-2 infection during pregnancy may cause viral inflammation of the placenta, resulting in fetal demise even without fetal or newborn infection. The impact of timing of the infection and the mechanisms that cause fetal morbidity and mortality are not well understood. The aim of this study was to describe placental pathology from women with confirmed SARS-CoV-2 infection during pregnancy, a SARS-CoV-2 immunohistochemistry-positive placenta and late miscarriage, stillbirth, neonatal death, or medically indicated birth due to fetal distress.

Case report: The triad of trophoblastic necrosis, inflammatory intervillous infiltrates, and increased perivillous fibrinoid deposition was present in all 17 placentas; the pregnancies resulted in eight stillbirths, two late miscarriages (19 and 21 weeks' gestation), and seven liveborn children, two of which died shortly after delivery. The severity of maternal COVID-19 was not reflected by the extent of the placental lesions. In only one case, SARS-CoV-2 was detected in lung tissue samples from the fetus. The majority of events (miscarriage, stillbirth, fetal distress resulting in indicated birth, or livebirth, but neonatal death) happened shortly after maternal SARS-CoV-2 infection was diagnosed. Seven of eight sequenced cases were infected with the Delta (B.1.617.2) virus strain.

Conclusion: We consolidate findings from previous case series describing extensive SARS-CoV-2 placentitis and placental insufficiency leading to fetal hypoxia. We found sparse evidence to support the notion that SARS-CoV-2 virus had infected the fetus or newborn.

ID 719. STREPTOCOCCUS AGALACTIAE CHORIOAMNIONITIS IN A STILL-BORN TERM NEONATE

Dr Anastasia Kapetanaki[1], Dr Kyriaki Velali[1], Dr Stavroula Charoni[1], Doctor Stavroula Parastatidou[1], Dr Konstantinos Bogiatzis[1], Dr Eirini Koutsounaki[1], Dr Panagiota Katti[1], Dr Iosif Saouakit[1], Dr Aikaterini Fotiou[1], Dr Iraklis Salvanos[1]
[1]General Maternity Hospital Elena Venizelou

Background: Group B Streptococcus, GBS or Streptococcus agalactiae, consists of one of the most common causes of intrauterine infection and neonatal sepsis. Vaginal and rectal GBS colonization in pregnancy has an incidence of up to 30%. The neonatal colonization rate is 50%, unless chemotherapy is administered prenatally.

Case description: A male neonate was born by cesarean section following a pregnancy without prenatal care, with birth weight 2,980g. The parturient presented with fever, uterine activity, and rupture of membranes 18 hours ago. Laboratory testing revealed neutrophilic leukocytosis and increased C-reactive protein (320 mg/L, normal value <3.4 mg/L). Streptococcus agalactiae was isolated from both blood and vaginal smear cultures. At labor, the amniotic fluid was meconium-stained and foul-smelling. The neonate was born pale, without respiratory effort, pulse, or muscle tone. Resuscitation was performed as per protocol, without any sign of response after 10 minutes. Streptococcus agalactiae was isolated in the blood culture obtained from the umbilical vein.

Conclusion: Prenatal screening for GBS between 35 and 37 weeks is critical, as the maternal ascending bacterial infection seems to be responsible for the development of chorioamnionitis and possibly adverse neonatal outcome.

ID 741. It's not always sepsis. Panhypopituitarism as differential diagnosis.

Señora Nazareth Fernandez Rosales[1], MRS ANA MARÍA GIL FENOY[1], MRS ANA ISABEL ARMENTEROS LOPEZ[1], MRS ESTHER AGUILERA RODRIGUEZ[1], MRS TAMARA PAVON LOPEZ[1], MRS MARINA DE LA VEGA DE CARRANZA[1]
[1]C. U. Torrecardenas

Background: Sepsis is one of the main causes of full-term newborn admissions in our neonatal units. This pathology may present analytical alterations such as hypoglycemia, elevated c-reactive protein (CRP, procalcitonin liver profile alteration . However, we must consider other unusual diagnoses that can manifest with the same analytical and clinical parameters that require specific treatment and care.

Case report: Full-term newborn with adequate birth weight is admitted with 6 hours of life for altered conscious state, poor tissue perfusion and generalized hypotonia with sleepiness. Prenatal history: positive Streptococcus B group (SGB) during pregnancy and paternal history of liver disease. APGAR 10/10.

Blood test: hypoglycemia, conjugated hyperbilirubinemia (total bilirubin: 7.51 mg/dL, direct bilirubin: 1.23 mg/dL) hypertransaminasemia and respiratory acidosis. Acute phase reactants elevated (C-reactive protein: 11,42 nmol/L. PCT 1,17 ng/mL). No changes suggestive of birth asphyxia,. Our patient improved after starting intravenous glucose and empirical antibiotics. Cerebrospinal fluid and blood culture were negative, with decrease of acute phase reactants. Abdominal ultrasound was normal, excluding biliary atresia. Inborn errors of metabolism and infectious pathology were ruled out. Despite high intravenous glucose, our patient presented again hypoglycemia, hyperbilirubinemia and hypertransaminasemia with cholestasis (GGT 151 UI/L, FA 434U/L). A critical sample was requested in hypoglycemia with insulin (1.75 µIU/mL), C-peptide (0.99 ng/dL), cortisol (4.79 µg/dL,) and GH (1.75 ng/mL) decrease. Thyroid and gonadal profile normal. With these analytical findings and the diagnostic possibility of panhypopituitarism, antibiotic therapy was discontinued and a treatment with hydrocortisone was started with good glycemic control. Cerebral Magnetic Resonance Imaging: diagnosis of septo-optic dysplasia (anterior pituitary hypoplasia, ectopic neurohypophysis, hypoplastic/absent pituitary stalk, and small optic nerves).

Conclusion: Neonatal panhypopituitarism can manifest as neonatal sepsis, with an altered state of consciousness and laboratory abnormalities such as hypoglycemia or altered liver profile. The persistence of hypoglycemia and cholestasis, with negative cultures and without liver malformations should suggest the diagnosis of neonatal panhypopituitarism. Early hormone replacement treatment is essential in the evolution and prognosis of patients, so a rapid diagnosis will be very important.

ID 767. C-reactive protein in early-onset neonatal sepsis – a cutoff point for CRP value as a predictor of earlyonset neonatal sepsis in term and late preterm infants early after birth?

Doctor Sivan Yochpaz[1]
[1]Ichilov

Objective: To identify whether the first plasma C-reactive protein values taken 6–8 h postpartum are predictive of the clinical early-onset neonatal sepsis (cEONS).

Study design: We retrospectively analyzed C-reactive protein (CRP) values of 400 neonates, including 28 with cEONS, who underwent plasma CRP measurements as part of sepsis work-up. To determine whether the first CRP measurement is predictive of cEONS, logistic regression was used with CRP as an independent variable and cEONS (yes/no) as a dependent variable.

Result: A moderate predictive ability of the first CRP measurement (odds ratio 1.4, CI: [1.13, 1.76], p¼.003) was revealed, at a 5.3 mg/L threshold. However, it resulted in poor sensitivity of 50%, and a false positive rate of 30%. Increasing the sensitivity to 75% or 90% lead to increased false-positive rates of 55% and 75%, respectively.

Conclusions: Our findings suggest that the first CRP value taken in neonates is a weak predictor of cEONS.

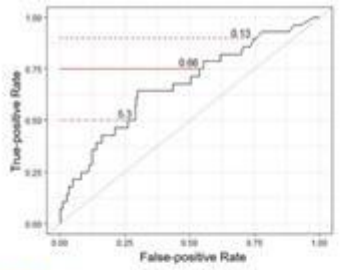


Figure 1. Correct versus false-positive identification rates. N = 400. Each point on the ROC curve represents a true-positive (y-axis) and a false positive (x-axis) identification rates corresponding to a particular CRP level threshold. The dashed line corresponds to the CRP threshold of 0.13 mg/L, which produced 90% true-positive and 75% false-positive rates. The solid line marks the CRP threshold of 0.66 mg/L, which produced 75% true-positive and 60% false-positive rates. The dashed-dotted line corresponds to the CRP threshold of 5.3 mg/L, which produced 50% true-positive and 25% false-positive rates.

ID 877. The importance of a fast C-Reactive Protein test in Neonatal Intensive Care Unit

MD Carolina Ferreira Gonçalves[1], MD Flávia Fonseca Duarte[2], MD, PhD André M Graça[3,4]
[1]Serviço de Pediatria, Hospital Dr. Nélio Mendonça, SESARAM EPERAM, [2]Serviço de Anestesiologia, Hospital Garcia de Orta, [3]Serviço de Neonatologia, Departamento de Pediatria, Centro Hospitalar Universitário de Lisboa Norte, [4]Clínica Universitária de Pediatria, Faculdade de Medicina, Universidade de Lisboa

Background: Infection is a very common issue in neonatal care, particularly in Neonatal Intensive Care Units (NICU), where quick confirmation or exclusion of sepsis is of paramount importance. A rapid and efficient test is crucial to help distinguish infected from uninfected infants. The level of the C-reactive protein (CRP) is one of the most commonly used tests to diagnose sepsis and to monitor the response to treatment. In recent years, a few fast-CRP tests have been developed and its implementation in some NICUs is ongoing.

Methods: After implementation of the Spinit® point-of-care fast-CRP device (Biosurfit, Azambuja, Portugal) in February 2022, we reviewed the fast-CRP results of selected infants admitted to our tertiary NICU between February 2022 and April 2023. We selected patients with at least 3 measurements of fast-CRP in order to enhance the information obtained about its utility.

Results: A total of seven patients and 32 fast-CRP were analyzed (average 4.5 fast-CRP per patient). In 78% of the samples, the confirmation of fast-CRP results by laboratory analysis was not performed. In the occasions where laboratory CRP was obtained simultaneously, the results were clinically similar (table 1). In 47% of the samples, the fast-CRP was performed due to clinical deterioration. In 40% of the samples, fast-CRP was obtained for assessment of CRP trending: to monitor the response antibiotic therapy (46%, including the decision of stopping antibiotics) and to assist the clinical decision of not starting antibiotics (54%).

Conclusion/Discussion: Fast-CRP is a simple and cost-effective tool that helps in the early diagnosis of neonatal sepsis. The result can be obtained in a few minutes, and it only takes one droplet of blood, making it an attractive test in the NICU setting.
This study has some limitations, including its retrospective design and the small sample size. However, we believe that sharing our experience with this point-of-care fast-CRP device in a real-life NICU setting can be important for other NICUs to consider its use.

Fast-CRP (mg/dL)	Lab CRP (mg/dL)
3,20	3,85
0,20	0,03
1,20	1,25
0,20	0,08
4,10	4,26
1,40	1,70
0,70	1,20

Table 1. Comparison of fast-CRP values with CRP in the seven situations in which both were performed. Normal CRP reference range: < 0,5 mg/dL.

ID 905. THE ASSOCIATION BETWEEN TNF-α IN NON-INVASIVELY OBTAINED AMNIOTIC FLUID AND OUTCOMES IN PRETERM INFANTS WITH FETAL INFLAMMATORY RESPONSE SYNDROME

Doctor Violeta Gulbiniene[1,2], Dr. Greta Balciuniene[1,2], Mrs. Rita Viliene[3], Dr. Irena Dumalakiene[3], Dr. Ingrida Pilypiene[1,2], Prof. dr. Diana Ramasauskaite[1,2]
[1]Vilnius University, Faculty Of Medicine, Institute of Clinical Medicine, [2]Vilnius University Hospital Santaros Klinikos, Center of Obstetrics and Gynaecology, [3]State Research Institute, Centre for Innovative Medicine

Background. The fetal inflammatory response syndrome (FIRS) is associated with preterm premature rupture of the membranes (PPROM) and increased neonatal morbidity and mortality. Early assessment of the risks associated with FIRS and neonatal outcomes is essential for the management of preterm newborns. Tumor necrosis factor-α (TNF-α) has a primary role in triggering preterm delivery due to inflammation or infection; however, its predictive significance for neonatal outcomes in FIRS received little attention. We aimed to determine whether TNF-α in vaginally obtained amniotic fluid predicts neonatal outcomes in infants with FIRS after PPROM.

Methods. In a prospective cohort study, amniotic fluid was collected vaginally less than 48 hours before delivery from 145 women with PPROM at 22-34+6 weeks of gestation. Amniotic fluid TNF-α was analyzed by an enzyme-linked immunosorbent assay. After birth, newborns were assessed with a follow-up until discharge. Based on umbilical cord blood interleukin-6 level >11 ng/ml or histological funisitis, all participants were divided into FIRS and non-FIRS groups. Significant neonatal outcomes included one or more of the following: severe respiratory distress syndrome, need for mechanical ventilation, death, early sepsis, early hypotension, severe intraventricular hemorrhage, bronchopulmonary dysplasia, and severe retinopathy of prematurity. Data were analyzed using the R package R-4.0.5.

Results. Newborns with FIRS had more outcomes than those without FIRS (43% vs. 24%, P = 0.02). The highest mean TNF-α level was in the FIRS group having neonatal outcomes (240.58 ±12.29 pg/mL, P < 0.001). The area under the curve for FIRS with neonatal outcomes was 0.74 (95% confidence interval (CI), 0.61-0.88) with a cut-off of 231.13 pg/mL, and specificity, sensitivity, positive and negative prognostic values of 89%, 62%, 52%, and 92%, respectively. In logistic regression, controlling for gestational age, the level of TNF-α more than 231.13 pg/mL increased the odds of having FIRS with neonatal outcomes 8.8 times (95% CI, 2.81-28.90) (Figure 1).
Conclusion. TNF-α in non-invasively collected amniotic fluid significantly predicts outcomes in preterm neonates with FIRS. Noninvasive amniotic fluid analysis after PPROM may assist in stratifying the neonatal risk earlier and impact the management strategy.

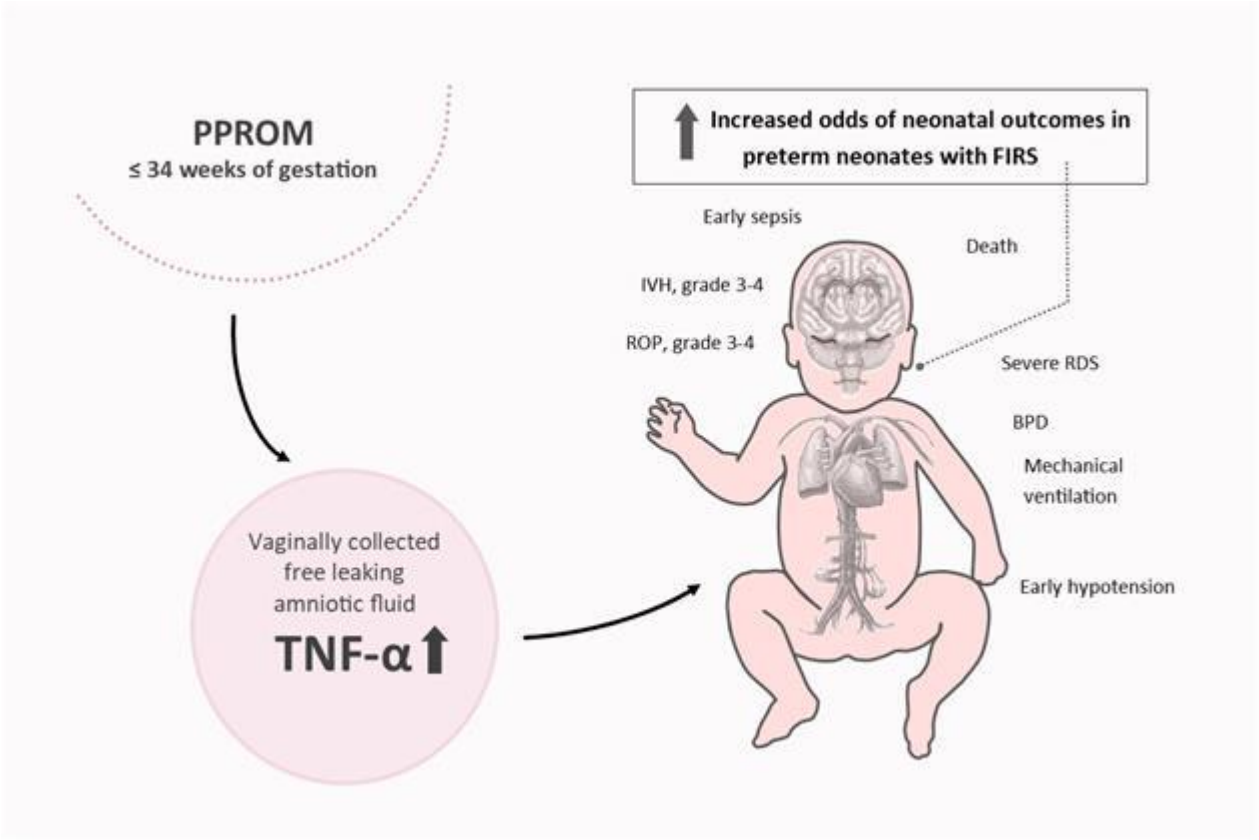


Figure 1. Amniotic fluid TNF-α as a predictor of prematurity outcomes. FIRS—fetal inflammatory response syndrome; PPROM—preterm premature rupture of membranes; BPD—bronchopulmonary dysplasia; RDS—respiratory distress syndrome, IVH—intraventricular hemorrhage; ROP—retinopathy of prematurity

ID 917. CONGENITAL INFECTION BY CYTOMEGALOVIRUS. BETTER AS SOON AS POSSIBLE.

Miss Marina De La Vega De Carranza[1], Miss Ana Isabel Armenteros López[1], Miss Tamara Pavón López[1], Miss Ana Maria Gil Fenoy[1], Miss Nazareth Fernández Rosales[1], Miss Esther Aguilera Rodriguez[1]
[1]Hospital Torrecardenas

BACKGROUND
Cytomegalovirus (CMV) is the most common cause of congenital infection in developed countries, with an incidence of 0.3-0.6% of newborns in Europe. During pregnancy, primary infection occurs in 1-4% of pregnant women. In these cases, the infection is transmitted to fetus in 40% of cases. 10% will have symptoms at birth and 50% will suffer permanent sequelae especially sensorineural hearing loss and mental retardation, Up to 13% of asymptomatic patients present these sequelae. The culture of the virus or PCR in urine in the first two weeks will be diagnostic. Early treatment will be essential to prevent the progression of the disease.

CASE REPORT
Full term neonate (37 weeks gestational age). Prenatal diagnosis: intrauterine growth retardation (IUGR type 1) and slight hydrocephalus. Small for gestational age at birth. Transfontanellar ultrasound: ventriculomegaly, white matter atrophy, and lenticulostriate vasculopathy. Blood test: thrombocytopenia and negative TORCH and viral serologies, Urine CMV PCR was positive, with high viral load. Treatment with oral vanganciclovir at 17mg/kg/12h was started on the 7th day of life. Hospital discharge at 11 days of life, with normalization of platelets, but pathological neurological examination (hypotonia and tremors). Normal ocular fundus. Cerebral MRI: ventriculomegaly, periventricular cysts, affected white matter, and bilateral frontal cortical development abnormality. As side effects of valganciclovir, she required blood tests for neutropenia, which resolves after adjusting the dose. The viral load was reduced from 1,328,0000->851UI/ML after 3 weeks of treatment. For neurodevelopment follow-up, he is referred to Otorhinolaryngology, Neuroneonatology and Early Attention.

CONCLUSION
In patients with a diagnosis of IUGR type I, it is important to consider the differential diagnosis of congenital CMV infection. In the case of patients with these personal history and with neurological alteration, early diagnosis will be important, thanks to blood and imaging tests (craneal-ultrasound and MRI). Valganciclovir can slow the progression of the disease, so early treatment is recommended, although it does not resolve the damage. Multidisciplinary management of the patient is important, with follow-up by otorhinolaryngology due to the risk of hearing loss, endocrinology, neuroneonatology, and early care to minimize neurodevelopmental sequelae.

ID 967. INVESTIGATION OF COAGULATION ABNORMALITIES AND A NOVEL INSIGHT INTO THE ROLE OF ADAMTS-13 IN NEONATAL SEPSIS

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Background: The term "immunothrombosis" or "thromboinflammation" has recently been introduced in order to describe the strong "cross-talk" between inflammation and coagulation. Aim of the present study is to investigate the derangement of the coagulation profile, as well as the implication of ADAMTS-13 in neonatal sepsis.

Methods: Sixteen (16) neonates were included in the patient group (median gestational age 32.7±2.9 weeks). The control group consisted of 18 neonates (mean gestational age 38.2±1.5 weeks). The coagulation profile of septic neonates was assessed in the acute phase and post infection.

Results: Clotting times were prolongated, factor VII (FVII) levels were substantially reduced, while fibrinogen and factor VIII levels were higher in the acute phase of infection compared to controls and to recovery. Natural anticoagulants were considerably suppressed in the patient group. von Willebrand factor (vWF:Antigen) levels were elevated in septic neonates in the acute phase of infection vs controls (233.2±103.9% vs 147.8±26.0%, p<0.001) and remained elevated post infection compared to controls (195.8±51.8% vs 147.8±26.0%, p=0.003). vWF:Antigen levels were significantly higher in acute phase of infection compared to recovery (233.2±103.9% vs 195.8±51.8%, p=0.024). Concentrations of ADAMTS-13 (A disintegrin and metalloprotease with thrombospondin type-1 motives), the cleaving protein of VWF, were lower in the acute phase compared to controls and to recovery (488.5±75.4 ng/ml vs 577.2±113.6 ng/ml, p=0.015 & 488.5±75.4 ng/ml vs 618.8±130.0 ng/ml, p=0.004, respectively). A trend towards superimposed normalization of ADAMTS-13 levels was observed post infection. The disease severity, as assessed by nSOFA score, was positively correlated with vWF:Antigen levels (r 0.598, p=0.014) and negatively correlated with ADAMTS-13 levels (r -0.531, p=0.034). A significant negative correlation was observed between VWF:Antigen and ADAMTS-13 levels in the acute phase of infection (r -0.0575, p=0.020).

Conclusion: The present study represents a global assessment of coagulation abnormalities in neonatal sepsis. To the best of our knowledge, this is the first study about the role of ADAMTS-13 in septic neonates, which is of great importance since recombinant ADAMTS-13 has been proposed as a new therapeutic option in sepsis, currently under ongoing investigation.

ID 987. Staphylococcal Scalded Skin Syndrome in preterm newborn.

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Backgroud:
Staphylococcal scalded skin syndrome is the most severe skin and soft tissue infections in neonates.It is usually caused by Staphylococcus aureus. Hematogenous dissemination of exotoxins causes the disease, with scaling of the skin and blistering. It may be accompanied by systemic clinical symptoms
Nikolsky's sign (skin detachment with minimal pressure) is characteristic in this pathology. Blood cultures and cultures of blister fluid are typically negative. In most reported cases, S. aureus is cultured from distant sites, such as the nose, throat, umbilicus or perineum. Diagnosis is generally based on the clinical picture and response to antibiotics, but can be aided by histology and cultures.

Case report:
Premature (28 weeks gestational age) who at 28 days of life begins with irritability and scaly lesions on the arms, legs, face, chest and genital area. Simultaneously, a yellow/honey-colored crust appears on the nose. Antibiotic treatment (intravenous vancomycin and topical mupirocin) is initiated due to suspicion of staphylococcal scalded skin syndrome.
A blood culture was negative. However, nasal exudate culture was positive for S. aureus. There was no elevation of acute-phase reactants. Thirteen days after completing the antibiotic treatment, bilateral yellowish conjunctival discharge is observed. The patient presents new scaly lesions and blisters on the skin on her arms, face, and trunk within the next 24-36 hours. Laboratory tests were requested, again without elevation of acute phase reactants. Local wound care and empirical intravenous antibiotic therapy (intravenous vancomycin) are resumpted. New cultures were requested. Ocular secretion was again positive for non-methicillin-resistant S. aureus. After initiating intravenous antibiotic therapy, the patient improved and switched to oral antibiotic therapy after 4 days.

Conclusion: The diagnosis of this syndrome is clinical. Early intravenous antibiotic therapy should be initiated, targeting to S. aureus. Cultures of the nose, ocular conjunctiva, or throat will be important for the diagnosis. In case of recurrences, a rapid progression or lack of response to treatment, other blistering diseases should be considered as a differential diagnosis.