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HOT TOPICS IN NEONATOLOGY

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Abstract book
Meningococci in preterm babies? Case report of late onset sepsis and meningitis in a late preterm neonate

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Introduction
In neonates, Neisseria meningitidis is a rare cause for sepsis. Due to better prevention of other pathogens, it has gained in importance.

Case report
12 hours of poor feeding motivated the emergency consultation of a preterm boy (gestational age 35.3/7 weeks, birth weight 2410 g) on day 1 after birth. The boy was fat and hunger. After clinical deterioration, septic work-up was completed with a delay of 6 hours. Blood cultures were positive with bacte-
rial meningitis (VBC 8526/mm3, 91 % polymorphonuclear). While CSF-cultures remained sterile, blood culture grew gram-negative diplococci within less than 24 hours finally identified as serogroup Y meningococci. Antimicrobial therapy was changed for cefepime with excellent clinical response. The boy was discharged home after a total of 14 days of antibiotic treatment without clinical or ultrasono-

Discussion
Meningococcal meningitis (OM) is a rare en-
teritis in newborns with potentially dangerous consequences usually as late onset sepsis with findings of meningitis. According to our literature research, only term born neonates have been described so far in case series of neonatal OM and neonatal meningococcal meningitis. In contrast to common pathogens for neonatal sepsis, that colonize the maternal rectovaginal area (early onset sep-
sepsis or the neonatal intestinal tract (late onset sepsis), N. meningit-
bacterium is a known barrier in the development of the human nervous system. In our case, transmission by close family members seems highly plausible, as the same serogroup Y meningococci had been detected in both family members. As this serogroup is not included in the standard vaccine recommended in Switzerland, current vaccination strategies against meningococci would not have been preventive in this case.

Conclusion
This report describes an exceptional case of late on-
set sepsis and meningitis due to N. meningitidis serogroup Y in a preterm neonate and highlights the importance of an asympto-
tomatic carrier status in parents. To our knowledge, this is the first case description of an OM in a preterm child and the first with doc-
umented carriage of the same pathogen in family members.

Neurofilament level serum as biomarker of neuronal injury in very preterm born infants
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Aims and objectives
Neurofilament light chains (NFL) are part of the unique cytoskeletal proteins of neurons, are shed to the cerebrospinal fluid, are detectable at low concentrations in peripheral blood of healthy adults and regarded as a new serum bio-

Early onset intraventricular growth retardation: an independent risk factor for poor perinatal outcome in very preterm infants
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Objective
Intraventricular growth retardation (IUGR) represents a complex phenomenon characterized by the fetus’s failure to achieve its optimal growth potential. Existing definitions are inconsistent and blur the boundaries between IUGR and the

Aims and objectives
The study aimed to analyse the factors associated with the occurrence of IUGR, to define the IUGR criteria, to develop an IUGR risk index, and to assess the impact of the IUGR risk index on perinatal outcome.

Methods
Patients with gestational age <37 weeks, born after 34 weeks of pregnancy and with a birth weight <1500 g were included in the study. IUGR was defined as a birth weight <10th centile for gestational age. The study was performed at a tertiary perinatal centre in the Canton Zurich.

Results
A total of 1033 patients were included in the study. The prevalence of IUGR was 15.5%. The IUGR risk index was calculated for each patient using the clinical risk factors: maternal age, parity, smoking, diabetes, hypertension, pre-eclampsia, placenta previa, history of IUGR, and fetal presenta-
tion. The IUGR risk index was positively associated with the occurrence of IUGR (p < 0.001). The IUGR risk index was also associated with a higher rate of prematurity (p < 0.001), severe intraventricular hemorrhage (p = 0.033), and lower birth weight (p = 0.011), oxygen supply duration and intraventricular hemorrhag-

Discussion
The prevalence of IUGR in this study was consistent with previous studies. The IUGR risk index was able to accurately predict the occurrence of IUGR with a good performance (AUC = 0.85). The IUGR risk index could be a useful tool for identifying high-risk patients and guiding further diagnostic and therapeutic decisions.

Conclusions
The IUGR risk index is a valuable tool for identifying high-risk patients and guiding further diagnostic and therapeutic decisions. The IUGR risk index could be used to develop a risk stratification system for IUGR and to improve patient outcomes.
In this cohort of very preterm infants, the factor IUGR morbidities, in IUGR infants compared to controls. There was no tal and demographic characteristics of all groups were similar ex - 25 (1.5 %) SGA and 119 (7 %) control infants were analyzed. Perina - Results

prematurity > grade 2, major brain injury) that are known to have enterocolitis, sepsis, bronchopulmonary dysplasia, retinopathy of weight (EFW) < 5th centile and umbilical artery Doppler (UAD) re- Materials and methods

nal indicators. Outcomes at 2 years were mortality, survival with severe-to-moderate prenatal interventional activity was derived from 3 obstetric and 4 neo - Prospective geographically defined cohort study includ -

nel. In addition to non pharmacological care, we

Neonatal withdrawal syndrome: a 2011-2016, retrospective audit in the Hôpital neuchâtelois

100 mg, range 15-160 mg), 9/12 neonates were treated pharmaco-

mothers were on substitution methadone (median daily dosage

in the surviving child. Our aim was to assess whether monitoring of HR and RR is feasible via gastric feeding tube and to compare NEO monitoring with standard

Twelve cases were found (out of 10 653 births, ie 1.1/1000 01.01.2011 to 31.12.2016. After exclusion of single patient day-to-day morphine dosage variations were noted, associated with Fawkes simulation in newborns. All infants were breastfed. Median hospital stay was 45 days (range 4 -96). 3/12 and 9/12 newborns were discharged home, respectively foster hom. Conclusions In comparison with the international literature, we

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FLS) in 5th centile and umbilical artery Doppler (UAD) re-

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Piperacillin-Tazobactam dosing regimen

Piperacillin concentration-time profiles

coagulation in the newborn is challenging because factor levels

Coagulation in the newborn is challenging because factor levels
deficit lead to a life-threatening event. Atypical presentations make the differential diagnosis
difficult. The slow progress and firmness
could indicate a congenital coagulopathy. Atypical presentations
remain abnormal. Factor VIII activity was <1 % and led to the di -

Hemophilic pseudo-Hennebert syndrome characterized by

pneumothorax certainly contributed to this unusual presentation. This closed skull haemorrhage led to a delayed diagnosis. Haemo-

Piperacillin-Tazobactam dosing regimen

expression of γδ T cells, and the expression of GITR on Th17 cells in neonates with NWS. In addition to non pharmacological care, we

subjected to unsupervised ventilatory support with caput succedaneum difficult. The slow progress and firmness of the collection suggested infiltration of soft tissues, whereas the massive volume loss more typically fitted SGH. The coagulation deficit lead to a life-threatening event.

Coagulation in the newborn is challenging because factor levels

Cristina Felice-Civitillo 1, 2, Riccardo Pfister 2, 3

were derived from 3 obstetric and 4 neo -

Aims and objectives

in adults and methodologically variable. Although acquired clotting
disorders are more common in neonates, inherited disease needs to be considered. Aims of the study were to evaluate the prevalence or severe presentations of neonatal bleeding need investigation of congenital clotting disorders.

Aims and objectives

Piperacillin concentration-time profiles

A.P. was boy born from a 2G 0P 34 year-old women, at term. A

aim of our study was to compare our practice, compare with literature report and try to improve. Methods

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growth with severe-to-moderate neurodevelopmental impairment (NDI), defined as one of the following cerebral palsy with GMFCS >1 ; a developmental test score <-2SD

Developmental outcome was assessed using the 5-year follow up. A neurological examination was performed at 2 years corrected age. The 4/9 cases with additional phenobarbital had the highest daily morphine dosage (1.5 -4.4 8.7 mg/kg/day). Wide

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resulting from the high birth weight no difference in the neonatal outcome was observed. Conclusion In this cohort of very preterm infants, the factor IUGR did not appear to be an independent predictor of neonatal mortality and morbidity when controlled for differences in any differences between IUGR and SGA groups might be due to the small SGA sample size. The results confirm that the most important impact on neonatal outcome in this GA range. The IUGR effect might be more prominent in a later stage of life.

Sea. These infants were subsequently used to cal-

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Baseline study included 100 infants in the NICU at the University of Basel Children's Hospital. We included preterm infants with postconceptional age ≥ 32 weeks. Standard feeding tubes were replaced by an for intestinal feeding of autonomic dysregulation. Our aim was to assess whether monitoring of HR and RR is feasible via gastric feeding tube and to compare NEO monitoring with standard monitoring on the NICU.

Methods We performed a prospective single center study in the NICU at the University of Basel Children's Hospital. We included preterm infants with postconceptional age ≥ 32 weeks. Standard feeding tubes were replaced by an for intestinal feeding of autonomic dysregulation. Our aim was to assess whether monitoring of HR and RR is feasible via gastric feeding tube and to compare NEO monitoring with standard monitoring on the NICU.

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One major neonatal morbidity and survival were assessed for each intervention: level of perinatal interventional activity was derived from 3 obstetric and 4 neo -

Developmental outcome was assessed using the 5-year follow up. A neurological examination was performed at 2 years corrected age. The 4/9 cases with additional phenobarbital had the highest daily morphine dosage (1.5 -4.4 8.7 mg/kg/day). Wide

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Aims and objectives
Meropenem dosing regimens in neonates across seven Swiss intensive care units and in seven international guidelines. Is it relevant?

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Objectives To assess achievement of adequate drug exposure across recommended neonatal meropenem dosing in Swiss NICUs and international guidelines.

Methods and Material Meropenem dosing regimens for meropenem were collected from the 7 Swiss level III NICUs (Zurich, Basel, Bern, Aarau, Luzern, Geneva and Lausanne) and 7 international guidelines (BPAR, SHANN, Nelson, FDA, PIP, PIP-Tazo). Simulations were performed for all dosing regimens using the PK/PD model developed from a large PK study at the University of Lausanne including infants from 29 weeks GA to 39 weeks GA. Simulations were performed for MICs ≥ 0.5 mg/L, with best performance for Shann, Nelson and FDA recommendations. Simulations showed that doses of 10 mg/kg every 8 hours (100% fuT>MIC) over the whole dosing interval (100 % fuT>MIC). MICs of the 80 % of neonates would achieve the target when administered with a dose of 75 mg/kg/6h for all neonates, whereas for target MIC up to 16 mg/L in more than 90 % of patients. The Swiss hospital experiences were associated with target attainment for Neoexamples.

Conclusion Neonatal HLH is a life-threatening condition with high mortality. It should be considered in patients with persisting coagulopathy associated with viral infection, in particular with a severe inflammatory reaction.

Necessity is the mother of invention: the mobile pediatric simulation (mps) hand made task trainers

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Introduction A collaborative work amongst three simulation specialists built a team named Mobile Pediatric Simulation (MPS) (2015). We aimed to enhance the decision making in neonatal emergencies, trainees required for psychomotor skills for intervention in simulation, trainers in pediatric practice from very basic materials but with high fidelity. We aim to enhance the decision making in neonatal emergencies, trainees required for psychomotor skills for intervention in simulation, trainers in pediatric practice from very basic materials but with high fidelity. We also have our SPs and few task trainers. The team we suggest a simplified dosing regimen based on GA to maintain target exposures in this vulnerable population.

Fetomaternal transfusion syndrome as a cause of severe neonatal anaemia

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Aims and objectives The fetomaternal transfusion syndrome is defined by the loss of fetal blood into the maternal circulation. A relevant transfer of more than 80% of fetal blood, occurs in 1 in 1000 pregnancies.

Materials and methods Two newborn boys were born with severe anaemia and haematocrit values <20% at the Clinic of Neonatology of the University Hospital in Zurich. The clinical history was evaluated, summarized, and put into context with prior publications about this syndrome.

Results The first newborn became apparent in the 27 week of gestation because of intrauterine growth retardation, polyhydramnios, and abdominal effusions, ahydramnion and fetal anemia requiring one blood transfusion through the umbilical cord vein. Cesarean section was performed at 28/4-27 weeks of gestation because of suspected amniotic infection. Apgar scores were 1/5/8, the arterial umbilical cord blood values were: pH 7.15, pCO2 65, pO2 45 but the patient was intubated and ventilated as well as hemodynamic compromise. In neither of the two newborns, a definite cause for the fetomaternal transfusion could be detected.

Conclusions Fetomaternal transfusion syndrome is a potential fetal condition which may present presently with decreased fetal movements, oligohydramnios, or Flow cytometry with HbF specific antibodies allowing to detect fetal erythrocytes in maternal circulation. In fetomaternal transfusion syndrome, the complete complement of hemoglobin should be achieved at least in order avoid cardiopulmonary compromise, either by erythrocyte transfusions or by exchange transfusion.