PO-0568  TRANSIENT HYPERPHOSPHATEMIA IN INFANTS WITH VIRAL INFECTIONS

1Z Smugreska, 1V Tasic, 1M Trenceva, 1S Todorovska, 1A Sofijanova, 1Paediatric, Private Pediatric Practice, Skopje, Macedonia; 2Neurology, Children’s Clinic, Skopje, Macedonia; 3Pediatric, Private Pediatric Practice, Skopje, Macedonia; 4ICU, Children’s Clinic, Skopje, Macedonia

Introduction Transient hyperphosphatemia (TH) is a benign condition, characterised by transient increase of the activity of serum alkaline phosphatase (ALKP). This condition is usually found in children under 5 years of age and elevation of ALKP activity does not last more than 4 months.

Objectives To clarify if there is evidence of bone and liver disease when activity of bone isoenzymes of ALPK is markedly elevated.

Material and Methods Herein we present three infants, aged 5,12 and 18 months. All of them had febrile viral respiratory infection, which required hospitalisation. All of them had increased ALKP 637, >1000, >1000 IU/l. Liver enzymes were normal as well as the values of serum calcium and phosphorus. All children had regular antirachitic prophylaxis. The serum ALKP normalised within 2–3 months. Increased values of ALKP were initially considered as a sign of rickets by the paediatrician who treated infants for respiratory infection and vitamin D therapy was recommended, but was not implemented after reconsideration.

Conclusion Infants with TH can be clearly identified from those having rickets by considering the age of the patient, regular vitamin D prophylaxis, history of viral infection and by excluding other causes of elevated ALPK particularly liver or bone disease.

PO-0569  PASTEURISATION OF HUMAN BREAST MILK: A NEONATAL DILEMMA

K Stock, E Griesmaier, B Brunner, V Neubauer, U Kiechl-Kohlendorfer, R Trawöger. Pediatrics II, University Hospital, Innsbruck, Austria

Background Preterm infants are at risk of postnatal transmission of cytomegalovirus (CMV) via breast milk. Although most infants remain asymptomatic in the neonatal period, doubts about adverse effects on neurodevelopmental outcome have been raised. Pasteurisation prevents transmission of CMV via breast milk, which concomitantly inactivates immune and bioactive components. Data indicate that necrotizing enterocolitis (NEC) and late-onset sepsis (LOS) are less common in preterm infants fed with breast milk, as compared to infants fed with formula or pasteurised breast milk.

Aim To assess whether feeding preterm infants with unpasteurized breast milk i) decreases the rate of LOS and NEC and ii) increases the rate of postnataally acquired CMV infections.

Methods Between January 2008 and July 2013 preterm infants <32 weeks gestational age admitted to the neonatal intensive care unit Innsbruck (n = 341) were eligible for the study. Of those 323 fed with breast milk were retrospectively enrolled in the study. Two groups were formed with 164 infants being fed with unpasteurized and 159 infants with pasteurised breast milk.

Results The number of infants diagnosed with postnataally acquired CMV infections was significantly higher in the non-pasteurised group as compared to the pasteurised group (6.7% vs. 0.6%, p = 0.006). There was no significant difference regarding rate of LOS (15.9% vs. 15.1%, p = 0.486) or NEC (2.4% vs. 4.4%, p = 0.254).

Conclusion Feeding preterm infants with unpasteurized breast milk increases the rate of CMV infections. Of interest, we also show a non-significant trend to decreased rates of NEC, but this needs to be confirmed in larger studies.

PO-0570  ZYMOSAN BUT NOT LPS, PAM3CSK4, OR FLAGELLIN TRANSIENTLY REACT WITH IMMUNE RESPONSES IN MONOCYTES, DCS, AND MONOCYTE-DERIVED DCS OF NEONATES COMPARABLE TO THOSE OF ADULTS

D Tokuhara, K Nohmi, H Shintaku. Pediatrics, Osaka City University Graduate School of Medicine, Osaka, Japan

Increased susceptibility to infection and a tendency toward more severe outcomes than in healthy adults both illustrate the prematurity of neonatal innate immunity mediated via TLRs. However, the details of TLR-mediated neonatal innate immunity are not fully understood. Here, we investigated the differences in TLR-mediated immune responses between the human neonate and adult, focusing on the cytokine profiles of monocytes, dendritic cells (DCs), and monocyte-derived DCs (MoDCs) in cord and adult blood. Purified monocytes, DCs, and MoDCs were stimulated with LPS (TLR4 ligand), Pam3CSK4 (TLR1/2 ligand), flagellin (TLR5 ligand) or zymosan (TLR2 ligand). IL-8, IL-6, and TNF concentrations were analysed in culture supernatants. Compared with the effects in adult blood, LPS-, Pam3CSK4-, and flagellin-stimulated cytokine production in cord blood was weak in monocytes, comparable in DCs, and elevated in MoDCs. In contrast, zymosan stimulation gave comparable cytokine profiles in the monocytes, DCs, and MoDCs of cord and adult blood. The immaturity of TLR-mediated innate immunity in neonates thus depends on monocytes rather than DCs. Zymosan, a cell wall extract from Saccharomyces cerevisiae, is known to show vaccine adjuvant activity in adult animal, but the adjuvant activity was unclear in neonatal animal. Our results indicate that zymosan-mediated effective TLR2 signalling in neonates may be useful for developing a neonatal vaccine adjuvant.

PO-0571  PATHOGENS AND EMPIRIC TREATMENT OF SEPSIS IN A NEONATAL INTENSIVE CARE UNIT

1S Uyar, 1M Fatih, 1M Varma, 1T Sayiş, 1Department of Pediatrics, OSM Middle East Hospital, Sanliurfa, Turkey; 2Department of Infection Diseases, OSM Middle East Hospital, Sanliurfa, Turkey

Background and aims Sepsis is a major cause of morbidity and mortality in newborns. We aimed to assess the efficacy of the current empiric regimens commonly used in neonatal intensive care units (NICU) and to describe the characteristics of newborns with sepsis.

Methods Infants admitted to the NICU with a sepsis diagnosis during January 2012 and December 2013 were assessed in a retrospective manner. While infants with early onset neonatal sepsis (EO-NS) diagnosis had received an empiric regimen including ampicillin and gentamicin, those with a late onset neonatal sepsis (LO-NS) diagnosis received carbapenem, vancomycin and fluconazole. Culture antibiotic results were compared with empiric treatment choices. Mortality and recovery rates with empiric
**Poster abstracts**

**PO-0572** UMBILICAL VENOUS CATHETERS WITH AGION ANTIMICROBIAL SYSTEM IN A DUTCH NICU

A van den Hoogen. Neonatology, University Medical Center Utrecht, Utrecht, Netherlands

**Background** The majority of preterm infants at NICUs receives a central venous, or umbilical vein catheter (UVC) and is therefore at risk for catheter associated sepsis. Silver-impregnated UVCs with the AgION™ antimicrobial system may prevent sepsis and may have longer insertion time.

**Objective** To assess sepsis and additional CVC insertion with the use of silver-impregnated UVCs compared with conventional ones.

**Methods** Catheter-duration, sepsis and additional CVC use was compared between infants with silver-impregnated UVCs (silver-group) during 1 year (2012–2013) and infants with conventional UVCs (controls) during 2011, when inserted >3 days.

**Results** In 156/249 (2012–2013) infants a silver-impregnated and all 273 with an UVC in 2011 a conventional UVC was inserted. Mean catheter-duration was 5.8 (3–15) days in the silver-group vs 5.7 (3–12) days in the controls (NS). 11/156 (7%) infants from the silvergroup developed sepsis during catheterisation vs 17/267 (6.4%) controls (NS). Main causative microorganisms: CoNS (62.5%), S. aureus (15.6%), Enterobacter (9.3%). In 22/156 infants of the silvergroup, UVC use was longer than 8 days, vs in 20/273 controls (NS). 3/22 of the silvergroup with UVC use > 8 days developed sepsis vs 1/273 controls (p = 0.015). Significantly more infants in the silvergroup needed additional CVC insertion 18/156 (11.5%) vs in 28/273 (10.3%) controls (p = 0.00).

**Conclusions** Duration of > 8 days of silver-impregnated UVC significantly increased the risk for sepsis as compared with conventional UVC use.

Silver-impregnated UVCs were not inserted for longer periods than conventional UVCs.

Anti-infectious advantage of the silver-impregnated UVCs could not be proven.

**PO-0573** A TALE OF TWO CRP’S; IMPLEMENTING THE NICE EARLY ONSET SEPSIS GUIDELINE


**Introduction** A rational approach to managing babies at risk of early onset sepsis continues to challenge neonatal units. In August 2012 NICE published guidance on antibiotics for early onset sepsis in neonates (1). We review our unit’s performance in implementing the NICE guidance. Baseline assessment using the NICE tool had been completed previously and the NICE guideline implemented with adjustments for local use.

**Method** A three month prospective audit of babies at risk of or suspected of having early onset sepsis (sepsis within 72 h of birth). The NICE guideline audit tool was used. (3).

**Results** 64 babies were audited. Every baby had a blood culture taken before commencement of antibiotics and were started on correct antibiotic doses. Initial CRP’s were taken in 95% of cases but only 61% had a repeat at 24 h.

69% of babies received antibiotics within 1 h of making clinical decision. 88% had cultures available at 48 h as per local policy.

**Discussion** Our data demonstrates the challenge of implementing a relatively straight forward protocol of care. We excelled in some elements: initial investigation and prescribing accuracy. There was clear room for improvement in other areas.

Simple changes to practice have subsequently been implemented including revised gentamicin prescription charts and education to highlight the importance of timely administration of antibiotics and the evidence behind checking CRP levels (5, 6, 7).

Re-audit is planned for early 2014.

**PO-0574** INDICATIONS AND OUTCOMES OF LUMBAR PUNCTURES IN TERM NEONATES IN A TERTIARY NEONATAL UNIT

H Wood, E Saeger, J Gray, SV Rasiah. Neonatology, Birmingham Women’s NHS Foundation Trust, Birmingham, UK

**Background** Lumbar puncture (LP) is usually performed when there is a clinical suspicion of meningitis in babies with suspected sepsis. NICE recently published their guidelines on ‘antibiotics for early-onset neonatal infections’ with guidance on when LPs should be considered.

**Aim** To audit the indications and outcomes of LPs performed in term babies (>37 + 0 weeks) in a tertiary neonatal unit.

**Methods** A list of term babies who had an LP was obtained from the Microbiology Department between 01/01/2010 and 31/12/2013. The Badger electronic patient record and hospital blood results systems were reviewed to collect the data.

**Results** In the last 4 years we had 2,882 term babies admitted to the neonatal unit. 136 LPs were performed in 133 term babies. The reasons for LPs were; (a) raised CRP in 106 cases (median CRP was 70), (b) abnormal neurology in 18 cases, (c) positive blood culture in 8 cases and (d) 4 were for no other clinical focus. There was one culture of coliforms and another positive for herpes simplex virus type 1 on PCR. At discharge, 8 had a diagnosis of meningitis and 1 with encephalitis.

**Conclusion** The predominant indication for LPs in term babies was a raised CRP. We only isolated organisms from two samples. As per NICE guidance, we rely on a combination of clinical findings and CRP’s when deciding which term babies to LP.

**REFERENCES**

PO-0571 Pathogens And Empiric Treatment Of Sepsis In A Neonatal Intensive Care Unit

S Ucar, M Firat, M Varma and T Sayici

Arch Dis Child 2014 99: A437-A438
doi: 10.1136/archdischild-2014-307384.1212

Updated information and services can be found at: http://adc.bmj.com/content/99/Suppl_2/A437.4

These include:

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Topic Collections
Articles on similar topics can be found in the following collections

- Epidemiologic studies (1818)
- Neonatal and paediatric intensive care (388)
- Neonatal intensive care (229)
- Drugs: infectious diseases (965)

Notes

To request permissions go to: http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to: http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to: http://group.bmj.com/subscribe/