

## Early Age and Haematology and Oncology

O-037

**SHORT-TERM EFFECTS OF RED BLOOD CELL TRANSFUSION ON HEPCIDIN CONCENTRATION IN PRETERM INFANTS**

<sup>1</sup>L Lorenz, <sup>1</sup>KM Müller, <sup>1</sup>CF Poets, <sup>2</sup>A Peter, <sup>3</sup>G Olbina, <sup>3</sup>M Westerman, <sup>1</sup>AR Franz. <sup>1</sup>Department of Neonatology, University Children's Hospital Tübingen, Tübingen, Germany; <sup>2</sup>Department of Internal Medicine Division of Endocrinology Metabolism Pathobiochemistry and Clinical Chemistry, University of Tübingen, Tübingen, Germany; <sup>3</sup>The Biolron Company, Intrinsic LifeSciences, La Jolla, USA

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**Background and aims** Hepcidin, which acts as a negative feedback regulator of iron homeostasis, may in future serve as a non-invasive iron status parameter to monitor iron supplementation in preterm infants. For this, coexisting influencing factors should be taken into account. Our objective was to evaluate in preterm infants whether red blood cell (RBC) transfusions have a short-term effect on hepcidin concentrations in serum (Hep<sub>(S)</sub>) and urine (Hep<sub>(U)</sub>).

**Methods** Prospective observational study including very preterm infants receiving RBC transfusions. The concentration of the mature, 25 amino-acid form of hepcidin was determined in serum and urine by enzyme-linked immunosorbent assay together with cellular indices before and after RBC transfusion.

**Results** The study was conducted between May 2009 and September 2010 at Tübingen University Hospital. 20 preterm infants born at a mean gestational age of 26.0 (interquartile range: 24.9–27.4) weeks and with a mean postnatal age of 30.8 (interquartile range 29.9–32.1) days received 27 RBC transfusions. When measured shortly after transfusion (mean 10 h), hematocrit values increased from a median of 26.6% (SD 2.8) to 40.9% (SD 3.2;  $p < 0.0001$ ); Hep<sub>(S)</sub> also increased (geometric mean: 44.3 ng/mL (95% confidence interval: 30.8–63.8) vs. 58.0 ng/mL (95% confidence interval: 35.7–94.3;  $p < 0.05$ ) but Hep<sub>(U)</sub> remained unaffected.

**Conclusion** These data indicate a short-term effect of RBC transfusions on serum hepcidin concentrations in preterm infants. Further longer-term observational studies are needed to understand the dynamics of hepcidin regulation in preterm infants.

O-038

**POLYUNSATURATED FATTY ACID COMPOSITION OF BREAST MILK FROM EASTERN CANADIAN MOTHERS OF PRETERM INFANTS**

<sup>1</sup>M Héon, <sup>1</sup>C Goulet, <sup>2</sup>C Garofalo, <sup>2</sup>AM Nuyt, <sup>2</sup>E Lev. <sup>1</sup>Faculté Des Sciences Infirmières, Université de Montréal, Montreal, Canada; <sup>2</sup>Research Centre, CHU Sainte-Justine, Montreal, Canada

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**Background and aim** Polyunsaturated fatty acids (PUFAs) are essential for early human neurodevelopment. Since breast milk represents the main dietary source of PUFAs for preterm infants, its fatty acid composition is of particular interest. Breast milk fatty acid composition fluctuates from one woman to another, by duration of gestation and stage of lactation, and among countries.

As PUFA composition of breast milk from Western Canadian mothers of preterm infants has been previously described, the aim of this pilot study was to describe the compositional variations of PUFAs in breast milk of Eastern Canadian mothers of preterm infants over the first 6 weeks of lactation.

**Methods** Samples of breast milk were collected on the 7th, 21st, and 42nd day of lactation from 40 Eastern Canadian mothers who had given birth to preterm infants of gestational age less than 30 weeks. Lipids were extracted using the Folch method (Folch *et al.*, 1957). Thereafter, the method of direct transesterification was performed (Lepage and Roy, 1986) and PUFAs were quantified by gas chromatography.

**Results** Throughout the study, fatty acids from the n-3 and n-6 families, linoleic acid (C18:2n-6),  $\alpha$ -linolenic acid (C18:3n-3), and eicosapentaenoic acid (C20:5n-3) remained stable, whereas arachidonic acid (C20:4n-6) and docosahexaenoic acid (C22:6n-3) decreased significantly.

**Conclusion** Results on the compositional variations of PUFAs in breast milk over the first weeks of lactation are somewhat similar to results of previous European studies. However, values of PUFAs in preterm breast milk of Eastern Canadian mothers are lower than those of Western Canadian mothers.

O-039

WITHDRAWN

## End of Life

O-040

**END-OF-LIFE DECISION MAKING – PAEDIATRIC INTENSIVISTS' AND NONINTENSIVIST PAEDIATRICIANS' ATTITUDES**

<sup>1</sup>S Grosek, <sup>2</sup>M Orazem, <sup>3</sup>M Kanic, <sup>4</sup>G Vidmar, <sup>5</sup>U Groselj. <sup>1</sup>Pediatric Surgery and Intensive Therapy, University Medical Centre Ljubljana, Ljubljana, Slovenia; <sup>2</sup>Faculty of Medicine, University of Ljubljana, Ljubljana, Slovenia; <sup>3</sup>Department for Rhythmology, Heartcenter Leipzig, Leipzig, Germany; <sup>4</sup>Department for Research, University Rehabilitation Institute of the Republic of Slovenia, Ljubljana, Slovenia; <sup>5</sup>Department of Paediatric Endocrinology Diabetes and Metabolic Diseases, University Children's Hospital University Medical Center Ljubljana, Ljubljana, Slovenia

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**Objective** To describe the attitudes at the end-of-life decision (EOLD) making among Slovene paediatricians.

**Design** A cross-sectional survey using questionnaire and case scenario.

**Setting** Paediatric Health Care Institutions in Slovenia.

**Participants** Paediatric intensivists, specialists and residents in paediatrics.

**Interventions** None.

**Main outcome measures** Differences between attitudes regarding EOLD.

**Results** 323 participants of registered paediatricians in Slovenia 586 (55.1%) were included. The response rate was 46.7% (151 of 323 paediatricians) or 25.8% (151 of 586 of registered paediatricians). The decision to limit life-sustaining treatment at (LST) the end-of-life was ethically acceptable among Slovene paediatricians. The highest consent was found among residents 90.2%, followed by 83.3% of intensivists and 73.8% of specialists. Ethical differences between withholding and withdrawing were found in all three groups found, though intensivists agreed on this issue the least, in only 25.1%, while specialists and residents consented almost evenly, 40.0% and 40.7%, respectively. Answers on attitudes of EOLD did not show any statistical differences. 28.3% of specialists would follow do-not resuscitate order in comparison to 59.1% and 64.2% of intensivists and residents. The majority of participants answered that religious and cultural beliefs of paediatricians should not be considered in

EOLD. In the presented case scenario intensivists would wait with the EOLD until the morning meeting and continue full treatment in contrast to specialists and residents.

**Conclusions** No major differences were found among paediatricians on attitudes about EOLD, while in case scenario intensivists were found to be more cautious in EOLD.

## Enteral Nutrition

### 0-041 **INTESTINAL MICROBIOTA DIVERSITY IN PREMATURE NEONATES AFTER SUPPLEMENTATION WITH PROBIOTIC LACTOBACILLUS AND BIFIDOBACTERIUM**

<sup>1</sup>B Smith, <sup>1</sup>H Mirsepasi, <sup>1</sup>S Schjørring, <sup>2</sup>TH Skov, <sup>3</sup>IDL Jensen, <sup>3</sup>G Greisen, <sup>4</sup>KA Krogfelt. <sup>1</sup>Microbiology and Infection Control, Statens Serum Institut, Copenhagen, Denmark; <sup>2</sup>Department of Food Science Faculty of Life Sciences, University of Copenhagen, Copenhagen, Denmark; <sup>3</sup>Department of Neonatology, Rigshospitalet, Copenhagen, Denmark; <sup>4</sup>Microbiology and Infection Control, Statens Serum Institute, Copenhagen, Denmark

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**Purpose** Routine probiotic supplementation with Bifiborm® (*Lactobacillus rhamnosus* and *Bifidobacterium lactis*) in infants with gestational age below 30 weeks was introduced in April 2010 at the Department of Neonatology, Rigshospitalet to reduce the risk of NEC. We aimed to investigate the presence of the probiotic agents as well as potential changes in the total microbiota in the stools collected in two cohorts of infants, before and after the introduction of routine probiotics.

**Methods** The first cohort ("control cohort") was recruited from September 2006 to January 2009; the second cohort ("probiotic cohort") was recruited from May 2010 to October 2011. Stool samples were collected by nurses as part of routine care at postnatal day 0–5 (sample 1), day 10 (sample 2) and day 30 (sample 3). The total number of samples was 446 in the control cohort and 225 in the probiotic cohort. All the stool samples were examined by conventional culture, tested by PCR for the 16S DNA of the two probiotic agents, as well as denaturing gel gradient electrophoresis (DGGE). The band patterns from DGGE were subjected to principal component analysis (PCA).

**Results** In the probiotic cohort 82% was PCR positive for *L. rhamnosus*, 34% was positive for *B. lactis* in contrast to 6% and 3% in the control cohort. The PCA from the DGGE results did discriminate the two groups with a  $p < 1^{-70}$ . This was dominantly caused by a strong first component representing mainly the total of number of bands, with no dominant pattern. Culture showed also a higher number of organisms ( $pp < 1^{-22}$ ) with no specific bacteria.

**Conclusion** *L. rhamnosus* and *B. lactis* are not naturally present in the stool of neonates. Administration of probiotics resulted in the presence of the probiotic organisms in the stools and more importantly a profound increase in diversity of the intestinal microbiota. No specific bacteria were seen to be favoured by the probiotic supplementation.

### 0-042 **GASTRIC RESIDUALS IN PRETERM INFANTS AS PREDICTOR OF TOLERANCE TO EARLY ENTERAL FEEDS (GRIP TRIAL)**

S Thomas, B Singh, N Rochow, L Chessell, J Wilson, K Cunningham, P Murthy, C Fusch. Neonatal Perinatal Medicine, McMaster Children Hospital, Hamilton, Canada

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**Background** Evidence is inconsistent to support checking gastric residual volumes (GRv) in predicting feeding intolerance in preterm infants. GRv remains standard practice in guiding feeding advancement in several neonatal centres. We hypothesises that this practice delays establishment of full enteral feeding with associated complications.

**Aims** The effect on time to reach full feeds (120 ml/k/day) with not checking GRv in advancing feeds in preterm infants.

**Methods**

**Design** Single Centre, unmasked, parallel armed RCT

**Inclusion criteria** Infants recruited within 48hrs of birth with birth weight (BW)  $\geq 1500$  grams  $\leq 2000$  grams.

**Exclusion criteria** Major congenital malformations, asphyxia and BW  $\leq 3^{\text{rd}}$  percentile

**Randomization** Variable number blocks stratified by BW

**Study intervention** GRv assessed only with bloody aspirates or with vomiting and abnormal abdominal examination.

**Control** GR volume assessed routinely with feeding advancement

**Results** 86 infants with BW  $1750 \pm 140$  g and gestational age  $32.1 \pm 1.5$  weeks were enrolled. There was no difference in time to reach full feeds with both groups. Enteral feeds 120 mL/kg/d were achieved at DOL  $5.9 \pm 1.7$  and  $5.7 \pm 1.8$  in study and control group respectively. There was no difference in episodes of feeding interruptions, incidence of sepsis, reaching BW, and 120% of BW between two groups. However, two infants in the control group developed NEC.

**Conclusions** Not checking GRv while advancing feeds in late preterm infants did not statistically reduce the time to achieve full enteral feeds however there were no adverse events noted with this practice. This study should be done in VLBW babies where GRv is a major hurdle to feeding advancement.

## Gastroenterology I

### 0-043 **HELPING BABIES BREATHE (HBB) TRAINING IN ROMOTE AREAS OF CHINA: EDUCATIONAL IMPACT OF A PILOT TRAINING WORKSHOP**

<sup>1</sup>Q Yue, <sup>1</sup>T Xu, <sup>1</sup>HS Wang, <sup>1</sup>LM Gong, <sup>2</sup>DH Wang, <sup>3</sup>LX Wang, <sup>4</sup>M Jiang, <sup>5</sup>SW Xia, <sup>1</sup>T Zhang. <sup>1</sup>Child Health Department, National Center for Women and Children's Health China CDC, Beijing, China; <sup>2</sup>Pediatrics, Peking Union Medical Colledge Hospital, Beijing, China; <sup>3</sup>Obstetrics, Global Care Women and Children's Hospital, Beijing, China; <sup>4</sup>Obstetrics, Beijing Obstetrics and Gynecology Hospital, Beijing, China; <sup>5</sup>Neonatology Department, Hubei Province Women and Children's Health Care Hospital, Beijing, China

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**Background and aims** Helping Babies Breathe (HBB) is an evidence-based educational program which teaches the simple and essential steps that effectively resuscitate the majority of infants not breathing at birth. This study aims to evaluate the training effectiveness of HBB program in remote areas of China.

**Methods** Based on the HBB educational materials of American Academy of Paediatrics (APP), a two-day intensive training workshop was carried out by sufficient master trainers among 73 healthcare providers from county level hospitals of Tibet and Sichuan province in 2013. The neonatal resuscitation (NR) knowledge of trainees and their self-confidence to complete NR were evaluated and compared before and after training. Bag and mask ventilation skills (BMVS) and objective structured clinical