

Nutrition for the most unwell babies

Sixth Neonatal Nutrition Network study day, London, 13 June 2019

The N3 (Neonatal Nutrition Network) is a national group of health professionals dedicated to improving feeding and nutrition for premature and sick babies. The group organises an annual study day to explore a range of nutritional topics, which this year included recent research and current viewpoints on enteral and parenteral nutrition and the management of common gastrointestinal conditions. The study day was attended by over 100 health professionals including doctors, nurses, dietitians, pharmacists and other therapists from across the country and was organised by Dr Angela Huertas (Consultant Neonatologist, University College London Hospital, UCLH) and chaired by Dr Nick Embleton (Consultant Neonatologist, Royal Victoria Infirmary Newcastle, and current chair of the N3). Fresenius Kabi, Chiesi, Baxter, Medela and Bliss kindly supported the event, which was approved for CPD by the Royal College of Paediatrics and Child Health.

The first lecture, by Dr Embleton, discussed the importance of nutrition and investigated the incredibly high energy requirements of preterm babies in the neonatal unit. Dr Embleton discussed just how crucial good nutrition is to survival and neurodevelopment. He also discussed how he encourages use of the dietetic ABCDE approach to nutrition on the ward by the medical team:¹

- A = anthropometry
- B = bloods/biochemistry
- C = clinical
- D = dietary intake
- E = evaluation.

Next was an update on current nutritional research by Dr Colin Morgan (Consultant Neonatologist, Liverpool Women's Hospital). Dr Morgan assessed the latest research looking at amino acid dosages in parenteral nutrition, including recent work in paediatric intensive care that has suggested a possible risk in term neonates,² critically analysing the quality of these studies.

Dr Laura De Rooy (Neonatal Consultant, St George's Hospital, London) and Dr Helen Mactier (Neonatal



A full auditorium at the sixth Neonatal Nutrition Network study day.



Dr Colin Morgan.

Consultant, Princess Royal Maternity Hospital, Glasgow) explored the latest guideline on parenteral nutrition from ESPGHAN,³ comparing this to previous guidance from other bodies. Dr Pam Cairns (Neonatal Consultant, St Michael's Hospital, Bristol) and Pam Stepney (Senior Neonatal Dietitian, UCLH) followed. They considered the variable digestion and absorption of breast milk and formula feeds. Their talks covered the complex comparisons between different formula milks and different breast milks, including donor milk, and the changes in maternal milk over time. The degree of variation in bioactive proteins, growth factors, microbiome constituents, macronutrients, hormones, enzymes, cells and human milk oligosaccharides, means that decisions between them are not simple.

Susan Spencer from the charity NEC



Dr Helen Mactier.

UK⁴ introduced a mini-symposium on necrotising enterocolitis (NEC). Susan told the audience about her very personal and moving experience of the disease. An interactive quick-fire collection of talks on different aspects of NEC prevention and management followed, presented by neonatal consultants Dr Christopher Gale (Chelsea and Westminster NHS Foundation Trust), Dr Janet Berrington (Newcastle Hospitals NHS Foundation Trust) and Dr Paul Fleming (Homerton University Hospital). Each attempted to elucidate some of the more complex aspects of NEC where there are no clear answers:

- should we stop feeding during blood transfusions?



The workshop on parenteral nutrition.

- should we still be measuring gastric residual volumes?
- how do we define NEC and spontaneous intestinal perforation?
- do early antibiotics increase or reduce the risk of NEC?
- could probiotics be helpful in preventing NEC?
- what is the relationship between NEC and food protein induced enterocolitis syndrome?

In the afternoon, delegates could attend two of the five workshops:

1. Feeding after discharge – can we use a fortifier shot?
2. The surgical post-NEC baby. When should we replace the stoma losses? What formula to give? Can we give fortifiers?
3. Parenteral nutrition trouble shooting – BAPM/NICE guidelines, SCAMP and NEON.
4. Standardisation of abdominal X-ray interpretation for NEC – learn the tips and radiological signs.
5. Transition to oral feeds: the roles of the neonatologist, dietitian, speech and language therapist, physiotherapist, occupational therapist and neonatal nurse.

The afternoon concluded with a guest lecture by Gillian Kennedy (Consultant Neonatal Speech and Language Therapist at UCLH). Gillian’s presentation considered the multifaceted bidirectional signalling in the gut/brain axis, and how


Authors	Title
Albert V, Huertas A, Kortsalioudaki C, Aldeiri B, Fullerton L, Eaton S, Curry J	Necrotising enterocolitis scoring system in preterm infants: an early warning score before discontinuing enteral feeds
Blair H, Payne A	Parenteral nutrition practice for preterm infants on neonatal units in Scotland
Bramer S, Weaver G, Boyle R, Shenker N	The use of donor human milk beyond the extremely preterm infant
Brennan AM, Murphy BP, Fenton S, Wilkinson J, Kiely ME	Data-driven standardised parenteral nutrition for preterm infants: from concept to cot-side
Duncan E, Smee N, Granger C, Bradnock T, Simpson J	Stoma associated morbidity in the preterm infant
Levene I, Denton G, O’Brien F	Expressing milk within two hours of preterm delivery is associated with improved long-term yield 
Levene I, McCormick K	Improved growth of extremely and very preterm babies. A human milk-centred nutritional care package
McCarthy E, Dempsey E, Kiely M	Iron supplementation in preterm and low birthweight infants: a systematic review of intervention studies
Musson R, Blythe C	Can delivery of a targeted training package to neonatal staff increase their confidence in teaching maternal hand expression of milk?

TABLE 1 The poster presentations.

important nutrition can be to ensure this relationship develops appropriately in the abnormal environment of the neonatal unit.

The meeting included a display of posters (TABLE 1) and a prize was awarded on the day for the best poster. The winning poster was by Dr Ilana Levene, Gillian Denton and Dr Frances O’Brien from John Radcliffe Hospital, Oxford. Their work on optimal milk expression in mothers of preterm babies to maximise long-term milk yield will be published in the next issue of *Infant* and they receive a free place at next year’s N3 study day.

References

1. Embleton N. Neonatal research. Online at: www.neonatalresearch.net/
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term neonates: a preplanned secondary subgroup analysis of the PEPaNIC multicentre, randomised controlled trial. *Lancet Child Adolesc Health* 2018;2:505-15.

3. van Goudoever JB, Carnielli V, Darmaun D, et al. ESPGHAN/ESPE/ESPR/CSPEN guidelines on pediatric parenteral nutrition: Amino acids. *Clin Nutr* 2018;37:2315-23.
4. NEC UK. Online at: www.necuk.org.uk

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Save the date: the provisional date for next year’s N3 Study Day is 18 June 2020.

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