

# Optimising feeding and nutrition for preterm infants

Fifth Neonatal Nutrition Network Study Day, London, 14 June 2018

Care for preterm babies is complex and nutritional deficits can be overlooked if attention is not paid to ensuring that the best possible nutrition is provided. The N3 (Neonatal Nutrition Network) is a national group of health professionals who are dedicated to nutritional research with the aim of optimising feeding and nutrition for preterm infants. For the fifth year the N3 delivered its fantastic annual study day in London, which was attended by over 100 professional delegates including doctors, dietitians, nurses and pharmacists from all over the country.

The event was organised by Consultant Neonatologists Angela Huertas (University College London Hospital, UCLH), Ann Hickey (King's College Hospital, London) and Nick Embleton (Royal Victoria Infirmary Newcastle, Reader at Newcastle University and current Chair of N3). Approved for continuing professional development by the Royal College of Paediatrics and Child Health, the aim of the day was to deliver research-based education with lectures given by experts in the morning, and shared best practice in interactive group workshops in the afternoon. The day was supported by Fresenius and Baxter.

After a short introduction to the N3 by Pam Cairns (Consultant Neonatologist at St Michael's Hospital, Bristol), Dr Embleton gave a very informative lecture on the importance of early nutrition, the need for monitoring, and the role of caloric intake in relation to protein intake. He raised awareness about the relative invisibility of malnutrition in the early stages of the preterm stay in the neonatal intensive care unit and described the cumulative effect of deprivation on brain growth. He finalised his talk with a comparison between the two largest UK trials on parenteral nutrition: SCAMP (standardised, concentrated, additional macronutrients, parenteral nutrition in very preterm infants) and NEON (nutritional evaluation and optimisation in neonates), emphasising the need for further



Professor Tim Cole.

research. His presentation slides can be viewed at [www.neonatalresearch.net](http://www.neonatalresearch.net)

The second lecture was given by Janet Berrington (Consultant Neonatal Pediatrician at Newcastle Hospitals NHS Foundation Trust and Clinical Senior Lecturer from Newcastle University). Dr Berrington summarised for the audience the latest research on probiotics and similar interventions in preterm babies and described in detail the recently completed Elfin study, a multi-centered randomised placebo-controlled trial of prophylactic enteral lactoferrin supplementation to prevent late onset invasive infection in very preterm infants. Lactoferrin is a major whey protein bioactive component of breast milk and has a direct effect on gut epithelial tight junctions. The preliminary results of the trial show no differences in late onset sepsis or necrotising enterocolitis (NEC). Although with negative results, this trial is an example of outstanding quality of research aimed at providing evidence in this field.

The one-million-dollar question – how do we start and increase feeds? – was answered by Jon Dorling (Consultant Neonatologist at Queen's Medical Centre and Professor of Neonatal Medicine at Nottingham University). He presented a



Dr Pam Cairns and Dr Nick Embleton.

session filled with meta-analyses and reviews, interpreted for the audience in a way that was easy to understand. He finished his talk with the results of the recent SIFT (speed of increasing milk feeds) trial. He described trials on breast milk vs formula vs fortified milk continued with oropharyngeal colostrum, and mentioned the positive effect on progressing to full feeds. He discussed donor milk and the controversy about the studies carried out before pasteurisation and fortification. The outcome of the SIFT study has so far shown that faster feeds of 30mL/kg/day, as opposed to 18mL/kg/day, show no evidence of harm (death, NEC or early-onset sepsis), and achieve full feeds quicker. Data can be seen in the latest Cochrane review on prevention of NEC.<sup>1</sup>

'NEC: the one disease that is many', a phrase coined by Professor Phillip Gordon,<sup>2</sup> was the starting point of the lecture given by Paul Fleming (Consultant Neonatologist Homerton Hospital and

Senior Clinical Researcher at National Institute for Health Research). Dr Fleming's talk was innovative, provocative and packed with informative detail. He explained the temporality of NEC with its peak at 30-32 weeks' corrected gestational age, and detailed the pathogenesis of the condition. On management, he reminded the audience that prevention is better than cure, ie breast milk, the rational use of antibiotics, steady increments of feeds, and early establishment of feeds. Evidence on probiotics is unclear at present.

The last lecture of the morning was given by Joe Curry (Consultant Paediatric Surgeon at UCLH and Great Ormond Street Hospital) on the topic of what's next when a baby is too preterm to safely suck and swallow or is too sick that it cannot be orally fed? Mr Curry gave a comprehensive review on the different routes for enteral feeding in babies. With excellent illustrations and pictures, he presented all kinds of methods and went through the benefits and risks for each one.

After lunch, delegates could choose two out of the following five afternoon hot topic workshops, led by expert neonatal dietitians and neonatologists, where the focus was to facilitate shared learning to improve best practice.

#### 1. Early feeding – what, when and how?

Led by Caroline King (Neonatal Dietitian at Imperial College London) and Shazia Hoodbhoy (Consultant Neonatologist at The Rosie Hospital, Cambridge).

#### 2. The ins and outs of rolling out standard parenteral nutrition.

Led by Lynne Radbone (Lead Paediatric Dietitian for East of England Network) and Colin Morgan (Consultant Neonatologist at Liverpool Women's Hospital).

#### 3. How to interpret abdominal X-rays when NEC is on the menu.

Led by Joe Curry and Angela Huertas.

#### 4. What is the best way of feeding a baby



Professor Jon Dorling.

**after bowel surgery?** Led by the King's College Hospital team including Kate Arnold (Paediatric Dietitian), Anne Hickey and Jonathan Hind (Consultant Paediatric Hepatologist).

#### 5. How to set up a nutrition round in your neonatal unit.

Led by Chris Forster (Consultant Neonatologist at Leeds University Hospital) and Laura De Rooy (Consultant Neonatologist at St George's Hospital, London).

Tim Cole (Professor of Epidemiology at the Institute of Child Health, London) was the guest lecturer. He described the evidence behind the current growth charts used in neonatal units – the Neonatal and Infant Close Monitoring (NICM) and the Intergrowth charts – and commented on his SITAR growth curves. SITAR stands for super-imposition by translation and rotation, adjusting for size, tempo and velocity (mean weight, growth velocity and time to regain birth weight). In a fascinating talk he went through definitions and facts about the ideal growth expected of a preterm baby and left the audience wondering whether this should be similar to intrauterine growth or not.

### N3 Study Day 2019

A provisional date of 13 June has been set for next year's N3 study day in London. All staff managing babies in neonatal units are encouraged to attend. There will be a poster exhibition with a prize for the best poster: publication in *Infant* and free registration for N3 2020. To find out more and to submit your poster abstract contact shirine-elise.yasse@nhs.net no later than 1 May 2019.

### Reference

1. **Oddie SJ, Young L, McGuire W.** Slow advancement of enteral feed volumes to prevent necrotising enterocolitis in very low birth weight infants. *Cochrane Database Syst Rev* 2017: CD001241 doi: 10.1002/14651858.
2. **Khashu M.** SIGNEC UK and the First International Conference on Necrotising Enterocolitis. *Infant* 2013;9:197-200.

### By Pam Stepney

Senior Specialist Neonatal Dietitian

### Angela Huertas

Consultant Neonatologist

University College London Hospital

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