



Highlights from this issue

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As we continue our plan to make the journal fatter in terms of articles per issue, it becomes increasingly difficult to choose which articles to highlight in Fantoms without leaving out lots of interesting content.

NUTRITION

There is a strong nutritional theme running through this issue. As Editor's choice, Edward Andrews *et al* demonstrate through their implementation of a nutritional intervention that early post-natal growth failure in preterm infants is not inevitable. In 396 infants born before 32 weeks gestation they were able to show that implementation of nutritional guidelines by a multidisciplinary nutrition team, including the use of early parenteral nutrition and breast milk fortification, delivering nutrient intakes in line with internationally recognised recommendations, avoided postnatal weight loss and allowed most infants to achieve growth approximating their birth weight centile. They provided a mean protein intake of 3.7g/kg/day during the first 2 weeks after birth. The authors highlight a need to understand the relationship between early postnatal growth and longer-term outcomes in this population. An accompanying editorial by Gopi Menon and colleagues discusses the difficulties of assuming that postnatal growth in preterm infants should track the birth weight centiles and the uncertainty about weight as a global measure of growth. The risks of metabolic programming and later cardiovascular disease must be considered, as well as concerns that early parenteral nutrition may increase sepsis risks. Beneficial effects of nutrition on brain growth may be offset by other adverse consequences. They call for adequately powered large scale trials with functional outcomes that are meaningful to children and families. *See pages F235 and F232.*

Shalini Ohja and colleagues consider the issue of nutrition for infants being treated with hypothermia for hypoxic ischaemic encephalopathy. In their editorial they describe international variation in practice with regard to both enteral and parenteral nutrition during therapeutic hypothermia. Enteral feeding during treatment was largely avoided in the hypothermia trials. Observational data now suggest that feeding is well tolerated during hypothermia and may

have a protective effect on the gastrointestinal tract. Use of parenteral nutrition is quite widespread in these infants, without evidence of benefit, and it has been learnt from trials of early parenteral nutrition in paediatric and adult intensive care that there is potential for harm through increased sepsis risk. A large National Institute for Health Research (NIHR) funded study 'Optimising newborn nutrition during therapeutic hypothermia' will increase knowledge in this area by studying the treatment and outcomes of several thousand infants who were treated with hypothermia in the United Kingdom and who have data in the National Neonatal Research Database. *See page F230.*

In a systematic review of human and animal studies, Zoe-Marie Ellis and colleagues identified 10 human studies including 618 infants reporting the influence of feed osmolality or osmolality (the paper will tell you the difference) on adverse outcome. Differences in study methodology meant that meta-analyses were not performed. The authors identified no consistent evidence that differences in feed osmolality in the range 300–500mOsm/kg, attributable to milk fortification, are associated with adverse gastrointestinal symptoms in neonates. The strength of the conclusions that can be drawn is limited by the quality of the data. The authors point out that future RCTs would need to enrol >1000 infants to be powered to determine effects on key morbidities such as NEC or sepsis. *See page F333.*

Yangmei Li and colleagues report a pre-planned secondary analysis of observational data from the Nutritional Evaluation and Optimisation in Neonates (NEON) trial. Measurements of body composition at term equivalent age were compared between preterm infants who were exclusively breast fed and those who were predominantly formula fed. Compared with the exclusively breast fed infants, predominantly formula-fed infants weighed 283g more, and had 257g more non-adipose tissue mass, possibly due to differences in protein intake. *See page F306.*

Chonnikant Visuthranukul and colleagues report growth and metabolic outcomes after discharge in preterm AGA and SGA infants who were fed an exclusively human milk diet based on maternal breast milk, donor

human milk and fortifier derived from human milk while in the neonatal unit. *See page F242.*

HYDROPS FETALIS

Damien Gilby and colleagues provide detailed information about the outcomes of hydrops fetalis in 131 cases accumulated in a single Australian perinatal centre over 12 years. Mean gestation at diagnosis was 24 weeks and at birth was 33 weeks. In 29% there was a termination of pregnancy. 50% were born alive. Survival to discharge home was 27%. All the infants whose hydrops had resolved by the time of delivery survived. In idiopathic cases survival was 22%. *See page F253.*

BLOOD PRESSURE INTERVENTION TRIAL

Few areas of neonatal practice are less well evidenced than the treatment of hypotension. Strong perceptions regarding the need for treatment make this a difficult area for trials to penetrate. A pilot randomised trial by Sujith Stanley Pereira and colleagues is a welcome demonstration that such trials should be considered feasible. Of 134 screened cases with gestation at birth <29 weeks gestation in a single centre, they were able to randomise 60 infants to a 3-arm trial with different treatment thresholds. Meaningful separation between groups in treatment exposure was achieved but was less than anticipated. *See page F298.*

GASTROINTESTINAL SEQUELAE AFTER SURGERY FOR NECROTISING ENTEROCOLITIS

There is a wealth of information in this systematic review by Eva-Maria Hau and colleagues. They identified 58 studies which enrolled 4260 patients. Sequelae occurred in a quarter of patients with wide variation in prevalence. *See page F265.*

ANOTHER KIND OF MIST FOR SURFACTANT TREATMENT?

Stefan Minocchieri and colleagues report preliminary experience treating RDS with nebulised surfactant in preterm infants. 64 infants were randomised to bubble CPAP alone or bubble cpap plus surfactant administration by a vibrating membrane nebuliser. Nebulised surfactant treatment was associated with a reduced requirement for intubation and ventilation. *See page F313.*