



Highlights from this issue

Ben J Stenson, *Edition Editor*

LOW GRADE INTRAVENTRICULAR HAEMORRHAGE AND CEREBRAL PALSY

Nicky Hollebrandse and colleagues describe the neurodevelopmental outcomes at 8 years of almost 500 extremely preterm infants born before 28 week's gestation and relate these to the presence and severity of intraventricular haemorrhage (IVH) that was identified in the newborn period. It is particularly valuable that they achieved 91.4% follow-up of so many patients and to an age when assessments can be more detailed. When no IVH was identified, cerebral palsy was observed in 8% of the infants and impaired academic ability in 16%. With grade 1 and 2 IVH, cerebral palsy increased to 15% and 18% respectively, with no increase in the risk of impaired cognitive outcomes. With more severe IVH, risks of cerebral palsy and cognitive impairment increased further. Around 5% of the infants with grade 1 and 2 IVH developed cystic periventricular leukomalacia (PVL) later. The authors did not control for this and they considered it possible that IVH could be part of the causal pathway for this lesion. The infants did not have MRI scans. Later ultrasound detectable PVL could account for some but not most of the observed cerebral palsy in infants with low grade IVH. Nohaa Gorma and Stephen Miller highlight the prime importance of school age outcomes over earlier measures. They emphasise the need to investigate interventions during and beyond the neonatal period, including the social environment and support provided to families, if we are to optimise the outcomes for these children. *See pages F4 and F2*

DIFFUSE EXCESSIVE HIGH SIGNAL INTENSITY (DEHSI) ON TERM EQUIVALENT MRI SCAN IS NOT PREDICTIVE OF LATER COGNITIVE ABNORMALITY OR CEREBRAL PALSY

There have been a number of papers in the journal recently looking at the relationship between MRI scan findings at term and outcome in preterm infants. Chandra Prakash Rath and colleagues performed a meta-analysis of studies evaluating the significance of DEHSI. They included 1832 preterm infants who had MRI scans at term equivalent age and assessments of cognitive ability and cerebral palsy using

validated instruments. at 1 year of age or older. DEHSI was common and was not a useful predictor of either cognitive outcome or cerebral palsy. *See page F9*

OPAQUE WRAPS AND PULSE OXIMETER READINGS

Prakash Kannan Loganathan and colleagues investigated whether the use of an opaque wrap over the pulse oximeter probe affected the performance of the pulse oximeter in 96 clinically stable newborn infants. They were interested in the speed with which the oximeter displayed valid data and the distribution of the SpO₂ readings obtained. They evaluated this for Masimo and Nellcor oximeters. The use of the opaque wrap had no important effect on the performance of either oximeter type. For the study period the infants were monitored simultaneously using both a Nellcor and a Masimo oximeter, permitting a comparison of the readings between the two devices as an interesting additional finding. The mean SpO₂ obtained with the Masimo oximeter was 2.85% higher than the mean SpO₂ simultaneously obtained with the Nellcor oximeter. The infants were clinically stable and this difference was observed when readings were typically in the low to mid 90s. Both devices are providing an estimate of the arterial oxygen saturation and neither should be considered a gold standard over the other. However a difference in the apparent calibration of the two devices of this magnitude demonstrated in a reasonably large comparison in the key region of clinical interest for newborn infants could have important clinical implications as the devices are used interchangeably for a range of clinical indications related to specific SpO₂ ranges. *See page F57*

PRETERM BIRTHS DURING LOCKDOWN

Gitte Hedermann and colleagues were among the first to report observational data from the COVID-19 lockdown period suggesting a reduction in the number of extremely preterm births. In comparison with the same time period during the preceding 5 years there were significantly fewer extremely preterm deliveries in Denmark during lockdown, with no change in total deliveries. Similar

observations have been reported from elsewhere and raise questions about the contributing factors, which will be a rich source of new research as larger population datasets become available for analysis. Wouldn't it be nice if slowing the pace of life for pregnant women is enough to improve pregnancy outcomes? It is unlikely that the findings will be the same in all datasets because the degree of lockdown will be variable and the extent to which important healthcare delivery is disrupted could have an adverse impact. *See page F93*

FETAL HAEMOGLOBIN LEVELS AND BRONCHOPULMONARY DYSPLASIA

William Hellstrom and colleagues analysed the fetal haemoglobin (HbF) levels on almost 12 000 blood gas samples taken during the first week of life in 452 preterm infants born before 30 week's gestation. They found that infants whose HbF levels fell the most during week one after birth were at highest risk of bronchopulmonary dysplasia (BPD). They also analysed arterial PO₂ levels and these were significantly lower in the infants who developed BPD, suggesting that the observation does not relate to simply to an effect mediated through changes in oxygenation. They hypothesise that the higher falls in HbF reflect sampling losses and replacement by transfusion and that there is a loss of endogenous blood components that are essential for normal organ development, such as insulin-like growth factor 1. The authors are investigating the potential beneficial role of minimising the loss of endogenous blood components in an ongoing multicentre randomised trial using microsampling methods to greatly reduce sampling losses. *See page F88*

BOWEL ULTRASOUND IN THE MANAGEMENT OF NECROTISING ENTEROCOLITIS

Karen Alexander and Colleagues provide a comprehensive overview of the use of bowel ultrasound scanning in the investigation and management of infants with suspected or confirmed necrotising enterocolitis. There are lots of images of key features and the article will be of value to anyone increasing their use of this technique or introducing it. *See page F96*