

Ben J Stenson, *Edition Editor***WHEN TO TREAT WITH SURFACTANT?**

More than 30 years after surfactant treatment came into widespread use for preterm infants there is still a lot of variation in practice. Thresholds for treatment in infants who are stabilised on non-invasive respiratory support vary widely. Having been involved in discussions about trial protocols relating to respiratory support and outcomes I know that our long and tortuous journey of treatment preferences means that this is an area where there are strongly held views and limited equipoise. Aoife Branagan and colleagues report a network meta-analysis of randomised trials of different treatment strategies. They found no convincing evidence to support any particular FiO_2 threshold for deciding on treatment. They reviewed 14 trials that enrolled 5298 participants and found no evidence to prefer a threshold of 30, 40 or 50% oxygen. There was limited evidence that morbidity may be increased at a threshold of 60%. David Sweet discusses the paper and the wider literature in an accompanying editorial and gives the rationale for the European Guidelines for the management of RDS published in 2022, of which he was an author, recommending treatment for worsening babies with RDS when $\text{FiO}_2 > 0.30$ on CPAP pressure ≥ 6 cm H_2O or if lung ultrasound suggests surfactant need. The paper and the editorial highlight the need for further evidence now that non-invasive respiratory support from birth is the widely preferred treatment strategy. Surfactant administration techniques are now less invasive than before, but they are not non-invasive. We need to determine whether prophylactic less invasive surfactant treatment is superior to rescue treatment and which treatment threshold optimises the balance of risks and benefits. We must not be a barrier to recruitment to such trials. See pages F333 and F324

GETTING TO HEALTH EQUITY IN NICU CARE

Differences in race/ethnicity, gender, income and other social factors are associated with disparities in health, illness and premature death. Jochen Profit and

colleagues discuss within-NICU and between-NICU mechanisms of disparate care that may contribute to this and strategies for addressing them. Although their article in places focuses on care delivery systems in the United States the themes discussed and associated strategies extend into all healthcare systems and have essential lessons for us all. Three other articles in this issue link to this extremely important theme. See pages F326, F348, F380 and F432

NATIONAL PRECEPT PROGRAMME TO INCREASE THE UPTAKE OF MAGNESIUM SULPHATE IN PRE-TERM DELIVERIES

Magnesium sulfate is a neuroprotective treatment that reduces the risk of cerebral palsy (CP) in preterm babies and is a highly cost-effective intervention at approximately £one per dose and an estimated £1 million of lifetime societal savings per case of CP avoided. In the UK, the National Precept Programme was a quality improvement (QI) intervention including the PReCePT (Preventing Cerebral Palsy in Pre Term labour) QI toolkit and materials (preterm labour proforma, staff training presentations, parent leaflet, posters for the unit and learning log), regional Academic Health Science Network-level support, and up to 90 hours funded backfill for a midwife 'champion' to lead implementation. Hannah Edwards and colleagues report a before-after evaluation of the programme in 137 maternity units in England. They showed a clinically and economically important further increase in uptake of this treatment, indicating that that national, network-supported QI programmes can accelerate uptake of evidence-based therapies and promote improvements in perinatal care. See page 342

ASSOCIATION OF NURSE STAFFING AND UNIT OCCUPANCY WITH MORTALITY AND MORBIDITY AMONG VERY PRETERM INFANTS

In a retrospective study from four level-3 NICUs in Canada for the years 2015–2018, Marc Beltempo and colleagues examined

the association of nurse staffing and neonatal intensive care unit (NICU) occupancy with the outcomes of 1870 preterm infants born 23–32 weeks' gestation. In the first 24 hours of admission, higher nursing provision ratio was associated with lower odds of mortality/morbidity (OR 0.93, 95% CI 0.89 to 0.98), and higher unit occupancy was associated with higher odds of mortality/morbidity (OR 1.19, 95% CI 1.04 to 1.36). In causal mediation analysis, nursing provision ratios mediated 47% of the association between occupancy and outcomes. This association between staffing ratios and adverse outcomes is well recognised. It may become increasingly important since staffing challenges seem greater than ever after recruitment fell behind during the Covid pandemic and neonatal care for the highest risk infants is increasingly centralised to fewer centres. See page F387

ANTI-SEIZURE MEDICATION AT DISCHARGE IN INFANTS WITH HYPOXIC-ISCHEMIC ENCEPHALOPATHY

Elizabeth Sewell and colleagues studied infants who had been treated for HIE and who had received anti-seizure medication (ASM) in three National Institute of Child Health and Human Development Neonatal Research Network Trials of therapeutic hypothermia. The infants were treated in 22 Network NICUs between 2000 and 2014. The focus of the study was the association between discharge on anti-seizure medication and morbidity and mortality. Of the 302 infants included, 61% were continued on ASMs at discharge. This varied between treatment centres from 13%–100%, implying that this may have been as much related to clinical habit as to individual disease severity. The risk of death or moderate-to-severe disability was greater for infants continued on ASM at discharge, compared with those infants discharged without ASM (44% vs 28%). Given the potential neurotoxicity of treatment, there is still a pressing need for better data to describe the optimal agent and duration of treatment for neonatal seizures due to HIE and other aetiologies. See page F421