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Ben Stenson

NON-INVASIVE RESPIRATORY SUPPORT FOR PRETERM INFANTS

Bronchopulmonary dysplasia continues to be a hard outcome to shift. Avoiding mechanical ventilation is an important strategy and there are now so many approaches to this that determining the best approach or combination can seem practically impossible. Peter Reynolds and colleagues expand the range of options further by demonstrating the feasibility of starting heated humidified high flow nasal cannula therapy (sometimes also known as nasal high flow) in the delivery room. Their preliminary results are impressive, including some very immature infants. Others will surely want to evaluate this more widely. In an accompanying editorial, Brett Manley cautions that a nasal high flow “pandemic” must be contained pending further evidence from randomised controlled trials. A survey of practice by Sandeep Shetty and colleagues shows the dramatic increase in popularity of nasal high flow therapy in the UK since 2012.

Mehmet Oncel and colleagues report the results of a randomised controlled trial comparing nasal CPAP (5–6 cm H₂O) with ventilator delivered nasal intermittent positive pressure ventilation (NIPPV) at pressures of 15–20/5 cm H₂O, with infants in both groups who met criteria for rescue surfactant treated with a minimally invasive surfactant treatment (MIST) approach. They studied 200 infants born at 26 to 32 weeks gestation and found that, when compared with nasal CPAP, initial support with NIPPV reduced the need for surfactant treatment, ventilation and moderate to severe BPD. *See pages F284, F282, F371, F323*

PRE- OR POST-DUCTAL SAMPLING IN NEONATAL PULMONARY HYPERTENSION

The difference between pre- and post-ductal pulse oximeter saturation (SpO₂) in infants with pulmonary hypertension is well recognised. Clinical management of sick infants is guided by arterial blood gases and these will commonly be obtained from umbilical arterial catheters sampling post-ductal blood. Jason Gien and John Kinsella provide paired arterial blood gas data from infants with congenital diaphragmatic hernia and severe pulmonary hypertension who had simultaneous right radial arterial and umbilical arterial blood samples. Oxygenation index of post-ductal samples was more than double the pre-ductal value. *See page F314*

MODIFYING CEREBRAL OXYGENATION

The SafeBoosC trial was a randomised controlled trial to evaluate whether using near infra-red spectroscopic monitoring of cerebral oxygenation, in combination with a clinical intervention guideline could stabilise cerebral oxygenation in preterm infants during the first 72 hours after birth resulting in less cumulative exposure to cerebral hypoxia or hyperoxia. The study showed that the intervention was effective, largely through reducing exposure to cerebral hypoxia. Joan Riera and colleagues now report the clinical interventions that took place in association with cerebral oxygenation alarm events. In a great many alarm conditions there was not an intervention. When an intervention occurred, in 88.1% of instances the intervention was an increase in FiO₂. The mean pulse oximeter saturation reading at the time of the FiO₂ response to low cerebral oxygenation was 90% and the

mean SpO₂ reading increased to 92.9% after the interventions. The trial was not powered for determining clinical outcomes. It is interesting to note that low cerebral oxygenation was commonly observed in these preterm infants at SpO₂ around 90% and improved in association with modest increases in SpO₂. *See page F333*

ROP SCREENING AND TREATMENT

Retinopathy of prematurity appears in more mature babies in low and middle income countries. Ramak Roohipoor and colleagues compare the outcomes of their more inclusive screening approach in use in Iran to those that would be predicted if screening was guided by the American Academy of Pediatrics guidelines. In Iran 8.4% of cases of ROP requiring treatment would have been missed by application of the AAP guidelines. This highlights the importance of adapting screening approaches to the population at risk. Clare Gilbert provides an overview of the subject. The global significance of this problem is substantial. An estimated 32 300 infants became blind or visually impaired from ROP in the year 2010, with the largest number being in the East and Southeast Asia and Pacific region. *See pages F288 and F280*

QUALITY IMPROVEMENT

We are keen to carry more content describing novel quality improvement approaches that may be of wide interest. Claire Stewart and colleagues describe their efforts to decrease the impact of neonatal hypoglycaemia with a ‘Baby friendly’ hypoglycaemia policy, including the use of 40% dextrose gel as a first line treatment. Neonatal unit admissions, length of stay and heelpricks were reduced. *See page 344*