

# Highlights from this issue

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## VENTILATION

There is a strong respiratory theme in this month's issue. The editor's choice for open access is a meta-analysis of trials of volume – targeted ventilation modes by Peng and colleagues. Evidence from 18 trials enrolling 954 infants is summarised. Compared with pressure – limited ventilation, the use of volume – targeted ventilation modes was associated with a substantial reduction in the risk of air leak, bronchopulmonary dysplasia (BPD), intraventricular haemorrhage and periventricular leukomalacia. There was no effect on mortality. The largest trial included 212 infants and all of the others were very small, so the largest sample size for any individual outcome was 759 infants. It is disappointing that there have not been larger multicentre studies to refine the estimates of benefit but the results for key outcomes show little heterogeneity and are pretty difficult to ignore. The historical experience of trials of other apparently promising innovations in ventilation technique has been less impressive and the benefits of volume-targeted modes may be being over-estimated in these small studies but the intervention is relatively easy to implement and any improvement in these outcomes is to be welcomed. *See page F158*

## REDUCING MASK LEAKS

In a manikin study of cardiopulmonary resuscitation reported by Binder and colleagues mask leak was reduced and tidal volume improved when rescuers were able to see data from a computerised respiratory function monitor or to get verbal feedback based on the measurements. The benefits of computerised measurements may extend to resuscitation at birth. *See page F169*

## VENTILATION WITH HELIOX

Szczapa and colleagues investigated the effect of ventilation for an hour with heliox in infants with severe bronchopulmonary dysplasia. The infants had severe disease, having been ventilated for at least 28 days to be eligible and with mean  $\text{FiO}_2$  of 0.54. Ventilation with heliox was associated with greater tidal volume and dynamic compliance. Mean  $\text{FiO}_2$  fell to 0.27, associated with a marked reduction in alveolar to arterial oxygen tension difference. Changes disappeared when heliox was discontinued. The results suggest that in severe disease, with marked inhomogeneity of ventilation, using heliox might be a promising support strategy in infants with BPD who are difficult to ventilate. In order to achieve benefits beyond achieving stabilisation, treatment would probably have to be continued long enough for benefits to accrue from reduced ventilator pressures and  $\text{FiO}_2$ . *See page F128*

## HIGH FLOW OR CPAP?

Klingenberg and colleagues show that parents prefer heated humidified high flow nasal cannula treatment (HHHFNC) to nasal cpap, finding it easier to interact with their baby. They were surprised to find that nursing staff observed no difference in comfort score in the babies between the 2 support modes. *See page F134*

## DUCTUS ARTERIOSUS

Kluckow and colleagues report the outcomes of their trial of early targeted treatment of patent ductus arteriosus. Extremely preterm infants with a large patent duct before 12 hours of age were treated with indometacin or placebo. The study had to stop after 92 infants because the study treatment ceased to be available.

The planned sample size was 340 infants so there is not a clear result for their primary outcome of death or abnormal cranial ultrasound. However, the feasibility of recruiting infants to such a trial is now clearly demonstrated and this is an important milestone. With a large UK multicentre trial of a similar approach using ibuprofen about to start there is a hope that there should soon be some clearer evidence on the risks and benefits of early targeted treatment, as long as the control infants remain untreated. *See page F99*

## PROBIOTICS

In a single centre placebo controlled randomised trial enrolling 400 very low birth weight infants, supplementation of milk feeds from the onset of feeding throughout hospitalisation with *Lactobacillus reuteri* was associated with a reduction in culture proven nosocomial sepsis from 12.5% to 6.5% but no change in mortality or necrotising enterocolitis. Feed intolerance and duration of hospitalisation were also reduced. *See page F110*

## IRON SUPPLEMENTATION

In another single centre randomised trial, supplementation of preterm infants with 2mg/kg of elemental iron per day as ferric chloride from 2 weeks of age rather than 6 weeks of age was associated with higher ferritin levels at 12 weeks. The sample size of 104 infants does not allow clear conclusions to be drawn about other outcomes. A larger trial will be required to assess the effects on clinical outcomes. *See page F105*