

Highlights from this issue

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Resuscitation

Three interesting articles this month involve newborn resuscitation.

Over an 8-year period, 262 standardised assessments of trainees performing basic and advanced neonatal resuscitation scenarios were recorded by Cusack and Fawkes (*see page F246*). The pass rate was around 60% and did not improve over time. All of the senior trainees involved had previously completed Newborn Life Support (NLS) training (102 assessments, pass rate 56%), suggesting that training is not maintained over time and should be assessed repeatedly by services responsible for providing acute resuscitation.

Van Vonderen *et al* (*see page F254*) studied the force applied to the head of a newborn resuscitation manikin during mask ventilation. Neonatal staff manually ventilated the manikin by mask or T-piece and were informed that the study was related to mask leak. They did not know that the applied forces were measured. Typical applied forces by the 24 participants were around 2 kg, with around a quarter being nearer to 3 kg or more. Forces did not increase when people tried to eliminate mask leak. It is impossible to extrapolate these data to the initial stabilisation of human infants. You could speculate that people would be more gentle in real life or that their efforts in a compromised infant might be more vigorous. The potential effect on intracranial pressure and blood flow in a preterm infant must be of interest. It should be possible to gather similar data from real life.

Murthy *et al* used respiratory function monitoring equipment to study the first five lung inflations in 30 preterm infants given mask ventilation at birth via a T-piece device (*see page F249*). Recordings of pressure, flow and volume showed that the first five inflations

generally resulted in small tidal volumes unless they were augmented by spontaneous inspiratory efforts. Similar findings have previously been reported in intubated infants. The caregivers were UK NLS trained providers. The median inflation time was 1.1 s and few inflations were longer than 1.5 s, suggesting that in real life, the recommended 'inflation breaths' lasting 2–3 s may not be delivered. There was no correlation between inflation time and expired tidal volume but there was a correlation between inflation pressure and volume. With a system that was not leak free it is difficult to know what the relationship is between inflation volume, exhaled volume and gas retained in the lung. We do not know whether recruiting the lungs of preterm infants gradually or more rapidly is advantageous. As well as affecting the lungs, slow versus rapid changes in ventilation, blood gases and haemodynamics may have important effects on other systems.

Weaning CPAP

Does your unit cycle babies on and off continuous positive airway pressure (CPAP) over progressively longer periods until they can manage without it or just take them off and see what happens? Cycling preterm infants conjures up visions of babies in incubators training on miniature hamster wheels but long-established practices are hard to change. Todd *et al* randomised 177 preterm and found that planning simply to stop CPAP was associated with the best outcomes (*see page F236*).

Postnatal Steroids

We are still in the uncomfortable position of not knowing whether giving a ventilator dependent preterm infant steroids will improve or worsen the outcome. Posthoc analyses of aggregated data are

reviewed by Yates and Newell (*see page F299*) and suggest that there may be useful benefits for selected infants. When the concerns about the potential for treatment to increase neurodevelopmental impairment first came out, usage fell sharply, and there was little appetite for further trials, but there are still plenty of infants being treated and there is widespread variation in practice; hence, there should now be the equipoise required for further prospective studies.

Domperidone or metoclopramide for stimulating milk production?

Neither is a substitute for support and advice. Both are associated with increased milk production. In a blinded randomised comparison, Ingram *et al* randomised mothers of neonatal intensive care unit infants to one or other medicine if they were unable to express 160 ml/kg of milk per day for their infant. Milk production increased with both treatments. Milk flow was a little greater with domperidone and side effects a little less common but differences were not statistically significant (*see page F241*).

Segmental percutaneous central venous line cultures

Extraluminal colonisation with skin flora present at the site of insertion is a common reason for sepsis associated with percutaneously inserted central venous lines. Ponnusamy *et al* performed segmental cultures of 189 lines to determine whether culturing the immediately subcutaneous segment of the line aided in the diagnosis of line sepsis. In the 47 infants with clinical sepsis, the segmental cultures did not add anything to the diagnosis of line related sepsis over and above the information obtained from cultures of blood and line tips (*see page F273*).