Highlights from this issue

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LEARNING FROM HYPOGLYCAMIA CLAIMS

Neonatal hypoglycaemia defined by blood glucose level alone is common, usually asymptomatic and in most cases results in no harm. Cases of neonatal hypoglycemia of sufficient severity to cause brain damage usually involve prolonged symptomatic hypoglycaemia, offering opportunities for intervention to prevent them. In this issue Jane Hawdon and colleagues describe the findings of an analysis of cases of brain damaging hypoglycemia that involved the NHS litigation authority between 2002 and 2011. Key themes emerge, the emphasis of which may help to protect future infants. When hypoglycemia is resulting in clinical signs, the inference is that alternative fuels for brain energy production are also in short supply and the situation is a clinical emergency requiring prompt intervention, frequent measurements and escalation of treatment. Recurring themes included low birthweight, or borderline low birthweight, maternal concerns about feeding behavior or hypothermia and failure to respond to them, delay in acting on low blood glucose readings, delay in administering intravenous glucose and administration of insufficient intravenous glucose. These associations are not new and are emphasized in clinical texts but cases still occur and the hope is that greater emphasis of this issue may help to prevent future cases. *See page F110*

CAR SEAT CHALLENGES

Do you perform car seat challenges to assess clinical stability of preterm infants before discharge? They are recommended by the American Academy of Pediatrics to look for episodes of desaturation, apnoea and bradycardia in preterm infants and are usually performed as static tests. Renu Arya and colleagues questioned whether they represent fully the real life situation during journeys, where restraining the car seat steepens the angle of the seat and where the infant is also subject to motion and vibration. They carried out tests that simulated these circumstances and show that this was associated with an increase in profound desaturations compared to a simpler test protocol. The implications are that if these tests are important they may require further modification and that the findings might inform future developments in car seat design. *See page F136*

LIFE AND DEATH

Two papers and an accompanying editorial relate to the provision of and/or withdrawal of life-sustaining treatment. Narendra Aladangady and colleagues report the short-term outcomes of treatment limitation discussions in infants born in the North-East London Neonatal Network. In 68 cases where treatment limitation was discussed, disagreement between parents and clinicians was common and survival of the infant was not rare whether or not parents and clinicians agreed. Xavier Durrmeier and colleagues describe the clinical course of 73 extremely preterm infants who died in the delivery room in 18 French Hospitals in the Epipage 2 study. In some cases treatment limitation decision were made at gestations where others may consider treatment to be indicated. Given the lack of research to guide practice it is not surprising that the infants received varying approaches to comfort care and the interpretation of gasping respiration. Annie Janvier and colleagues consider the issues raised by these 2 papers, emphasising the dependence of parental decisions on the information that they receive and therefore the importance of transparent communication and involvement of parents. The authors are commended for contributing to research work in this difficult area. *See pages F104, F98 and F96*

FUNCTIONAL TREATMENT OF ROBIN SEQUENCE

Wolfgang Buchenau and colleagues report a 10 year experience with the management of infants with Robin sequence using a pre-epiglottic baton plate to shift the tongue forward and support the airway. The device reduced obstructive apnoea and of 122 infants who were treated, none required tracheostomy or craniofacial surgery and few required tube feeding. *See page F142*

GAS MIXING AT TIDAL VOLUMES BELOW RESPIRATORY DEAD SPACE

The observation that effective ventilation is possible with tidal volumes below respiratory dead space is poorly understood. Edward Hurley and Martin Keszler show that at fixed tidal volumes and breath rates the CO2 elimination is influenced by the inspiratory flow rate, with greater elimination associated with higher flows. This may be important as more use is made of volume limited ventilation if lower inspiratory flows are used. *See page F126*

TENSION PNEUMOCEPHALUS

Alicia Iglesias-Deus and colleagues report a shocking case in which an infant with breathing difficulty supported with high flow nasal cannula therapy developed tension pneumocephalus resulting in fatal brain injury. The precise mechanism is speculative. Previous cases of severe air leak associated with nasal cannula therapy highlight that support that is considered to be non-invasive can still be associated with severe complications. *See page F173*