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Highlights from this issue

Ben Stenson, *Edition Editor*

SCHOOL PERFORMANCE AT AGE 7 IN LATE PRETERM AND EARLY TERM BIRTH INFANTS

In this large study school performance in reading, writing, speaking and listening, mathematics and science were analysed in the third year of schooling in 6025 infants in England who were enrolled in the millennium cohort study. Of the term born children 18% performed below the expected level. This figure was 21% for early term infants, 25% for late preterm infants, 31% in moderately preterm infants and 43% in very preterm infants. Although the individual risk increments are small, late preterm and early term births represent a quarter of all infants. In the accompanying editorial, Neil Marlow comments that the data represent a continuum of educational risk that increases from full term downwards. Although the overall distribution of scores at higher gestations may be similar there is a small but increasing number of children with problems as gestation at birth decreases. The causative pathway is probably multifactorial. The challenge is to evidence strategies that will facilitate early schooling and optimise outcome. *See page F442*

NEONATAL DECOMPENSATION IN INFANTS WITH HYPOPLASTIC LEFT HEART SYNDROME

In newborn infants with hypoplastic left heart syndrome, pre-operative decompensation due to pulmonary overcirculation and consequent low systemic organ perfusion is a major contributor to mortality risk. Sheward and colleagues studied the risk factors for and clinical indicators of pre-operative decompensation in a case control study of infants cared for in Evelina Children's Hospital from 2002–2013. Among 33 cases and 53 matched controls no single parameter or risk factor performed well in identifying infants who would decompensate. Decompensation occurred on a median day 3 of life. Physiological parameters were not

significantly different between cases and controls, and remained within the normal range until decompensation was becoming established. Oxygen saturations were not predictive. Metabolic acidosis began to develop in the 24 hours before decompensation was recognised. The fact that individual assessment is unlikely to predict ongoing clinical stability makes prompt transfer to the treatment centre essential for all newborn infants where intervention is the chosen treatment path. *See page F468*

TRANSCUTANEOUS BILIRUBINOMETRY AND SKIN COLOUR

In this study, 451 infants had their skin colour categorised using colour charts and the agreement between simultaneous measurements of serum bilirubin and transcutaneous bilirubin was then assessed. Transcutaneous measurement performed well regardless of skin colour. A tendency for the transcutaneous measurements to underestimate the serum value with light skin colour moved to a tendency for the transcutaneous measure to overestimate the serum value with darker skin. The data suggest that the device may be used to screen for hyperbilirubinaemia with equal or greater confidence in infants with darker skin using the same cut-offs. *See page F480*

THERAPEUTIC HYPOTHERMIA AND CRP

In this study of infants with neonatal encephalopathy serial changes in CRP and blood count elements were compared over time in infants who were cooled and infants who were not cooled. None of the infants had positive blood cultures. In infants who were cooled, who had prenatal sepsis risk factors and who showed elevation in CRP, the time taken to reach peak CRP was longer than in similar infants who were not cooled. (84 hours vs 24 hours). Hypothermia was also associated with a decreased white blood cell count and platelet count. *See page F458*

INTERVENTIONAL TRIALS OF FETAL THERAPY

In this article Katie Morris and colleagues use recent examples to illustrate the many difficulties in performing interventional trials in fetal therapy. The article could equally be describing the challenges of neonatal research trials, with barriers including the availability of investigational therapies outside the trials, clinician and parent preference for treatment options resulting in a low consent rate and difficulties with funding arrangements for international studies. They highlight a need to embed a culture of research in the academic and clinical community that could mirror the strategy that has achieved impressive incremental improvements in outcomes for childhood cancer. This requires clinicians to embrace and communicate a strong preference for improving outcomes by improving the evidence instead of individual treatment approaches. *See page F448*

TIMELY IMMUNISATION OF PRETERM INFANTS AGAINST ROTAVIRUS

This leading article provides a useful evidence update summary on the compelling arguments for ensuring that preterm infants receive this immunisation at the appropriate time even if they are still in the neonatal unit. *See page F445*

BUBBLE CPAP USE IN DEVELOPING COUNTRIES

This systematic review demonstrates that bubble CPAP is a safe effective therapy suitable for use in developing countries as an alternative to mechanical ventilation. In an accompanying editorial Jensen and colleagues argue that there is sufficient evidence to consider CPAP a first line standard of care in developing countries. *See page F443*