

Ben J Stenson, *Edition Editor***WHAT'S NEW IN THE MANAGEMENT OF NEONATAL EARLY-ONSET SEPSIS?**

Noa Fleiss and colleagues compare and contrast professional guidelines for the management of early onset neonatal sepsis from the UK and the USA. Although these are evidence based, the limitations of the evidence are such that several different approaches combining risk factors and clinical findings are supported that are associated with marked differences in the proportion of infants who are considered to require investigation and treatment. None is clearly superior and none will identify all affected infants before they become ill, so clinical vigilance is vital. The condition affects around one in a thousand infants and this makes reliable studies comparing the risks and benefits of different approaches very challenging. The wide range in proportions of infants treated is disruptive to families and costly for services and makes large scale prospective comparisons of these approaches a valuable aspiration. *See page F10*

OPTIMISING GROWTH IN VERY PRETERM INFANTS

Aneurin Young And colleagues provide a comprehensive narrative review of nutritional issues in preterm infants, exploring the definitions of optimal growth and the evidence underpinning current practice and making practical recommendations for clinical management. They argue that improved growth, targeting birth weight centiles during early infancy, may optimise neurodevelopmental outcomes without compromising metabolic health. They recommend regular multidisciplinary monitoring and planning of nutritional management using a standardised approach which meets published nutritional requirements as soon as possible after birth. *See page F2*

SHORT-TERM PULMONARY AND SYSTEMIC EFFECTS OF HYDROCORTISONE INITIATED 7 TO 14 DAYS AFTER BIRTH IN VENTILATED VERY PRETERM INFANTS

Nienke M Halbmeijer and colleagues report the short-term pulmonary and systemic effects of hydrocortisone initiated in the second week after birth that were observed in the STOP-BPD (Systemic Hydrocortisone To Prevent Bronchopulmonary Dysplasia in preterm infants) study. This placebo-controlled trial performed in 16 neonatal intensive care units in the Netherlands and Belgium enrolled 372 infants. It did not show statistically significant effects on the combined outcomes of death or BPD at 36 weeks' postmenstrual age (PMA), or of death or neurodevelopmental impairment at 2 years' corrected age. In this secondary analysis of short term effects, hydrocortisone treatment was associated with improved pulmonary condition, facilitating weaning and extubation. Infants treated with hydrocortisone (24.3%) failed extubation less often than those who received placebo (38.6%), crude risk difference minus 14.3% (95% CI: minus 23.4% to minus 4.8%). The effects of hydrocortisone on blood glucose levels and blood pressure were small. *See page F20*

CLINICAL OUTCOMES OF PRETERM INFANTS WHILE USING AUTOMATED OXYGEN CONTROLLERS DURING STANDARD CARE

Automated (servo-controlled) systems for adjusting FiO_2 to maintain a target SpO_2 are increasingly available but have not yet been subjected to randomised clinical trials capable of assessing the risks and benefits of routine clinical use. In this observational study, Hylke Salverda and colleagues describe clinical outcomes from consecutive time periods during which two different servo control systems were used throughout the clinical course for preterm infants in their neonatal unit. Two groups of 121 infants were compared. There was

a dramatic reduction in the need for treatment for retinopathy of prematurity with one controller compared with the other (1 infant vs 10; risk ratio 0.1 (95% CI 0.0 to 0.7); $p=0.008$) supporting a hypothesis that different control systems should not be considered equal even when targeting the same SpO_2 . The study was not large enough to look at differences in mortality between groups. Previous evidence with studies of oxygen targeting has associated reduced risk of retinopathy of prematurity with increased risk of mortality. It points to the need for large randomised trials to inform the wider use of these devices. *See page F26*

A RANDOMISED TRIAL COMPARING WEANING FROM CPAP ALONE WITH WEANING USING HEATED HUMIDIFIED HIGH FLOW NASAL CANNULA IN VERY PRETERM INFANTS: THE CHIPS STUDY

Non-invasive respiratory support has proved invaluable in enabling infants to be weaned from ventilation but over time the total duration of time on respiratory support has increased, suggesting that we still need to get better at weaning babies from non-invasive support. In this study where strict weaning criteria were employed in both groups, there was little to choose between CPAP and High Flow Nasal Cannula therapy in time on respiratory support from randomisation to 72 hours off support. *See page F63*

IMPLICATIONS OF THE HELIX TRIAL FOR TREATING INFANTS WITH HYPOXIC-ISCHAEMIC ENCEPHALOPATHY IN LOW-TO-MIDDLE-INCOME COUNTRIES

Joanne Davidson and Colleagues discuss possible reasons that the HELIX trial did not show benefit from hypothermia treatment for HIE in low to middle income countries and suggest that the explanation might lie in differences in the clinical characteristics, timing of insult and timing of treatment and that it may yet be possible to design further trials capable of demonstrating benefit. *See page F83*