

Ben J Stenson, *Edition Editor*

### OUTCOMES OF PRETERM INFANTS

In 2010, the Dutch practice regarding initiation of active treatment in extremely preterm infants was lowered from 25 completed weeks' to 24 completed weeks' gestation. The Editor's choice for this issue is the EPI-DAF study, reported by Pauline E van Beek and colleagues. The study provides contemporary population-based neurodevelopmental outcome data for all Dutch live-born infants, born between 24<sup>0/7</sup> weeks' and 26<sup>6/7</sup> weeks' gestational age, who reached 2 years' corrected age in 2018–2020. Assessments included medical history taking, physical and neurological examination, and assessment of mental and psychomotor development with the Dutch version of the Bayley Scales of Infant and Toddler Development (Bayley-III-NL). Parents filled out the Child Behavioural Checklist. A combination of medical history and results of the assessment was used to rate hearing and vision status. A composite outcome representing all these domains was classified as either moderate-to-severe impairment or mild or no impairment, based on the most severe individual component. 991 infants were live born at 24–26 completed weeks' GA, of whom 891 (90%) were admitted to a NICU. Of these, 651 (73%) infants survived and 587 (90%) were seen for follow-up at 2 years. Mortality (not admitted to NICU or died after NICU admission) was 58%, 31% and 21% at 24, 25, and 26 weeks' respectively. Rates of moderate to severe NDI in any domain on follow-up were comparable (around 18% of survivors) between children born at 24 weeks', 25 weeks' and 26 weeks' gestation. Lowering the threshold for supporting active treatment from 25 completed weeks to 24 completed weeks was not associated with

a large increase in the number of survivors with moderate-severe neurodevelopmental impairment.

In a separate study from Canada, Magdalena Jaworski and colleagues asked parents of infants born <29 weeks' gestational age presenting at a neonatal follow-up clinic to evaluate their children's health and development. 248 parents of 213 children (mean gestational age 26.6±1.6 weeks, 20% with severe neurodevelopmental impairment) were recruited. Parents evaluated their children's health at a median of 9/10. *See pages F467 and F495*

### TACTILE STIMULATION DURING INITIAL STABILISATION

Newborn infants get tactile stimulation to encourage them to breathe at birth but this does not necessarily continue once positive pressure ventilation is commenced. Vincent Gaertner and colleagues analysed video and respiratory function monitor data gathered during a study of different face masks to report observational data on the association between tactile stimulation and breathing patterns during positive pressure ventilation (PPV). 20 of 40 infants born >34 weeks' gestation received stimulation during PPV and this was associated with increased spontaneous breaths and increased exhaled tidal volume. Increased duration of stimulation and surface area of applied stimulus were associated with a larger increase in spontaneous breaths. *See page F508*

### ASSOCIATIONS OF BODY COMPOSITION WITH REGIONAL BRAIN VOLUMES IN VERY PRETERM INFANTS

Katherine Bell and colleagues performed MRI scans and air displacement

plethysmography to determine body composition at term equivalent age in 85 preterm infants born <33 weeks gestation. Lean mass—but not fat—at term was associated with larger brain volume and white matter microstructure differences that suggest improved maturation. Weight is a simplistic measure of overall nutrition and studies like this, with later neurodevelopmental outcomes will help to refine our understanding of how to measure optimal nutrition for preterm infants. *See page F533*

### EFFECT OF PROPHYLACTIC DEXTROSE GEL ON THE NEONATAL GUT MICROBIOME

As part of a placebo controlled randomised trial, Sophie St Claire and colleagues found no effect of orally administered glucose gel in the first hour after birth on the gut microbiome at 1, 7, and 28 days. These data should reassure parents and clinicians that use of dextrose gel in the newborn period will not have adverse consequences on the microbiome. *See page F501*

### NEONATAL AND FETAL THERAPY OF CONGENITAL DIAPHRAGMATIC HERNIA-RELATED PULMONARY HYPERTENSION

Felix De Bie and colleagues discuss clinically available neonatal and fetal therapies specifically targeting the pulmonary hypertension associated with congenital diaphragmatic hernia and review the most promising experimental treatments and future research avenues. *See page F458*