



TWO-YEAR OUTCOMES FOLLOWING A RANDOMISED PLATELET-TRANSFUSION TRIAL IN PRETERM INFANTS

It is great to see the 2 year outcomes of the PlaNeT-2/MATISSE (Platelets for Neonatal Transfusion-2/Management of Thrombocytopenia in Special Subgroup) study in the journal. This randomised-controlled trial examined the outcomes of 660 preterm infants <34 weeks' gestation with severe thrombocytopenia who were randomised to receive platelet transfusions if their platelet count fell below $50 \times 10^9/L$ (high threshold, liberal transfusion) or below $25 \times 10^9/L$ (low threshold, restrictive transfusion). Transfusion at a count below 50 was associated with a higher risk of the primary composite outcome of death or a new episode of major bleeding, suggesting that rather than being beneficial and protecting babies from haemorrhagic complications, platelet transfusions given to thrombocytopenic preterm infants may be harmful. Carmel Maria Moore and colleagues now report the outcomes at 2 years. The pre-specified composite outcome of death or neurodevelopmental impairment (developmental delay, cerebral palsy, seizure disorder, profound hearing or vision loss) at 2 years of corrected age was observed in 50% of the infants who were randomised to transfusion at a count of 50 and 39% of the infants randomised to transfusion at a count of 25 (OR 1.54, 95% CI 1.09 to 2.17, $p=0.017$). The trial results argue quite strongly against treatment with platelets before the count falls below 25 but they do not show that treatment at this lower threshold is beneficial. If platelet transfusions are harmful then there may be important risk of harm with transfusion at the lower threshold too. In the absence of active bleeding it may be safer to avoid transfusion unless/until the count is much lower. Transfusing platelets is another example of a well-reasoned intervention given to preterm infants with beneficial intent that turns out to be harmful when properly researched. *See page F452*

CHANGE IN NEURODEVELOPMENTAL OUTCOMES FOR EXTREMELY PREMATURE INFANTS OVER TIME: A SYSTEMATIC REVIEW AND META-ANALYSIS

In this systematic review and meta-analysis, Joseph Kaempf and colleagues looked for

evidence of a change over time in the rate of neurodevelopmental impairment (NDI) for extremely preterm infants by combining data from studies that reported at least two discrete cohorts of infants born <27 weeks' gestation or <1000g birth weight from the same institution, where the first cohort was born after 1990 and at least one subsequent cohort of similar gestational age was born later. They included 15 studies that reported on 13 229 infants, spanning a range of time periods between 1990 and 2017. The average rate of the composite definition of neurodevelopmental impairment at the first time point across all studies weighted for sample size was 41.0% (95% CI 34.0% to 48.0%). The decrease of NDI between ensuing time points was -3.3% (95% CI -8.8% to 2.2%). This fixed effect of time was not statistically significant overall, nor between individual studies. The rates of NDI varied between institutions but did not change significantly over time within institutions. As the risk of mortality in these immature infants has decreased over time, it is disappointing that this has not been matched by a parallel decline in the rates of neurodevelopmental impairment but it is important at an individual level that the increased survival chance is not at a cost of increased risk of impairments. *See page F458*

Cumulative risk factors contributing to hearing loss in preterm infants

Kathy Chant and colleagues performed a case control study of risk factors contributing to hearing loss in preterm infants born <31+6 weeks gestation between 2009 and 2013 and cared for in a neonatal unit in the greater London area. There were 108 infants with hearing loss identified and 57 of them were included in the study. Of the studied children, 86% had bilateral hearing impairment; 3% had a mild hearing loss (21–40 dB), 51% a moderate loss (41–70 dB), 21% a severe loss (71–95 dB), and 25% had a profound impairment (>95 dB). They were matched with up to five normal hearing control infants matched for sex, number of completed gestational weeks, calendar year of birth, and neonatal unit in which they received their first 2 weeks of care. Children with hearing loss had lower birth

weight for gestational age and more severe neonatal illness. There was increased exposure to inotrope, steroid, gentamicin, vancomycin, and furosemide, and more frequent physiologic risk – elevated bilirubin and creatinine levels and acidosis. No index child was found to have the m.1555A>G mutation. The data highlight the importance of cumulative risk factors and suggest the genetic mutation may be a rare cause of deafness in this population. *See page F464*

Chest compressions in newborn infants

A scoping review by Shalini Ramachandran and colleagues and an accompanying editorial by Jonathan Cusack consider the use of chest compressions in newborn infants. The scoping review, performed by members of the International Liaison Committee on Resuscitation Neonatal Life Support Task Force aimed to review the literature on heart rate thresholds to start chest compressions, compression to ventilation ratio, compression technique, oxygen use during chest compression and feedback devices to optimise compressions. There were very few clinical studies and most reports were of manikin and animal studies. The findings either reinforced or were insufficient to change previous recommendations to start chest compressions if heart rate remains <60/min despite adequate ventilation, use a 3:1 compression to ventilation ratio, use the two-thumb encircling technique and administer 100% oxygen during chest compressions. *See page F442 and F438*

PHYSICIAN ASSOCIATES IN NEONATOLOGY

Kristin Tanney and colleagues describe the integration since 2020 of Physician Associates into the workforce of one of the UK's busiest neonatal units. This highly valued staff group manage their case-load under competency based supervision and with continuing education will have expanding roles in clinical care, education, QI, and research. Their article will be very useful to other neonatal units interesting in implementing this workforce development and to prospective physician associate candidates interested in working in neonatology. *See page F440*