Highlights from this issue

Ben J Stenson, Edition Editor

THERAPEUTIC CREEP IN PROVISION OF HYPOTHERMIA FOR HYPOXIC ISCHAEMIC ENCEPHALOPATHY

Three articles relate to the changing practices of UK clinicians in the provision of therapeutic hypothermia for hypoxic ischaemic encephalopathy (HIE). Lori Hage and colleagues report the clinical characteristics of term born infants treated with therapeutic hypothermia for a diagnosis of HIE in the UK between 2010 and 2017. The data came from the National Neonatal Research Database and include infants who were treated for 3 days or who died during this period. There were 5201 infants who met this definition. The number of infants treated increased year on year until 2015 and then levelled out. Markers of condition at birth suggested inclusion over time of greater numbers of infants with less severe disease. The number of infants treated with a diagnosis of mild encephalopathy increased fourfold from 31 infants per year to 133 infants per year over the study period. There was no important change in the number of infants treated with severe encephalopathy over the same time period. Lara Shipley and colleagues report temporal changes in the incidence of hypoxic-ischaemic encephalopathy in the UK between the time periods 2011–13 and 2014–16. The incidence of mild and of moderate or severe HIE remained stable between epochs suggesting that there has not been diagnostic creep driving the therapeutic creep. The proportion of infants with mild HIE who were treated with therapeutic hypothermia significantly increased over time between 2011–2013 (24.9%) and 2014–2016 (35.8%). The number of late preterm infants diagnosed with HIE also remained stable over time but again the proportion treated with hypothermia increased from 34% to 47%. This therapeutic creep, where larger numbers of infants are cooled who do not fulfil the criteria used to select infants for enrolment in the randomised controlled trials has been observed in other health systems. On the one hand it represents invasive treatment that is not well supported by the evidence base. Further trials are called for to determine whether hypothermia is beneficial in milder cases. The authors also point out that there is some some subjectivity in the assessment of encephalopathy meaning that some clinicians don’t cool borderline infants where others would classify them with more severe encephalopathy. Unrelated to these articles but on the same theme we received a viewpoint from Mohamed Ali Tagin and Alastair Gunn. They argue that the criteria used to select infants for the trials were deliberately biased towards selecting infants at highest risk (and by inference not likely to have selected all infants that stand to benefit). The individual components of the inclusion criteria perform poorly and are subjective. They encourage clinicians in doubt whether an infant should be cooled to choose cooling because there is still an appreciable risk of adverse outcome and the treatment can be delivered safely, so the potential benefits outweigh the potential harms. They argue that the limitations of the evidence should be discussed with the families involved. Perhaps therapeutic creep will push the trials out of reach. When new treatments are shown to be effective it is understandable that clinicians are keen to use them and this makes research more difficult before we know everything we want to know. This again is a situation that would become less likely if we continue to work towards inclusive research models normalising routine involvement in enhancing the knowledge base. See pages F529, F501 and F458

MEASUREMENT OF THE EFFECT OF CHEST COMPRESSIONS

Resuscitation council guidance advises on the depth of chest compressions during cardiopulmonary resuscitation in the newborn. Although it makes sense that compression depth is important this is based on indirect information and extrapolation. Marlies Bruckner and colleagues developed an automated device that could deliver controlled compression depth and investigated its effect on piglets with experimental asphyxia to asystole. Compression depth made an important difference to carotid blood flow and systolic blood pressure. See page F553

FACE MASK VERSUS NASAL PRONG OR NASOPHARYNGEAL TUBE FOR NEONATAL RESUSCITATION IN THE DELIVERY ROOM

Avneet Magnat and colleagues performed a systematic review of evidence relating to the best interface for providing respiratory support in the delivery room. They identified five randomised controlled trials involving 873 infants. There was no difference in mortality between devices. Confidence intervals for most outcomes were wide indicating the need for more data. Difference in rates of intubation in the delivery room and need for chest compressions during initial stabilisation suggest that more data may uncover clinically important differences. It will be interesting to see how this meta-analysis changes after inclusion of data from the recently completed CORSAD trial. See page F561