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Highlights from this issue

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DEVELOPMENTAL OUTCOMES

That males have worse gestation specific mortality compared with females is well known. It seems to be mediated through their relatively greater susceptibility to many complications of prematurity. It is also well known that early postnatal growth is strongly related to neurodevelopmental outcome even when other factors are accounted for. The new information that Frondas-Chauty and colleagues have produced, in a well conducted cohort study, is that male neurodevelopment is much more sensitive to poor growth than female neurodevelopment, and that this is independent of the other known male disadvantages. A further strength of their data is that it was derived from a cohort based on a geographical population. What they have not been able to demonstrate conclusively is whether those males with poorer growth were less well nourished than their peers, though their ability to control for factors that might impair nutrition makes any other explanation unlikely. *See page F366*

BEHAVIOURAL OUTCOMES

What is it about the admission to neonatal intensive care of late preterm infants that results in 'worse' behaviour at three years of age in children in Northern Ireland? Boylan and colleagues suggest that later behaviour has little to do with the admission as such, and is more related to gender, gestation at birth, and social deprivation. Indeed their data support the notion that there is no substantial difference in later behaviour between these children and other children born at term. Frustratingly, as with many such studies, the issue of the obstetric antecedents for preterm delivery, regardless of admission for intensive or special care, was not explored beyond 'mode of delivery'. So the world still awaits the definitive case control study of outcomes (both developmental and behavioural) of late preterm infants. *See page F359*

CARDIOVASCULAR FOLLOW UP

When we consider issues in relation to the cardiovascular status of children, we generally consider congenital heart disease and give little thought to other conditions that might plausibly convey long-term

problems. In this edition we carry two papers that address the possibility of such late effects in very different groups of babies: Joshi and colleagues compared right ventricular function in children who previously had or did not have chronic lung disease of prematurity; and Herberg *et al* followed up babies who had been either the donor or the recipient of twin to twin transfusion, and had been successfully treated by laser photocoagulation. They compared them with children with neither history. Both studies reported outcomes at an average of 10 years of age, and both had reassuring results. Chronic lung disease of prematurity did not appear to lead to right ventricular dysfunction, or long-term pulmonary hypertension, and twin to twin transfusion had no measurable long term effect on either donor or recipient. In both cases, the resolution or treatment of the underlying condition seems sufficient to prevent any longer term cardiovascular consequences. *See pages F373 and F380*

SOME NEW PHYSIOLOGY...

What exactly happens to pulmonary and aortic blood flow during the first few minutes after delivery, and in particular what happens to the arterial duct? We have long known what happens in experimental animals, but we also know that generalising about mammals then extrapolating to humans can be misleading. I have always taught that the duct shuts functionally, but not anatomically, within minutes of birth; but this is clearly wrong, for van Vonderen and colleagues demonstrated that mean ductal diameter fell from 5.2 mm at 2 minutes to 3.9 mm at 10 minutes. Similarly, the patterns of ductal flow are shown to be much more complicated than a simple switch of direction; the direction of flow was shown to vary at different phases of the cardiac cycle. This information will not change practice or influence care, but it is very good to know what really happens inside human babies, after they are born. *See page F408*

... AND SOME NEW NEUROPSYCHOLOGY

Reader, you may wonder what a paper about habituation is doing in our journal,

so I hope a sense of curiosity might lead you to take a second look. Habituation—a pattern of progressively decreased responses to a repeated stimulus—is a simple objective measure of learning, and it has been applied in the past to human fetuses as well as being used as a paradigm for psychological experiments in infancy. Since cognitive function has long been an outcome measure for ex-preterm babies, it makes sense to consider whether the application of habituation measures may be useful in the assessment of preterm babies either at, or before, 40 weeks post-menstrual age. Castillo and colleagues have shown that there is an ontogeny to habituation responses among healthy preterm babies tested serially, and that at 40 weeks, they are indistinguishable from healthy term newborns. This means that premature delivery probably does not of itself disrupt cognitive functions, and suggests new projects in which researchers could relate habituation testing in early life to subsequent neurodevelopmental outcome. *See page F402*

QUALITY IMPROVEMENTS

Finally, we have three papers which could broadly be described as relating to quality improvement. In the first, LeVan and colleagues report the way in which the SUPPORT trial influenced resuscitation practice (leading to more early CPAP and less intubation) in units that had not participated in a similar trial. At a time when the adoption of new evidence-based techniques and practices is under scrutiny this is an encouraging finding. In the second, with a converse message, Oddie and colleagues report a qualitative analysis of reasons why deferred cord clamping is not implemented more widely. Understanding barriers to change is the first step in overcoming them. I suspect that deferred clamping will soon become the accepted norm but resistance clearly remains. In the third paper, Modi and colleagues report the outcome of one specific quality improvement programme in which a care bundle appeared to be instrumental in improving the use of maternal breast milk use in preterm infants. *See page F386, F391 and F395*