Highlights from this issue

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POSTNATAL STEROIDS FOR BRONCHOPULMONARY DYSPLASIA

While there are many strategies for reducing the risk of BPD, the place of corticosteroids remains uncertain in spite of its long history. This month we publish a network meta-analysis by Zhang *et al* which evaluates the relative benefits and harms of the different steroids and different modes of administration. Network meta-analysis is itself a relatively new statistical technique which allows inferences to be drawn about the relative effectiveness of therapies even when there have been no direct trials between certain combinations of therapies. We will shortly be publishing a paper which explains network meta-analysis and we hope that we will see more papers like Zeng's in the future. However, we must also be cautious: as with all meta-analyses, there are underlying assumptions and value judgements, and the accompanying Editorial by Henry Halliday succinctly summarises where the important gaps remain in our current knowledge. In particular, we need to know more about early low dose hydrocortisone, inhaled budesonide, and budesonide given with surfactant. ***See page F506 and F500***

STEM CELLS AND BPD

Genome sequencing and stem cell treatments share a rosy public perception as panaceas that will one day prevent and cure all human diseases by processes too complicated to explain. They make wonderful headlines in newspapers and much money for charlatans. In contrast, in our usual calm and measured way, we have a review by Thébaud who, unusually, invokes an extended Star Wars metaphor for the possibilities of using mesenchymal stem cells in the prevention and management of BPD. Above all he focuses on the need to get it right when making the translational jump from laboratory to clinic; implicit in the review is that if treatment with stem cells can be made to work, postnatal steroids could end up in the history books. If you had never before thought of the neonatal lung as a place where Jedi return, Clones attack and Sith takes revenge, you must read this piece. ***See page F583***

SPINA BIFIDA AND FETAL SURGERY

Avoiding some dreadful pun on the 'cutting edge' of medicine is difficult in the case of the review by Joyeux *et al*, who have provided us with a state-of-the-art overview of developments in fetal surgery to correct spina bifida in utero. The authorship spans the USA, Europe and the UK and the conclusion is that there is a net benefit from fetal surgery that spans all the relevant functional domains that are compromised by spina bifida. The main downsides are premature labour for the fetus, and (depending on the exact technique) long term damage to the maternal uterus; techniques using hysteroscopy or minimal hysterotomy seem obvious candidates for trying to lessen the morbidities but urgently need randomised trials. The tragedy is that so many fetuses in the UK develop spina bifida at all: if the UK joined the other 86 countries which already mandate folate fortification of a staple food, the problem of spina bifida would be drastically reduced. ***See pages F589***

CORD MILKING AND CLAMPING IN SHEEP

Readers will be aware that *FNN* focuses on human rather than animal issues, but also that once in a while we do carry pre-clinical work that causes us to think critically about what we do, and what we test, in the human neonate. We have two such papers on related issues. Polglase *et al* studied the question of the relationship between immediate and 'physiological' cord clamping in relation to resuscitation from experimentally induced asphyxia in near-term lambs. Using short term markers of hypoxic-ischaemic damage, there seemed to be consistent advantages for the strategy of using the physiological approach, which should be relatively straightforward to test in asphyxiated human neonates given the research base that we already have. The other paper by Blank *et al* is more complex, comparing two different cord milking techniques with both physiological and immediate cord clamping, and focusing on both the blood volume transferred and the immediate effects on cardiovascular stability in preterm lambs. Cord milking that used placental refill was effective in terms of blood volume transfused, but resulted in substantial cardiovascular instability. Physiological cord clamping was ineffective in terms of volume transfer but resulted in much more stable cardiovascular parameters than either of the cord milking techniques, or immediate clamping. As with all pre-clinical work the groups were small (each n=6) and the way in which these disparities might translate a) to humans and b) to long term outcomes is speculative, but should promote further human investigations. ***See pages F530 and F539***

HOW MUCH CAFFEINE?

The Caffeine for Apnoea of Prematurity (CAP) trial (*N Engl J Med. 2006;354:2112–21*), which used a loading dose of 20 mg/kg of caffeine citrate and maintenance dose 5 mg/kg, has become the touchstone for the use of caffeine in preterm babies because of its unambiguous benefits at the doses tested. But what of other doses? Would a higher dose be even better or a lower dose just as effective? Vliegenthart *et al* set out to answer this using a systematic review, but any firm conclusion was inhibited by the fact that in total they were able to find only 620 randomised babies across six trials (compared with 1000 in each arm for CAP), and there was great heterogeneity between trials in the doses tested. For example, 'high' loading doses ranged from 10 to 80 mg/kg, and 'high' maintenance doses from 5 to 30 mg/kg. Any superiority or non-inferiority trials to address higher or lower doses than those tested in CAP would need to be even larger than CAP, and proportionately more expensive to run. I suspect that grant making bodies might wonder whether their funding might not be better prioritised elsewhere. ***See pages F523***