Fantoms

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Getting the bug

In this issue there are three papers on infection and an editorial on the issue of empirical antibiotic treatment. A letter that complements the editorial was published in November[1]. With NICE turning its attention towards the management of infection in neonates, these papers come at an opportune moment and I hope they will stimulate much debate. Muller-Pebody *et al* use data from the Health Protection Agency (HPA) that covered the whole of England and Wales for over two years, but limited the analysis to infants under 28 days. They sought retrospectively to ascertain whether current empirical treatment guidelines are adequate, and the answer is broadly that they are, although regimes relying on the broad spectrum of cefotaxime might best be avoided. However, this is the very reason for the note of dissent in Millar's letter. There is clearly going to be a trade-off between the degree of 'blind' cover for organisms, and other unwanted consequences of ecological exposure to cephalosporins. The trouble is neither this nor the following paper can shed any light on the nature of any acceptable compromise. ***See pages 2, 4***

Networking for infection

In contrast with Muller-Pebody's approach using Health Protection Agency data, Vergnano *et al* report the first data collected by the English neonatal infection network (NeonIN). Although the data they report are also retrospective (2006–2008), the approach is from the clinical rather than the laboratory viewpoint (thus dealing with one of the limitations of the HPA dataset), but as of 2008 there were just 12 units contributing data. The conclusion in relation to patterns of infection and antibotic sensitivity is, not surprisingly, similar to that of Muller-Pebody *et al*; but this is reassuring because it shows that a sampling approach can yield similar results to a national one. Furthermore, NeonIN is not restricted to an upper age of 28 days, but counts all infections occurring while the baby remains a patient on the relevant unit. The other contribution of this data set is to show that group B streptococcal infection is relatively more prevalent, compared to E. coli, in England than the USA. It is only the beginning for NeonIN: the neonatal infection network is a valuable entity that, given the forthcoming demise of the HPA, will be of central importance in monitoring patterns of infection and microbiological susceptibility now and in the future. ***See page 9***

BPD and CP

Bronchopulmonary dysplasia (BPD) and cerebral palsy (CP) are slippery terms. Neither of them describes a single entity, so both require a more rigorous specification of exactly what is being referred to. Van Marter *et al* have examined the relationship between BPD and cerebral palsy in infants less than 28 weeks (so already at high risk for adverse neurological outcomes), and teased out both severity of BPD (ventilated, or just in oxygen, at 36 weeks postmenstrual age) and type of cerbral palsy (diplegic, quadriplegic, hemiplegic). They found that being still ventilated at 36 weeks postmenstrual age was associated with a much increased rate of diplegic and quadriplegic cerebral palsy; but remaining in oxygen at 36 weeks did not carry this association, neither was there any relationship between worse BPD and hemiplegia. Because of the observational nature of their study, though, the question in their title (Does BPD *contribute* to the occurrence of CP...?) remains unanswered. ***See page 20***

BPD and delivery room intubation

In this journal and others, much recent work has focused on the delivery room management of significantly preterm babies. The focus has been on the importance of maintaining pulmonary functional residual capacity, minimising exposure to excessive inspiratory pressures, avoiding intubation, and minimising concentrations of oxygen, all based on the premise that this should make a difference to severity of respiratory disease in the short run, and rates of BPD in the medium term. Gagliardi *et al* have asked how much difference the delivery room management might make in practice, if the outcome in question is oxygen requirement at 36 weeks postmenstrual age. They used the natural experiment of having a number of units in the north of Italy that have rather different delivery room practices, and examined the effects of known factors, and potential confounders, together with the different practices, on BPD. And the answer is that less than 5% of the variance in BPD rates was associated with the delivery room management. BPD rates were much more predicted by lower gestational age, sex, smallness for gestational age, and late onset infection. Case mix is everything. ***See page 30***

Ventilated, cooled and MRI scanned—simultaneously

I take my hat off to a team who can get ventilated, cooled babies to, and through, a 3 tesla MRI scanner, and do this repeatedly. In this small pilot study, Wintermark *et al* have demonstrated that early MRI scanning can have significant added value compared with later scans, both demonstrating irreversible lesions, and perhaps showing lesions that one would not normally treat with cooling. The MRI findings beg the question as to whether a careful ultrasound examination might have yielded some of the same information on haemorrhages (cerebellar, subpial, epidural and subgaleal bleeding), so the work needs to be confirmed on a larger scale and perhaps with ultrasound imaging evaluated in parallel. I wonder how many other neonatal services could get cooled, ventilated babies into their scanners? ***See page 36***

REFERENCE

1. **Millar M.** Thresholds for antibiotic resistance at which we change empirical treatment choices. *Arch Dis Child Fetal Neonatal Ed* 2010;**95**:F463.

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