GLOBAL CHILD HEALTH

Vitamin A

The history of the vitamin A supplementation studies from the initial excitement of the reduction in measles related mortality trials in West Africa 25 years ago has been a chequered one. The routine population supplementation from 6 months to 5 years of age is now established, but the issue over neonatal supplementation and its effect on infant mortality and morbidity has remained unresolved, trials showing different directions of effect, or no effect. The paper from the WHO Vitamin A supplementation group addresses this in a meta-analysis of the 11 published studies. Pooled analysis showed no effect of early (first 2 to 3 days) vitamin A supplementation on mortality at either 6 months (RR 0.97, 95% CI 0.89 to 1.06) or 1 year. There were subtle differences in the sub-analyses stratified by region: in South Asia (but not Africa) where Vitamin A deficiency (defined by established prevalence thresholds of low maternal retinol or night blindness) is more common, there was a small, but significant protective effect (RR 0.87, CI 0.77 to 0.98.). Similar effects were shown in areas of high (≥ 30/1,000) infant mortality and early (first 6 months) mortality. The inference is that in those settings where babies are of marginal status, prophylactic supplementation can be helpful. See page 217.

Stunting

Though no parameter gives a full picture, stunting (sub-optimal height for age z-score/HFAZ) is arguably the most complete marker of chronic undernutrition. Stunting has also proved more resistant to intervention than wasting (low weight for height), stubbornly impervious to short term rehabilitation. Moses examined predictors of stunting in a secondary analysis of children admitted with severe acute malnutrition (SAM) in Kenya and found that subsequent illness episodes were associated with poorer outcome. As a group, these compromised children did badly in terms of recovery or catch up of length, even WAZ only protecting from loss of HFAZ rather than boosting catch up. The acute admission is only the tip of the iceberg which nutritional resuscitation measures cannot alone solve. See page 229.

Antibiotic prophylaxis and mortality

In 2009, the secondary analysis of a cluster randomised controlled trial of mass prophylaxis against trachoma with the macrolide azithromycin in Ethiopia, unexpectedly showed an extraordinary 50% lower mortality in the treated children. C. trachomatis is not-fatal so the mechanism(s) which are still unclear are likely to have involved pathways other than the anti-chlamydial one. Excitement at these findings led to the ‘MORDOR’ study, a large multinational (Niger, Malawi and Tanzania) RCT of mass azithromycin prophylaxis using mortality as a primary outcome. Pooled results showed a significant reduction (13%) deaths in the active limbs, much greater in the children in Niger (17%) by far the largest subgroup. Deaths were attributable, on the basis of verbal autopsy, to febrile illnesses, malaria, pneumonia and gastroenteritis. The editorial by Berkley looks at the implications a year or so on. Though hard not to be excited, public health is complex and the eagerness to implement similar schemes has to be tempered by two important considerations. The first, with wide scale antibiotic use, is the risk of the propagation of resistant strains of bacteria, particularly staphylococci and S. pneumoniae and the creation of problems that the short term MORDOR study could not evaluate. The second is an even larger elephant in the room: does a quick fix like this distract from problems closer to home, such as simple public health measures such as nutrition and hygiene. See page 227.

The acutely unwell child

Recognition: early warning scores

We all want to believe in early warning scores and their simplicity and ease of administration is undeniably seductive. They are user friendly with reasonable interobserver variation and their mass integration is easy to understand. In a compelling commentary on the recent large (more than 140,000 illness episodes) multinational EPOCH randomised controlled trial of the bedside PEWS, Chapman examines the implications of the negative findings on mortality. Though this was a large study, mortality is a rare event in high-income countries where this study was conducted and, as a result it was probably underpowered to show any subtle differences. Does this mean we look at other systems? Not yet. Administering the PEWS on a scale like this is not analogous to randomising a drug. There are human and cultural facets to behaviour changes like this, and though validated, this does not mean that smooth adoption necessarily follows. See page 210.

RESUSCITATION

Sepsis

Macleod revisits another old chestnut: inotropes in sepsis. Sepsis in children (unlike adults) is largely ‘cold’, characterised by vasoconstriction, high vascular resistance, low cardiac output and a prolonged capillary refill time. The authors ask in their Archimedes which of the two most widely used vasopressors, epieneprine and dopamine, is better and find that the former is more physiologically complete. See page 310.

Monoclonal antibody treatment

Monoclonal antibody treatment directed at pro-inflammatory cytokines has revolutionised treatment in chronic childhood diseases resistant to standard immune modulating therapy. Doses have been weight based and fixed, and though this approach works well at the outset, the immunogenicity of these agents generate antibodies which attenuate their efficacy. Drug level monitoring and antibody surveillance is needed and two papers and an editorial describe this evolving field. See pages 246, 251 and 212.