Boostrix

A study by Bose, *et al.*(1) regarding DTPa and a study by Bavdekar, *et al*(2) regarding DTPw merit some pertinent observations.

Both studies concluded that the vaccine is safe and well tolerated by the Indian infants or the Indian pre-school children. Authors of the DTPa study also conclude that: "though no direct comparison has been made with DTPw vaccine in the current study, the observed adverse effect profile appears to be better than that reported with DTPw vaccine in this age group"(1). However, the occurrence of pain was similar in both studies; swelling was lesser in the DTPa group. These differences could not be attributed to different muscle mass in different age groups in the 2 studies and the quantity of pertussis in the two vaccines. Thus, the assertion by Bose, *et al.*(1) does not appear conclusive.

One more point which needs attention is that DTPa has reduced quantity of diphtheria and pertussis antigens. Such a vaccine is recommended for adolescents and adults and not for preschool children. Studies done in pre-school children in Thailand, Taiwan and United Kingdom cited by authors(1) have been published between 2003 and 2005. Followup of these children will tell if reduced quantities of diphtheria and pertussis antigens provide long term protection. The Committee on Infectious Diseases of American Academy of Pediatrics states that minimum age for Boostrix is 10 years and for Adacel Vaccine 11 years which have reduced quantities of diphtheria and pertussis components(3).

Yash Paul,
A-D-7, Devi Marg, Bani Park,
Jaipur - 302016, India.
E-mail : dryashpaul2003@yahoo.com

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Reply

Our study was one of the first acellular-pertussis vaccine studies in India to be published in a peer-reviewed journal. Reactogenicity of diphtheria-tetanus-pertussis vaccines have largely been attributed to whole-cell pertussis components, and are significantly reduced in similar combination acellular pertussis vaccines(1). Reactions increase with age: A driver for the development of acellular-pertussis vaccines was the unsuitability of whole-cell vaccines to boost older persons(2).

Our study vaccine included a low-dose pertussis component, specifically for boosting, comprising approximately 33% of the antigen content in DTPa priming vaccines. This is possible without compromising protection because an immunogenic response from a primed immune system requires less antigen concentration than a naïve system. Hence, the likelihood of vaccine adverse reactions is reduced further.

Therefore, despite any similarity in proportions suffering reactions, it is not appropriate to compare our results with those of any studies involving infants. The incidence of reactions one would have expected using whole-cell pertussis vaccines in pre-schoolers is significantly greater than that observed in our study. This has been confirmed in head-to-head studies, comparing the booster formulation vaccine against a diphtheria-tetanus-whole cell pertussis vaccine in pre-schoolers: there was a highly significant difference in reactogenicity ($P < 0.001$) in favour of the booster vaccine(1). In our experience, the lack of a single reported case of high fever (>39.1°C) in a clinical study of pre-schoolers given any pertussis vaccine (as observed in our study) is unique in India. Additionally, the Thai and Israeli studies referenced in our paper found no compromise in diphtheria or tetanus protection in pre-

schoolers, despite the lowered diphtheria and tetanus toxoids antigen contents.

The booster vaccine is gaining global acceptance (including in Europe and North America) for use in all age groups above the age of 4 years, with the data indicating non-inferiority when used as a booster for protection against diphtheria-tetanus and pertussis, compared to available alternatives(4). An Indian Academy of Paediatrics publication states it may be used in pre-schoolers and is preferred after age 7 years(5). We believe the good safety and reactogenicity profile demonstrated in our study will help the vaccine contribute to the control of diphtheria and pertussis in India.

S K Datta,
A P Dubey*,
**Maulana Azad Medical College,Delhi*
and
GSK Biologicals, Belgium.
E-mail: sanjay.k.datta@gsk.com.

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Management of Severely Malnourished Children

We read with interest the IAP guidelines 2006 on the hospital based management of severely malnourished children adapted from the WHO guidelines(1). We really appreciate the effort of the IAP Task Force for making these guidelines widely available through the Indian Pediatrics. The recommendations come at a time when despite the India's economic boom, the percentage of underweight children younger than 3 years has risen over the past 10 years(2). However, there are some discrepancies between the IAP and the WHO recommendations. Some of these discrepancies have been highlighted in the accompanying editorial(3). Also, the level of evidence should be mentioned for each recommendation, so that readers can make informed decisions. Keeping in mind the busy pediatricians, the guidelines should be simple, easy to use and unambiguous. We wish to raise the following points:

1. The IAP recommends the use of reduced osmolarity ORS with concentration of Na+ as 75 mmol/L, whereas WHO recommends even lower concentration of Na^+ (ReSomal) with a sodium concentration of about 37.5 mmol/L. Giving high sodium could be inappropriate, and can cause complications, including death(4).
2. For the treatment of shock, IAP recommends (*Appendix*-1) intravenous bolus of 10 mL/kg over 20-30 minutes, and packed RBCs followed by a repeat fluid bolus over the same period, whereas WHO recommends 15 mL/Kg of fluid during the first hour, and then the blood, if required(1).
3. IAP recommends the simultaneous use of IV fluids and packed RBCs if the Hb is less than 10 g/dL or there is active bleeding. This is not feasible as blood is generally not available immediately. Furthermore, the cut off Hb for giving blood transfusion is quite high. This may cause unnecessary use of blood and volume overload in a severely malnourished child. Active bleeding