Why Quantity of Diphtheria and Pertussis Vaccines is Reduced for Children 7 Years Onwards?

The quantity of inoculum is same in case of majority of vaccines whether administered to small children, older children or adults. In case of influenza vaccine and Japanese encephalitis vaccine, dose of inoculum is half for children below 3 years. Similarly, quantity of hepatitis A vaccine and hepatitis B is half for children.

Whole cell pertussis vaccine is not recommended after 7 years of age because of high incidence of adverse effects. Why dose of diphtheria antigen and acellular pertussis vaccine are reduced while not reducing the quantity of tetanus antigen for children 7 years onwards?

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REPLY

The pediatric formulations usually have 3-5 times as much of the diphtheria component than what is in the adult/ adolescent formulation. Similarly, the formulations for adults/adolescents have around one third of acellular pertussis content than pediatric formulations. The amount of tetanus toxoid in each of the products remains almost equivalent. Dose reduction for diphtheria and pertussis is necessary because of the increased incidence of local and systemic reactions particularly to diphtheria toxoid and to some extent to acellular pertussis component in older children and adults [1-4].

On the other hand, the immune response to tetanus toxoid appears to decrease with increasing age. In comparative studies, children generally will develop higher levels of antitoxin than adults [5]. These are the reasons why dose of tetanus toxoid is not reduced in adult formulations.

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Kawasaki Disease in Association with Urinary Tract Infection

We have few comments on the report by Husain, *et al*. [1]. Apart from two case reports of the association, a retrospective cohort study by Jan, *et al*. [2] on 285 patient with Kawasaki disease(KD), reported the incidence of bacterial pyuria as 10.7%.

As urine microscopy and culture forms the basis of diagnosis in infant <3 months, complete urine microscopic examination is not mentioned. How urine was collected for culture is not mentioned? Latter has to be either by suprapubic aspiration/transurethral catheterization. Urine nitrite test could have been followed with urine leucocyte esterase test. Urine culture still forms the gold standard for diagnosis of UTI as urine nitrite test can have false positives with positive predictive value of 50-83%. Why was blood culture not included as a part of septicemic work-up?

As per latest guidelines on management of UTI, infant should have DMSA study done apart from USG and MCU [3]. A prospective study by Jieh, *et al*. [4] on 50 KD patients reports that to assess the renal inflammation and its sequelae (incidence 46% in KD patients) DMSA should be included in diagnostic work up. They have concluded that the potential longterm clinical impact of KD is not limited to coronary artery lesion sequelae but also includes renal scar formation [4]. Lastly, last sentence which says KD should be one of the differential diagnoses in patients who are suspected of having UTI and do not respond to

antibiotic therapy. This cannot be generalized as whole picture has to be taken, even the reported patient had rash and conjunctival inflammation to start with.

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REPLY

We would like to thank the authors for providing an important opinion regarding our case report [1]. We agree that 10.7% of children with Kawasaki disease (KD) have bacterial pyuria, as was reported by Jan, *et al*. [2]. The authors in this study concluded that there is an associated urinary tract infection (UTI) in children with diagnosed KD. This is contrary to the point we were trying to make in this case report, where the initial clinical and laboratory presentation was consistent with UTI and the patient was diagnosed later with KD, as the fever was not responding to antibiotics and the patient was developing criteria of KD during hospitalization.

As it is internationally accepted in infants and children who are not toilet trained; urine should be collected in a sterile way, which was the case here. The urine was collected through a transurethral catheter. We have mentioned the positive significant findings in the urine analysis. Blood culture was done as part of the septic workup and it was negative.

The infant in the case report [1] was treated acutely and long term for both KD and UTI; so had DMSA which was negative. This was not mentioned as it was not serving the purpose of the case report.

Finally, we agree with the authors that we cannot generalize that KD should be in the differential diagnosis in patients with UTI not responding to antibiotic therapy. In addition, we can add this statement "if they have showed some criteria suggestive of KD like rash, conjunctivitis or mouth changes".

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Hyperglycemia in PICU: Tread with Caution

Dr Sanklecha has raised some valid points in his communication [1]; nevertheless, I would like to put these in their right perspective.

First of all, 17.5% to 70% of patients in the various studies included in the review [2] were post-operative/ surgical. In the only prospective randomised controlled study of tight glycemic control in children by Vlasselaers, *et al.* [3], 600 out of 700 (85.7%) patients were post-operative cardiac surgical, high risk surgical or those with trauma. Further, in a retrospective study in 177 post-operative (cardiac surgery) children admitted to a PICU, non-survivors had higher peak glucose levels (389.3 ± 162 mg/dL *vs* 162± 106.3 mg/dL) and longer duration of hyperglycemia (3.06 ± 1.67 *vs* 2.11 ± 0.92 days) during the first 5 post operative days, compared to survivors [4].

In the absence of any scientific studies, it would be difficult to substantiate the author's observation that post-operative hyperglycemia is not necessarily indicative of a poor outcome. Though hyperglycemia may not directly be associated with mortality, significant increase in morbidity such as, increase in duration of ventilation, higher wound infection rates and increase in length of ICU/hospital stay is possible. However, it is pertinent to mention here that some studies have shown that early post-operative hyperglycemia (within first 24-48 hours) is not associated with a worse outcome [4,5]. To conclusively determine whether post-operative hyperglycemia is indeed asso-