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## Reply

The issues regarding unresponsiveness to hepatitis B (HB) immunization, raised by Dr. Anju Aggarwal deserve serious scrutiny. However, these issues are not relevant to the basic question dealt with in the Immunization Dialogue on a specific incident. To recapitulate, a physician having taken 3 doses of HB vaccine in India was found not to have detectable antibody when tested in UK, and two doses of vaccine taken there was followed by a vigorous antibody response. Here the question was specifically about the reliability of the quality (immunogenicity as determined by potency) of the HB vaccines marketed in India.

Since the physician responded to two additional (indeed, a total of 5) doses of the conventional HB vaccine, he cannot be regarded as a non-responder. Dr. Aggarwal uses this opportunity to highlight the problem of unresponsiveness to HB vaccine, and points optimistically to the potential of the new generation HB vaccine incorporating the pre-S1 and pre-S2 antigens in overcoming it.

Many of the statements made by Dr. Aggarwal are direct quotations from the last paper in her list of references. For example, "variants of hepatitis B virus that are not neutralized by vaccine-induced hepatitis B surface antibody" has relevance to the new vaccine, but not to the issue of unresponsiveness, which is the subject of her letter.

There are many studies showing that HB immunization starting in the neonatal period results in the seroconversion of over 95 (often 97-98) per cent of infants. Therefore, the true genetically determined unresponsiveness must be much less than the 5-10% quoted by Dr. Aggarwal. It is true that in adults 5-10% may not respond inspite of 3, or 4 or even 5 doses of the conventional HB vaccine. They are generally referred to as non-responders. In some of them, additional doses of the same vaccine may cause antibody response.

It is true that in the study quoted by Dr. Aggarwal non-responders were given the new generation vaccine and 69% responded to one additional dose. However, the study was not controlled by a group given one additional dose of the conventional vaccine. Therefore, it is difficult to evaluate the study properly. Moreover, we need to know if unresponsiveness will manifest if large numbers of adults are given the new vaccine.

For us in India, the major question still remains as to the assurance of quality of the marketed HB vaccines. Those of you

who use HB vaccines in your clinics are urged to do specific studies on seroconversion, so that vaccine quality could be kept under scrutiny. If anyone has data on seroconversion studies please share them in the columns of Indian Pediatrics.

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## Furazolidone and Typhoid Fever

I read with interest two articles published in same issue(l,2). In both articles, furazolidone was used to treat blood culture positive cases of typhoid fever. Dr. Santhoshkumar in his previous article(3) concluded that monotherapy with furazolidone should be avoided in all blood culture positive cases of typhoid fever and this may have medicolegal implications also. Incidentally the same author has used it in culture positive cases of typhoid fever(2). Kindly clarify the issue of rational use of furazolidone in typhoid fever? To use it or not to use it?

There is also a difference in dosage used by the two authors. Dutta *et al.*(1) mentioned the dose of 7.5 mg/kg/day while Santhoshkumar and Mabel(2) treated their patients with a dose of 15 mg/kg/day. What is the appropriate dosage of furazolidone in patients of typhoid fever?

Dutta *et* aJ.(1) utilized furazolidone in those patients who were suffering from clinically suspected typhoid fever of less than 3 weeks duration while patients with high fever for more than 21 days were treated by Ciprofloxacin. Was it arbitrary or there is any clinicopharmacological basis of using these two drugs in relation to duration of fever?

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