

Re: Hepatitis B Vaccine Coverage and the Immune Response in Children under ten years old in Sana'a, Yemen—We need to work much harder to control hepatitis B virus infection in developing countries

تغطية التطعيم ضد التهاب الكبد الفيروسي البائي
والاستجابة المناعية له عند الاطفال تحت سن العاشرة
بمدينة صنعاء (اليمن)
نحتاج الى جهد أكبر للسيطرة على العدوى بفيروس الكبد البائي في الدول
النامية

Sir,

I read with interest the published article by Al-Shamahy *et al.* in your journal.¹ It is an important report which encourages health policy makers to control hepatitis B virus (HBV) infections more effectively. I would like to add some information which may improve the understanding of the situation. HBV is a common cause of liver disease in the world and most of the sufferers are Asians.² Universal vaccination in Iran since 1993 of all neonates against hepatitis B virus has changed the epidemiology of this infection. Similar experiences have been reported from other countries such as Saudi Arabia and China.^{3,4} Improvement of people's knowledge about HBV risk factors, national vaccination programmes for all neonates, vaccination of high risk groups, such as health care workers, and the introduction of disposable syringes for use in vaccinations, hospitals and clinics might explain this decrease.⁴ It is important for a country such as Yemen with HBsAg positivity of more than 6% in pregnant women, to formulate a better policy for the control of HBV infection. The age at which HBV infection occurs influences the rate of transmission, the long-term outcome and determines the primary targets of a vaccination programme. Thus, perinatal transmission from mother to child at or soon after birth results in about 90% chronic carriage, with its long-term complications of chronic hepatitis, cirrhosis and hepatocellular carcinoma, leading to death in middle age. This has serious economic consequences for the family and for the country as a whole. The contribution of each mode of transmission to morbidity and mortality must be known in order to develop the optimal vaccination programme.⁴

The authors excluded the anti-HBcAb positive subjects from the vaccinated group in order to differentiate them from those with naturally occurring to HBV infection. However, as we have reported before about the outcome after HBV vaccination in infants of HBsAg mothers, 23% of these infants were anti HBcAb positive.³ This means that the HBV vaccine prevented HBV infection.

The authors recommend that children who were non-responders to HBV vaccine be re-vaccinated, but I think the first strategy should be to focus on increasing the coverage of HBV vaccination in infants. The World Health Organization (WHO) recommended that all countries which have reached a satisfactory coverage level of hepatitis B immunisation through routine vaccination develop other strategies for the control of HBV infection in their community.

Finally, I would like to mention that HBV vaccine is a temperature-sensitive biological product and exposure to heat shortens its shelf life, while freezing causes irreversible loss of potency.⁵ I therefore recommend the evaluation of an outside-the-cold-chain vaccine delivery system in Yemen. I hope for better prospects for HBV infection control in the future in our region.

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Author's Response

Dr. Alavian's careful reading of our article and his subsequent comments are acceptable. He raises several points and we would like to respond to each of them.

First, Dr. Alavian added some information which may improve the understanding of the situation and change the epidemiology of this infection by improvement of people's knowledge about HBV risk factors. National vaccination programmes for all neonates, vaccination of high risk groups such as health care workers and the introduction of disposable syringes for use in vaccinations, hospitals and clinics might explain the decrease in HBV rates in some countries.¹ I agree with him, but often there are many obstacles which suddenly rise up like the situation now in Yemen where the national vaccination programme is stopped due to what is called a revolution (civil war). Also I agree with his second point as a high rate of liver cancer in Yemen is now occurring in individuals in their early forties.² The third point was why we excluded the anti-HBcAb positive subjects from the vaccinated group in order to differentiate them from those with naturally occurring HBV infection. We did this because the anti-HBsAg might be due to natural infection and not due to vaccine.³ The fourth point was where we recommended that children who were non-responders to HBV vaccine be re-vaccinated; in addition, we have also recommended increasing the coverage of HBV vaccination in infants. However, just increasing the vaccination coverage may still lead to a high rate of failure because of non-response rates.

Finally, we agree with him about the effect of temperature on the failure of the vaccine as HBV vaccine is a temperature-sensitive biological product and exposure to heat shortens its shelf-life, while freezing causes irreversible loss of potency. Thus we agree with his recommendation of the evaluation of an outside-the-cold-chain vaccine delivery system in Yemen.

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