

To the Editors:

Immune response to hepatitis B vaccination in a group of medical students in Sri Lanka

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Hepatitis B virus (HBV) infection poses a serious occupational threat to risk groups like health care workers (HCW) [1]. Studies indicate that the risk of acquiring HBV is four times higher in HCWs compared to non-HCW [2]. HBV prevalence among HCW is ten times that of individuals in the general population [2]. The main mode of transmission of HBV among HCW in a clinical setting is through needle stick injuries or cuts and abrasions coming into direct contact with infected body fluids. Infection may also occur by indirect contact via contaminated fomites such as table tops, bedding and clothing [1]. About 6 to 14% of HCW develop clinical HBV infection from needle prick injuries of HBV surface antigen (HBsAg) positive patients [1].

Routine pre-exposure vaccination is mandatory for HCW and other high risk groups. Despite the vaccination, a number of studies indicate that a minority of individuals (2-10%) remain non-responsive to the vaccine with immunity below protective levels (anti-HBs <10 mIU/ml) [3]. Such non-responders among HCW are at risk of contracting HBV infection. Identification and revaccination of such individuals are important in order to prevent HBV infection among HCW [4].

The current study involved 90 vaccinated medical students aged 22 to 25 years from the Faculty of Medicine, University of Peradeniya. All had received three doses of HBV vaccine within the same time period. Data such as age, sex, ethnicity, date of vaccination, current medication and presence of any liver disease or dysfunction were collected. Blood samples were taken approximately eight weeks after their last dose of the vaccination. Serum was subjected to an ELISA (ANTISURASE B-96 – TMB, Taiwan) to assess anti-HBs levels. Data obtained from the ELISA and questionnaires were analysed using SPSS statistical software and Microsoft Excel 2010. Approval for the study was obtained from the Ethics Committee of the Faculty of Medicine, University of Peradeniya.

Of the 90 participants, 55 were females. All participants had absorbance values above the calculated cut off value for

protection indicating anti-HBs levels over 10 mIU/ mL. This suggests protective levels of immunity.

None of the participants had blood transfusions, needle prick injuries, intravenous drug use or unprotected sexual intercourse in the past. Thus, it was assumed that any immunity acquired was by vaccination and not due to previous exposure to HBV. According to the WHO, the HBV vaccine (Euvax, Korea) produces protective immunity in more than 95% of vaccinated adults and this is in agreement with the results of our study in which the protective immunity achieved was 100% [3]. HBV vaccination is known to provide long term protection that lasts for several years. According to previous studies immunised individuals had anti-HBs levels above 100 mIU/ml even after 14 years of their last vaccination [5]. The most plausible reason for 100% protective immunity in our study cohort would be the participants' age. Immune response to the HBsAg vaccine is poor in those above 30 years of age. Poor immune response to HBV vaccination has been shown to increase from 2.8% in individuals at the age of 30 to 4.2% in individuals at the age of 40 [3].

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