## Investigating hepatitis immunity

The serological data on 15- to 19-year-old women in British Columbia 7 years after hepatitis B (HB) vaccination, presented recently by Meenakshi Dawar and associates,[1] are intriguing. Even though there were no hepatitis B surface antigen (HBsAg) carriers, 0.6% of the women in this age group had antibodies to HB core antigen. It might be appropriate to investigate all of the serum aliquots for these women, if still available, for a low-level HBsAg carrier state.

These women might have been infected with the HB virus a long time ago, but with no development of antibodies to HBsAg, or antibody levels might subsequently have fallen to undetectable levels. The women might have experienced recent clearance of HBsAg from the blood after a bout of acute hepatitis, or they might have a chronic HBsAg carrier state. Alternatively, they might have had a low-level carrier state with undetectable levels of HBsAg.[2] To distinguish these possibilities, it might have been preferable to test them for circulating DNA of the HB virus.

Any low-level carriers could be tested for active viral replication by measuring levels of HB e antigen and HB viral DNA. These tests might assist in selecting those eligible for therapeutic antiviral intervention with interferon and lamivudine.

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**References**

1. Dawar M, Patrick DM, Bigham M, Cook D, Krajden M, Ng H. Impact of universal preadolescent vaccination against hepatitis B on antenatal seroprevalence of hepatitis B markers in British Columbia women. *CMAJ* 2003;168(6): 703-4.
2. Zuckerman AJ. Specific serological diagnosis of viral hepatitis. *BMJ* 1979;2:84-6.

**[One of the authors responds:]**

The occurrence of antibodies to HB core antigen (HBc) in conjunction with absence of HBsAg in 0.6% of the women we tested[1] could imply false-positive results on testing for anti-HBc, a low-level HBsAg carrier state, an atypical serological response to acute infection or continued anti-HBc positivity after resolution of an infection.

Because our study was unlinked (i.e., individual identifiers were removed from the data), further testing to better define the subjects' clinical status would not have benefited the individuals directly. Unfortunately, only a limited amount of sera was available, so testing for other serological markers was not possible. In addition, the samples were handled by automated analyzers and were not stored in a manner appropriate for preserving HB virus. Therefore, the results of viral DNA testing would not have been reliable.

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**Reference**

1. Dawar M, Patrick DM, Bigham M, Cook D, Krajden M, Ng H. Impact of universal preadolescent vaccination against hepatitis B on antenatal seroprevalence of hepatitis B markers in British Columbia women. *CMAJ* 2003;168(6): 703-4.

## The moral of the study

The methods described and the interpretation presented in Johane Patenaude and associates'[1] thought-provoking study on medical students'