

INTERPRETING HEPATITIS B SEROLOGY

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Loh KY, Kew ST. Interpreting hepatitis B serology. Malaysian Family Physician. 2007;2(1):31-32

Hepatitis B screening is one of the most common tests performed in the primary care setting. With the availability of these tests in many private medical laboratories, patients can get them done easily. Very often, they will bring the test results to consult their family doctors for advice. The following are five clinical case scenarios which may be encountered by the primary care doctor. What is your plan of management for these cases?

Case 1

Ms. AM is a healthy health care worker from a community health clinic. She comes with the following results of hepatitis B screening.

HBs Antigen NEGATIVE
Anti-HBs Antibody NEGATIVE

What is your advice to her?

Case 2

Mr. BA underwent pre-employment health assessment. He shows you the following results:

HBs Antigen NEGATIVE
Anti-HBs Antibody POSITIVE. Titre: 5 mIU/mL
Anti-HBc Antibody NEGATIVE

What is your advice to him?

Case 3

Mr. KC shows you the following results. He has past history of intravenous drugs use. Currently he is asymptomatic.

HBs Antigen NEGATIVE
HBe Antigen NEGATIVE
Anti-HBs Antibody POSITIVE. Titre: 50 mIU/mL
Anti-HBc Antibody POSITIVE

What is your management plan?

Case 4

Mr. LD was admitted to hospital 8 months ago for acute jaundice. He was diagnosed with hepatitis B infection and subsequently discharged from hospital without any complications. Today he comes to the clinic with these blood tests done three days ago.

HBs Antigen POSITIVE
HBe Antigen POSITIVE
Anti-HBs Antibody NEGATIVE
Anti-HBe Antibody NEGATIVE

What is your conclusion and what is the management plan for him?

Case 5

Madam YK was diagnosed with chronic hepatitis B two years ago. The records from the hospital follow up last year showed the following result:

HBs Antigen POSITIVE
HBe Antigen POSITIVE
Anti-HBs Antibody NEGATIVE
Anti-HBe Antibody NEGATIVE

Today Madam YK shows you her latest blood test which was done one week ago:

HBs Antigen POSITIVE
HBe Antigen NEGATIVE
Anti HBs Antibody NEGATIVE
Anti HBe Antibody POSITIVE

Liver enzyme:
ALT 40 IU/L (Normal: < 45 IU/L)
AST 45 IU/L (Normal:< 45 IU/L)

What is your conclusion?

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ANSWERS

Case 1

Ms. AM has no immunity to hepatitis B. She should be advised to vaccinate against hepatitis B since she is a health care worker. Her risk of acquiring hepatitis B infection by direct contact with patient's blood or body fluids is high. Among all the recommended strategies for preventing hepatitis B infection, vaccination is the most important.¹ In this country, all trainees in the health care profession are required to be tested, and if found negative, to be vaccinated against hepatitis B upon entry to the training programme.

Case 2

Mr. BA has immunity against hepatitis B. This immunity is from previous hepatitis B vaccination. He did not have a natural infection, because his anti-Hepatitis B core (anti-HBc) antibody is negative. However, the titre of his antibody is only 5 mIU/mL, this is considered inadequate and non protective. He should go for a booster dose of hepatitis B vaccination. A protective antibody response is ≥ 10 mIU/mL.²

Case 3

Mr. KC had past hepatitis B infection, evidenced by the positive anti-HBc antibody and anti-HBs antibody. He is not a chronic carrier because his HBs antigen is negative. The source of his hepatitis B infection is most likely from sharing infected needles. In the assessment, he should have liver function tests done, and should be screened for all other blood born infectious disease e.g. HIV, VDRL and hepatitis C.

Case 4

Mr. LD was admitted 8 months ago and confirmed hepatitis B. Now after 8 months, his HBs antigen remains positive. Persistence of hepatitis B surface antigen for more than 6 months after an acute infection is by definition chronic hepatitis B.³ Furthermore his Hepatitis B e antigen is positive, indicating high infectivity. The anti-HBs antibody and anti-HBe antibody are both negative, indicating he has not had spontaneous sero-conversion, and he still has the hepatitis B virus in his body. Chronic hepatitis B carries the risk of chronic hepatitis, liver cirrhosis and hepatocellular carcinoma. It is estimated that about 12% of patients with chronic HBV infection develop liver cirrhosis annually.^{1,3} His liver function tests should be done to check on his liver enzymes. He should be referred to hepatologist for further assessment and management, further investigations such as ultrasound of the liver and viral load study can be performed.

Case 5

The previous hepatitis B profile (one year ago) showed HBs antigen positive and HBe antigen positive. This is consistent with the diagnosis of chronic hepatitis B since two years ago. However the latest results show HBe antigen negative and anti-HBe antibody are now positive. This indicates spontaneous e sero-conversion within this year. Her liver enzymes are presently normal. If hepatitis B was acquired during childhood, she is unlikely to lose her HBs antigen. Although she is now less infectious, she still has higher than normal risk of chronic liver disease. She should continue follow-up with the hepatologist.

REFERENCES

1. Aggarwal R, Ranjan P. Preventing and treating hepatitis B infection. *BMJ*. 2004;329(7474):1080-6
2. Lim V, *et al*. Clinical Practice Guideline on Adult Vaccination. Dec 2003. MOH/P/PAK/67.03(GU)
3. Liaw YF, Leung N, Guan R, *et al*. Asian-Pacific consensus statement on the management of chronic hepatitis B: a 2005 update. *Liver Int*. 2005;25(3):472-89