Positive hepatitis B serology with normal liver function tests

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This month, Dr Danta presents his approach to dealing with a patient who is positive for hepatitis B surface antigen (HBsAg) but has normal liver function tests.

Remember

- Infection with hepatitis B virus (HBV) is common and often diagnosed with normal liver function tests. Elevation of ALT (alanine aminotransferase) and AST (aspartate aminotransferase) is termed hepatitis and is related to immune-mediated liver damage in hepatitis B.
- Interpretation of HBV serology is complicated. A positive HBsAg result indicates acute or chronic infection.
- HBV infection must be considered in at-risk groups, which include migrants of Mediterranean, South Pacific Island or Asian origin (Asians account for 75% of cases in Australia), injecting drug users, male homosexuals, sex workers and Aboriginal Australians.
- Two significant outcomes of HBV infection are hepatic failure secondary to cirrhosis and hepatocellular carcinoma. About 20% of patients with chronic hepatitis develop cirrhosis.
- HBV is transmitted vertically (from mother to child), from child to child, and by infected body fluids (e.g. sexual, intravenous drug use, tattooing).
- New therapies for HBV infection are available through specialists and hospital based clinics.

Assessment

- Following a positive HBsAg result, determine the remaining HBV serology. A positive result for hepatitis B e antigen (HBeAg) indicates active viral replication whereas a positive e antibody (anti-HBe) indicates a lower level of replication. However, HBV may still be replicative and cause active liver disease in patients who are positive for anti-HBe (these patients are infected with a mutated form of the virus often associated with severe liver disease).
- Determine the mode of transmission and, if possible, identify others at risk.
- Screen for other viruses, including hepatitis C and hepatitis D (delta). Co-infection with the latter may aggravate liver damage.
- Assess the patient clinically for evidence of chronic liver disease and look for blood test parameters that point to liver failure or portal hypertension (e.g. prolonged prothrombin time, low platelet count).
- Obtain a total of three liver function tests over the next six months to ascertain any evidence of active hepatitis.
- Consider obtaining a baseline liver ultrasound, depending on the patient's age, the duration of the infection and family history.

Management

- Traditional treatment for HBV infection has been a four-month course of subcutaneous interferon (Intron-A, Roferon-A) but an oral antiviral drug, lamivudine (Zeffix), is now available. Oral antivirals seem to be as effective as interferon but have fewer side effects and are easier to take. Treatments are far more effective if transaminase levels are significantly elevated. Lamivudine is also effective in treating those who have advanced disease.
- HBV DNA can be quantified to indicate viral load, and is used in the context of deciding on treatment.
- Patients with HBV infection undergoing chemotherapy or significant immunosuppression should receive lamivudine to prevent severe flares and be managed in conjunction with a hepatologist.
- All HBsAg-positive patients require education in safe sex and vaccination of family members and sexual partners. Patients with replicative diseases are at increased risk of transmission and must not donate blood. Excessive alcohol should be avoided.
- Patients with apparently inactive disease should be monitored annually with regular liver function tests. If they develop sustained elevation of the transaminases they should be referred to a gastroenterologist. Treatment is not indicated with normal levels of transaminases, but it should be recognised that some patients with normal transaminase levels have cirrhosis.
- The issue of screening for hepatocellular carcinoma in patients with HBV infection is contentious in those without evidence of cirrhosis or active liver disease. In cirrhotic patients, screening should involve six-monthly alpha-fetoprotein measurements and liver ultrasound. Hepatocellular carcinoma can occur in noncirrhotic individuals, although the incidence is much lower than in cirrhotic patients. MT

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Further reading

1. Liaw YF. Treatment of chronic hepatitis B virus infection: who, when, what for and how. J Gastroenterol Hepatol 2000; 15 Suppl: E31-33.