

Immunological Response Post-Hepatitis B Virus Clearance -A Case Report

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Abstract

Background: Infection with hepatitis B virus (HBV) constitute a major global public health problem with significant morbidity and mortality.

An estimated 257 million people are living with HBV infection resulting in about 887,000 deaths per year from Cirrhosis and hepatocellular carcinoma.

The main goal of therapy is to improve survival and quality of life by preventing progression to liver cirrhosis and HCC while the most effective preventive strategy is HBV vaccination with development of anti-HBs protective titre (>10 iu). Long-term suppression of HBV replication represents the main endpoint of current treatment strategies, while HBsAg loss with or without development of Anti-HBs is an optimal endpoint.

Case Report: We report the case of a 55 year old lady on follow-up for a year on account of HBsAg reactive result diagnosed about a year prior to presentation detected as an incidental finding following evaluation for elevated liver enzymes. No jaundice or other symptoms referable to a liver disease. She was not a known hypertensive or diabetic. No past history of vaccination against hepatitis B virus.

Body mass index was essentially normal. ALT was 44 IU/L, Creatinine was 95.6 umol/l. Haematocrit, Prothrombin time, INR, serum albumin and platelets were within normal limits. Ultrasound scan of the liver showed generalized increased echo-pattern with no intrinsic masses seen.

On subsequent evaluation, HBV DNA was undetectable, HBeAg was negative while HBeAb, HBsAb and HBcAb were positive.

Further evaluation of HBsAb quantification was positive at 307 IU/L.

An assessment of HBV clearance with immunological response was made.

However, she was placed on surveillance for HCC.

Conclusion: Immunological response post-hepatitis B virus infection without treatment may rarely occur.

Keywords: Immunological Response; HBsAg Clearance; HBsAb Quantification

Abbreviations

HBV: Hepatitis B Virus; HBsAg: Hepatitis B Surface Antigen; HBsAb: Hepatitis B Surface Antibody; HBeAg: Hepatitis B Envelope Antibody; HBcAb: Hepatitis B Core Antibody; DNA: Deoxyribonucleic Acid; ALT: Alanine Aminotransferase; HCC: Hepatocellular Carcinoma

Background

Infection with hepatitis B virus (HBV) constitute a major global public health problem with significant morbidity and mortality.

An estimated 257 million people are living with HBV infection resulting in about 887,000 deaths per year from Cirrhosis and hepatocellular carcinoma.

In 2013, viral hepatitis was the leading cause of death worldwide (1.46 million deaths, a toll higher than that from HIV, tuberculosis or malaria).

More than 90% of this burden is due to the sequelae of infections especially with the hepatitis B virus (HBV). In the absence of additional efforts, 19 million hepatitis-related deaths are anticipated from 2015 to 2030.

The main goal of therapy is to improve survival and quality of life by preventing progression to liver cirrhosis and HCC while the most effective preventive strategy is HBV vaccination with development of anti-HBs protective titre (>10 iu). Long-term suppression of HBV replication represents the main endpoint of current treatment strategies, while HBsAg loss with or without development of Anti-HBs is an optimal endpoint.

Case Report

We report the case of a 55 year old lady on follow-up for a year following HBsAg reactive result detected as an incidental finding following evaluation for elevated liver enzymes. No jaundice or other symptoms referable to a liver disease. She was not a known hypertensive or diabetic. No past history of vaccination against hepatitis B virus.

Body mass index was essentially normal. ALT was 44 IU/L, Creatinine was 95.6 umol/l. Haematocrit (36%), Prothrombin time, INR, serum albumin and platelets were within normal limits. Ultrasound scan of the liver showed generalized increased echo-pattern with no intrinsic masses seen.

On subsequent evaluation, HBV DNA was undetectable, HBeAg was negative while HBeAb, HBsAb and HBcAb were positive. ALT decreased to 10 IU/L.

Further evaluation of HBsAb quantification was positive at 307 IU/L.

An assessment of HBsAg sero-clearance with immunological response was made.

However, she was on surveillance for HCC.

Discussion

Chronic liver disease is a major global health problem with a high mortality rate. It is a clinical and pathological syndrome characterized by necro-inflammation of the liver usually over a period of six months which may eventually lead to scarring and nodular regeneration. It progresses from chronic hepatitis to liver cirrhosis with or without neoplastic transformation which is primary hepatocellular carcinoma.

According to the World Health Organization (WHO), about 2 billion people have been infected with hepatitis B virus (HBV), and more than 240 million people have chronic HBV infection.

Among individuals with chronic HBV infection who are untreated, 15% to 40% progress to cirrhosis, which may lead to liver failure and liver cancer. The cure (defined as hepatitis B surface antigen loss with undetectable HBV DNA) rates after treatment remain low (3% - 7% with pegylated interferon and 1%-12% with nucleos(t) ide analogue therapy).

Hepatitis B surface antigen (HBsAg) clearance is a relatively rare outcome due to the complex natural history of chronic hepatitis B virus infection.

African and Asian continents constitute hyper-endemic regions with prevalence of hepatitis B infection greater than or equal to 8% of the population and hypo-endemic (less than 1%) of the population in Western Europe, Tropical, central Latin and North America.

The estimated annual incidence of clearance of HBsAg in African population is not clearly known due to paucity of data but estimated to be 1 - 2% in Asian and in Western populations and 0.5 - 3% globally.

Loss of hepatitis B surface antigen (HBsAg) usually indicates the cure of hepatitis B virus (HBV) infection. Spontaneous HBsAg clearance usually confers a good prognosis if there is no pre-existing hepatocellular carcinoma or cirrhosis at the time of HBsAg sero-clearance [1-5].

Conclusion

Immunological response post-hepatitis B virus infection may rarely occur. Thus, the need to create awareness among clinicians for periodic evaluation of patients infected with hepatitis B virus on treatment, monitoring or on HCC surveillance for HBsAg loss and for possible development of HBsAb.

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Competing Interests

None.

Patient Consent

Not required.

Declaration

The article has not be published elsewhere or communicated for the purpose of any other publication apart from E-Cronicon.

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