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MINI REVIEW

Hepatitis B: From Blumberg to Bangladesh

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ABSTRACT

Bangladesh has made significant progress in all aspects, if hepatitis B management in the recent years. On one hand, we have local generics of most approved antivirals against hepatitis B, including pegylated interferon, which has brought down treatment cost significantly. On the other extreme, significant progress has also been made in the research arena and good quality papers on hepatitis B from Bangladesh are now being published regularly in impact factor journals. Several clinical trials have already been completed, while others are ongoing, which is testimony to the very promising side of hepatology in Bangladesh as a whole.

Keywords: Hepatitis B, Bangladesh.

INTRODUCTION

Hepatitis B is a global health problem. An estimated 400 million people are carriers of hepatitis B virus (HBV) in the world; of these, about 75% reside in Asia and the Western Pacific region. The disease is present since ancient times. Blumberg was first to discover this virus in Australian aborigines in 1965. It was a revolutionary discovery as hepatitis B is one of the major causes of chronic hepatitis, cirrhosis of liver and hepatocellular carcinoma which is a major cause of liver related morbidity and mortality. This discovery led to eventual development of vaccine for this virus and by that there was a considerable decrease in HBV-related complications which ultimately may lead to cirrhosis of liver and hepatocellular carcinoma.

Blumberg discovered hepatitis B surface antigen (HBsAg). It is the fundamental diagnostic marker of HBV infection. After his discovery, other markers of HBV infection were detected, like HBeAg, HBcAg, HBV-DNA. Quantitative estimation of HBsAg has also been introduced. These discoveries along with knowledge about the wide clinical spectrum of acute and chronic disease, natural history of HBV, the molecular biology of the virus including its variants and mutants, its molecular diagnosis and monitoring, the host immune responses to infecting virus, pathogenesis and immunopathogenesis of this disease are now on firm background for current and future developments in the management.

PREVALENCE AND TRANSMISSION

Bangladesh is within the intermediate zone of prevalence of HBV infection. Here, the prevalence in healthy population is 5.4% as revealed in field survey in Savar, near Dhaka in 2007.[1] The highest prevalence of HBV was observed among young adults and middle-aged individuals with a male predominance. This favors horizontal transmission in early childhood as the principal mode of transmission of the virus, contrary to vertical transmission, which is the popular belief. The most important risk factors for exposure to HBV, as revealed in this study, include injudicious use of injectable medications and treatment by nonqualified traditional practitioners. Injectable drug abuse, however, is not a major problem in our country, possibly due to religious beliefs and social norms. The lifetime risk of acquisition of HBV infection in these areas is 20 to 60%.[2]

DIAGNOSIS

Diagnosis of hepatitis B is based on presence of HBsAg positivity and or anti-HBc positivity in serum. History and physical examination suggestive of hepatitis aid in the diagnosis. Markers of acute hepatitis B are positive HBsAg with positive IgM anti-HBc. In chronic hepatitis, IgM anti-HBc is negative or in low titer. Serum alanine amino-transferase, serum bilirubin, serum alkaline phosphatase, serum albumin, prothrombin time are surrogate markers of liver involvement.

Predominant genotype in this country is C or D as found in a small study of 45 patients at Bangabandhu Sheikh Mujib Medical University.[3] Mixed genotype of C and D are also found. HBeAg negative variant is predominant cause of chronic hepatitis in incidentally detected HBsAg positive patient.[4] Another interesting observation was found in one of our study. We found early completion of immune clearance phase, among young (10-20 years) chronic hepatitis B patients, as observed by negative HBeAg in some patients.[5] Early acquisition of HBV is the likely explanation.

TREATMENT

Treatment of hepatitis B has improved a lot after the first introduction of interferon for its treatment. Interferon has advantage as it has immunomodulation as well as antiviral property. Nucleoside/tide analogs, which are oral agents, are an alternative treatment of chronic hepatitis B.

Interferon was the first to be introduced in the market. It was further improved by introduction of pegylated interferon. Among oral nucleoside/tide analogs, lamivudine and adefovir were introduced first for the treatment of chronic hepatitis B infection. It was further improved by introduction of entecavir and tenofovir having high genetic barrier. Recently, the idea of immunotherapy for treatment of chronic hepatitis B is gradually coming up. Our trial with antiviral agent lamivudine combined with immune modulator (hepatitis B vaccine) in incidentally diagnosed chronic hepatitis B patients had an encouraging result.[6] In Bangladesh, ongoing trial of chronic hepatitis B treatment by combined vaccine of surface and core antigen (HBsAg and HBcAg) by nasal route is found to be encouraging.[7-9] In a 20 weeks treatment, HBV-DNA was undetectable in 33.3% at the end of treatment and was 50% on 12 months of treatment follow-up. Immune modulator, like hepatitis B vaccine, represents a potential therapeutic option for the control of HBV in coming days.

REFERENCES

1. Rahman S, Mahtab MA, Foster G, Khan M, Karim MF, Solaiman S, et al. Epidemiology of hepatitis B virus in Bangladeshi general population. Hepat Bil Pancreat Dis Int 2008;7(6):595-600.
2. Tibbs CJ, Smith HM. Clinicians guide to viral hepatitis (1st ed) Arnold 2001.
3. Mahtab MA, Kumar S, Rahman S, Kamal M, Khan M, Aggarwal R. Genotypes of hepatitis B virus among chronically infected patients in a tertiary care hospital in Bangladesh. Indian J Gastroenterol 2006;25:219-21.
4. Mahtab MA, Rahman S, Karim MF, Khan M. Prevalence of HBeAg negative HBV infection in Bangladeshi IDHAS. J Gastroenterol Hepatol 2008;23(5):28.
5. Mahtab MA, Rahman M, Karim F, Ahmed F, Akbar F, Kamal M, et al. Early completion of immune clearance state of HBV infection in Bangladesh: An observation. Hepatolog Int 2010;4(1):15.
6. Mahtab M, Rahman S, Akbar SMF, Khan SI, Uddin H, Karim F, et al. Combination therapy with antiviral drugs and hepatitis B vaccine in incidentally-detected and asymptomatic chronic hepatitis virus B carriers in Bangladesh. Viral Immunology 2010;23(3):335-38.
7. Akbar SMF, Mahtab MA, Rubido JCA, Onji M, Mishiro M. Hepatitis B vaccine: Beyond commercial adjuvants, prophylactic antigens and traditional route of administrations. The 8th JSH Single Topic Conference, Tokyo, Japan 2009;43.
8. Mahtab MA, Akbar F, Rahman S, Rubido JCA, Mishiro S. Safety, efficacy and immunogenecity of a therapeutic vaccine containing HBsAg and HBcAg by nasal route in patients with chronic hepatitis B. J Hepatolog 2010;52(1):392.
9. Akbar SMF, Mahtab MA, Aguilar JC, Onji M, Mishiro S. Therapeutic potential of a novel therapeutic vaccine containing both hepatitis B surface antigen (HBsAg) and hepatitis B core antigen (HBcAg) administered through mucosal and parental route in patients with chronic hepatitis B. Hepatol 2010; 538-39.