SHORT REPORT

Hepatitis B Virus Serological Markers in Human Immunodeficiency Virus Infected Individuals at Specialist Hospital, Waibagi, Yangon

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Hepatitis B virus (HBV) infection is a leading cause of chronic hepatitis, liver cirrhosis and hepatocellular carcinoma worldwide. Due to the shared mode of transmission, co-infection with HBV and human immunodeficiency virus (HIV) is not uncommon. Approximately 10% of the HIV-infected population in Asia and Africa has concurrent chronic HBV infection.[1] HIV infection accelerates HBV-related liver damage, leading to earlier cirrhosis and end-stage liver disease. The presence of HBV complicates the management of HIV infection and impairs CD4 recovery that leads to increase the morbidity and mortality of HIV-infected patients.[2] This study was carried out to detect HBV markers: HBV hepatitis B surface antigen (HBsAg), hepatitis B surface antibody markers (Anti-HBs), hepatitis B e antigen (HBeAg), hepatitis Be antibody (Anti-HBe) and Hepatitis B core antibody (Anti-HBc) in HIV patients and to document socio-demographic profiles of HIV patients co-infected with HBV.

A total of 131 HIV-positive patients attending the Outpatient Clinic of the Specialist Hospital, Waibagi, Yangon from June to October 2016 were included in the study. Blood collection was done and socio-demographic data were recorded. HBV markers were detected with Combo Test Kit (CTK Biotech, Inc., USA) at the Advanced Molecular Research Centre, Department of Medical Research. Of 131 HIV patients, 74(56.5%) were males and 57(43.5%) were females. The age range was 27-71 years and mean age was 36.8 SD±10.7 and median CD4 count was 248 cells/mm^3 (range 10-1233). HBsAg was detected in 19(14.5%). The overall prevalence of HBV marker among 131 HIV patients were 39(29.8%) anti-HBs, 3(2.3%) HBeAg, 6(4.6%) anti-HBe and 21(16%) anti-HBc, respectively. Differential distribution of HBV serological markers in HBsAg positive and negative patients with HIV positive cases are shown in Table 1.

The prevalence of HBsAg in the present study was 14.5% which is about two times higher than that of the general population in Myanmar (6.5%).[3] Among HIV-infected individuals, it is also found to be higher than an epidemiological study and a hospital-based study which showed HBsAg sero-prevalence of 8.7% and 8.2%, respectively.[4, 5] It may be the result of low resistance in the HIV-infected persons to eradicate the infected viruses and low coverage of HBV vaccination among the community. Anti-HBc positive serum indicates that the individual has been infected with the hepatitis B virus and the presence of anti-HBs indicates the recovery and immunity of hepatitis B

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infection. In this study, 32.8% of study population showed that one or both of anti-HBc or anti-HBs with HBsAg negative which mean those HIV patients had an exposure to hepatitis B infection. Absence of HBsAg and anti-HBc was observed in 52.7% of the patients that can be classified as never having been infected and nearly one-third of the patients (28.2%) have protective antibody (anti-HBs) in their circulation either by means of natural immunity or HBV vaccination. It is important to know the prevalence of occult or core alone positive hepatitis B co-infection in HIV-infected patients as it is another form of chronic hepatitis B infection which may also potentially negatively affect patient outcome.

Table 1. Distribution of HBV markers and CD_4 counts in HIV-infected individuals (n=131)

HBs Ag negative, HIV positive patients	No. (%)
HBs Ag (-) + Other HBV markers (-)	69(52.67)
HBs Ag (-) + Anti-HBs (+)	37(28.24)
HBs Ag (-) + Anti-HBs + Anti-HBc (+)	2(1.52)
HBs Ag (-) + Anti-HBc (+)	4(3.05)
HBs Ag positive, HIV positive patients	
HBs Ag (+) + Other HBV Markers (-)	3(2.29)
HBs Ag (+) + Anti-HBc (+)	7(5.34)
HBs Ag (+) + Anti-HBc (+) + HBeAg (+)	2(1.52)
HBs Ag (+) + Anti-HBc (+) + Anti-HBe (+)	6(4.58)
HBs Ag (+) + HBe Ag (+)	1(0.76)
Total	131(100)
CD_4 counts (cells/mm3) of HIV patients	
HBsAg (-) HIV(+) patients (n=112)	
≤350	38(29.00)
>350	74(56.49)
HBsAg (+) HIV (+) patients (n=19)	
≤350	5(3.82)
>350	14(10.69)
X^2=0.427, p=0.514	

About two-third (88, 67.2%) of HIV patients enrolled in our study were married and still living with their partners. Either HIV or HBV or both can be transmitted to their related partners if they do not use protective methods for safe sex. Nearly 69 patients with HBV free HIV have CD4 counts more than 100 cells/mm3 and counts of more than 400 cells/mm3 include 30.3%. Whatever their CD4 counts, all the HIV infected individuals with negative HBsAg needs to be immunized against HBV to protect them from contracting HBV infection and its notorious sequelae. The present study highlighted that HIV-infected individuals with negative HBsAg should be immunized against HBV when they were first seen at the treatment centres. Clinicians should have a high index of suspicion for occult HBV among HIV-infected patients whose hepatitis panel is positive only for hepatitis B core antibody (anti-HBc) because occult HBV has not only been associated with increased liver enzymes and pathology but also implicated with HBV transmission; reactivation of HBV and hepatocellular carcinoma (HCC). An extended research work on co-morbidity of HIV-HBV and other hepatitis virus infections in the community and in-depth molecular studies on HBV genotypic characteristic among HIV patients are need to be carried out.

Ethical consideration

This study was approved by the Ethics Review Committee of the Department of Medical Research (Ethics/DMR/2016/068).

Competing interests

The authors declare that they have no competing interests.

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