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Paper Poster Session III

HIV/AIDS

Occult hepatitis B virus infection in HIV-infected patients after HBV vaccination

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Objectives: Occult hepatitis B virus (HBV) infection (OBI) is defined as the presence of HBV-DNA in the liver tissue or serum without detectable hepatitis B surface antigen (HBsAg). Due to similar transmission routes of HBV and human immunodeficiency virus (HIV), most HIV infected patients are at risk of HBV infection. In patients co-infected with HIV and HBV, HIV interferes with the natural history of HBV infection by enhancing HBV replication, leading to more severe liver disease. These considerations make a powerful public health argument for the importance of HBV vaccination for all individuals with HIV infection, as it's recommended by Centers for Disease Control and Prevention (CDC). Despite the relative success of HBV vaccination in HIV patients, breakthrough infections can occur infrequently in patients and it can be due to occult HBV infection, vaccine unresponsiveness and/or emergence of escape mutants. The aim of this study was to assess the presence of occult HBV infection in HIV-positive patients after HBV vaccination.

Methods*:* A total of 80 HIV positive patients from Iranian Research Center for HIV/AIDS, Tehran, Iran were enrolled in this study including 50 responder to HBV vaccine [hepatitis B surface antibody (anti-HBs) titer ≥ 10 IU/l)] and 30 nonresponders (anti-HBs titer <10 IU/l). All of the cases were received HBV vaccine according to routine HBV vaccination protocol (20 µg injections intramuscularly in the deltoid muscle at 0, 1 and 6 months). All of them had CD4 count more than 250 cells/mm^3. The presence of HBV-DNA was determined in plasma samples of patients by real-time PCR using the artus HBV RG PCR kit on the Rotor-Gene 3000 real-time thermal cycler. HBV-DNA positive samples were also evaluated for the mutations in the S region of the HBV genome.

Results*:* A total of 80 HIV positive patients including 50 responder to HBV vaccine and 30 nonresponders were included in the study. 57.5% of them were male and 42.5% were female. HBV-DNA was detected in 4(5%) of cases. Half of the OBI cases (2 cases) were in responder group and the other half were in nonresponder group. 2 (50%) OBI subjects were male and 2(50) were female.

In HBV-DNA positive samples, the most conserved regions of S gene sequences were amplified by nested PCR. The PCR products were purified and submitted for direct sequencing in order to determine whether OBI could be attributed to wild type or escape mutants (the results will be prepared for presenting in the congress).

Conclusion*:* Our study showed that the prevalence of occult HBV infection was low in our HBV vaccinated HIV patients in both responders and nonresponders groups. So there was no alarming evidence indicating breakthrough HBV infection in our vaccinated HIV cases.