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Opinions

Some considerations about HBV vaccination among HIV patients from Latin America and the Caribbean

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In Latin America and the Caribbean, 2.1 million people are living with HIV [1], and these patients may have chronic, past, or occult HBV infection. Studies have shown that between 10% and 29.4% HIV-infected patients have chronic HBV infection, nearly 24% have evidence of past HBV infection [2], and 18.4–49% have developed occult hepatitis B [3,4]. Unprotected sex among men who have sex with men (MSM) and intravenous drugs use (IDU) are the main risk factors associated with HBV/HIV co-infection [2]. The prevalence of HBV/HIV co-infection varies by geographical region, but it is notably high among low-income areas, which could be the case of most of the countries of Latin America and the Caribbean.

Effective HBV vaccination is one of the best ways to stop the spread of HBV, and it prevents complications associated with hepatitis B. In the Americas, at least five HBV vaccines are available: Euvax, Engerix, Recombivax, Heplisav, and Twinrix (HBV plus Hepatitis A virus) [5]. In 2017, the Pan American Health Organization reported that most of the territories in the Americas have access to HBV vaccine with ≥80% coverage. For example, in Mexico, the HBV vaccine is included in the universal vaccination scheme since 1999 and the actual cost of 4 doses of recombinant HBV vaccine (0, 1, 2 and 6 months, 20 μg/mL) is 122 dollars/person. However, despite the availability and coverage of the vaccine, there are still problems in controlling HBV infection in high-risk groups with low-income status [2]. In this issue, Rech-Medeiros et al. [6] reported that the effectivity of Euvax vaccine in Brazilian adults with HIV varies according to the dose and concentration of the vaccine. In their work, 80% of the patients responded to the vaccine. They also showed good results in people over 60 years, and patients with CD-4 levels of ≤350 cells/mL. These data suggest that age and CD-4 count are not limiting factors to initiate HBV vaccination, but this should be considered if the patients have proper management of HIV infection.

Another significant result was that 20% of the HIV-infected patients did not develop protective antibodies after completing the HBV vaccination scheme. This difference may be due to two factors: the type of HBV vaccine used and the genetic background of the population. First, it is known that most recombinant vaccines are produced using HBV A2 subgenotype [7], which is widely distributed in the world, but it does not predominate in Latin America. For example, HBV genotype F predominates in South America while genotype H predominates in Mexico [8]. On the other hand, a Brazilian multicenter study showed that HBV genotype A is most prevalent in the north and northeast regions, while HBV genotype D was predominant in the south [9]. It is plausible that the non-responders were infected with a different genotype of that of the vaccine (HBV A2 subgenotype). Another factor may be the genetic background of the studied population. In Brazil, as in other American countries, a heterogeneous population has risen from the admixture of Amerindians, Portuguese, Africans, Italians, Germans, Spaniards, Asian, Arab, and others. This high genetic diversity may influence the immune response to hepatitis B vaccine. For example, gene polymorphisms of the immune response, as Toll-like receptors, cytokines, or cytokines receptors have been associated with non-responsiveness to hepatitis B vaccine [10]. Thus, the effect of host genetic variation on the HBV vaccine should be assessed in several populations of Latin America and the Caribbean.

Interestingly, the authors also found that 21% of the HIV cohort were not evaluated at baseline for hepatitis B infection. This problem may be due to HBV vaccine shortage, non-availability of serological tests, or in some cases, healthcare professionals may not consider HBV relevant in patients with HIV. Identifying the causes of local irregular situations is the first step in developing effective programs to prevent and control HBV infection in Latin America. Given these results, improving HBV vaccination coverage in patients living with HIV from Latin America could be achieved by (i) Implementing HBV vaccination in HIV clinics, (ii) Choosing the four-dose regimen of 40 μg/mL, and (iii) Reporting the HBV vaccination status by risk group. However, the study of the effectiveness of any given commercial recombinant HBV vaccine against the distinct and predominant circulating HBV genotypes and the host's immunogenetic background remains to be clarified through further regional investigation.

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