High-Dose Hepatitis B Vaccine More Effective for People With HIV

People who received a higher dose had stronger and longer-lasting immune responses.

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Revaccination with a high dose of the hepatitis B virus (HBV) vaccine in HIV-positive people for whom earlier vaccination had failed afforded better protection than giving the standard dose again, according to findings published in JAMA Network Open.

“People with HIV who do not respond to initial HBV vaccination may benefit from a double dose of recombinant HBV vaccine if they have well-controlled HIV and few comorbidities,” Amir Mohareb, MD, and Arthur Kim, MD, both of Massachusetts General Hospital, wrote in an accompanying commentary on the study.

HIV and HBV are transmitted in similar ways, and coinfection with both viruses is common. People with HIV are more likely to develop chronic hepatitis B and have more complications and a higher mortality rate than those with HBV alone. Over time, chronic hepatitis B can lead to severe liver disease, including cirrhosis and liver cancer. While HBV vaccination is an important method of prevention, HIV-positive people may not respond as well to the vaccine.

Jose Ignacio Vargas, MD, of the Pontificia Universidad Católica de Chile, and colleagues examined the efficacy of a high-dose vaccine in comparison with the standard dose for HBV revaccination in people with HIV. They conducted a randomized clinical trial (ClinicalTrials NCT02003703) that included 107 HIV-positive adults who did not produce sufficient antibodies after initial HBV vaccination.

The participants were recruited between December 2013 and March 2018. Around 76% were men, with an average age of 47 years. Almost all (98%) were on antiretroviral treatment, and 86% had an undetectable HIV viral load.

The study population was randomly split, with 55 individuals receiving another series of standard vaccine doses (20 microgram) and 52 individuals receiving a series of high doses (40 mcg) of the Engerix B hepatiti B vaccine. Both were administered in three doses at months 0, 1 and 2. (The standard schedule for the initial vaccine series for adults is 0, 1 and 6 months; a two-dose HBV vaccine and a combination hepatitis A and B vaccine are also available.)

The high-dose group showed higher antibody production than the standard-dose group: 72% of those who received the high-dose vaccine series had a good serological response compared with 51% of those who received the standard dose series.

After one to two months of follow-up, antibodies against HBV were on average more than twice as high in the high-dose group (398 international units per liter) compared with the standard-dose group (159 IU/l) . Moreover, 81% of those who responded in the high-dose group had antibody levels above 100 IU/l compared with 50% of the standard-dose group.

At the one-year mark, people who showed serological responses in the high-dose group were twice as likely to continue to have protection against HBV than those who had initial responses to the standard dose (80% versus 39%).

“We believe that the high dose with shorter interval schedule used in this study could be considered as one of the primary options in stable patients with HIV for HBV revaccination,” wrote the researchers. “The persistent serological protection one year after vaccination in the high-dose schedule group further supports the use of this high-dose HBV revaccination schedule in patients with HIV.”

Click here to read the study in JAMA Network Open.

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