Truvada Tied to Changes in Gut-Based Immunity

Researchers studied people taking Truvada as PrEP and plan to conduct similar research on newer antiretrovirals.

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The combination antiretroviral tablet Truvada (tenofovir disoproxil fumarate/emtricitabine) is associated with changes to the gut-based immune system that may help individuals ward off viral infections other than HIV.

Florian Hladik, MD, PhD, and Sean Hughes, MA, of University of Washington Medicine, conducted a study of HIV-negative people taking Truvada pre-exposure prophylaxis (PrEP) against HIV. They published their findings in Cell Reports Medicine.

In a previous study, the authors found that a topical rectal gel containing tenofovir disoproxil fumarate led to immunological changes in the mucosal lining of the rectum.

The new study included observational data about people taking oral PrEP over the past five years, plus additional data from two previous studies.

“We wanted to know how the drugs themselves affect the immune system,” Hughes said in a press release. “We found that they stimulated type I/III interferon responses, a part of the immune system that is crucial for the body’s ability to fight off viruses. This only happened in the gut.”

It remains uncertain what these findings about the gut-based immunological changes mean for individual health. The investigators hope to study the matter further.

“Increased type I/III interferons could be a good thing and actually make the drugs more effective at suppressing viral infections, including HIV. However, they could also cause inflammation, which could contribute to conditions such as cardiovascular disease that are common in people living with HIV,” Hladik said. “These effects might even make it harder to find a cure for HIV if they make cells silently infected with HIV (called latent cells) more likely to survive or even cause them to proliferate.”

The researchers also hope to analyze these effects in HIV-positive individuals. In such research, they aim to analyze gut-based immunological changes among people with HIV whose antiretroviral

(ARV) regimens include the components of Truvada and compare those individuals with other HIV-positive people treated with more recently approved ARVs. The investigators have theorized that the newer regimens will not prompt chronic immune activation and will lower the number of latently infected immune cells.

“The most important next step is to repeat our studies in HIV-infected individuals and to find out if replacing drugs such as [Truvada] with newer regimens has clinically relevant effects on reducing chronic inflammation and persistence of latent HIV,” Hladik said.

To read a press release about the study, click here.

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