Argentine Woman Appears Free of HIV Long After Stopping Treatment

The woman has had an undetectable viral load and a normal CD4 count for more than 12 years after stopping antiretroviral therapy.

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A woman in Argentina who maintains an undetectable viral load and no longer has HIV antibodies more than 12 years after she stopped antiretroviral treatment may represent an unprecedented case of posttreatment control, according to a recent report in Open Forum Infectious Diseases.

Although study authors Analia Uruena, of Helios Salud in Buenos Aires, and colleagues didn't go so far as to say the woman is cured, they noted that her case is "extremely unique," both in terms of the length of time she has maintained viral suppression without treatment and because her weak T-cell responses and loss of HIV antibodies are rare even within the small group of known posttreatment controllers.

While antiretroviral therapy can keep HIV suppressed during treatment, it is very difficult to cure. HIV inserts its genetic material into human chromosomes, creating a viral reservoir in resting immune cells that can remain dormant indefinitely. But when antiretrovirals are stopped and the cells become activated, they can start churning out new virus.

Only two people are widely thought to have been cured of HIV: Timothy Ray Brown, formerly know as "the Berlin Patient," and a man in London. Both received bone marrow stem cell transplants to treat cancer from a donor with a rare genetic mutation that makes cells resistant to HIV entry. A California woman and a group of other elite controllers appear to keep the virus suppressed naturally without ever taking antiretrovirals. Another small group, known as posttreatment controllers—some of whom started antiretrovirals very soon after infection—are able to maintain viral suppression after they stop treatment.

As first reported at the 2014 International AIDS Conference, the Argentine woman, now in her late 50s, was diagnosed with HIV in 1996 after developing wasting syndrome and toxoplasmosis, an opportunistic infection of the brain. Examination of a stored brain tissue sample years later confirmed that she did, in fact, have HIV. She does not have the rare CCR5-delta32 mutation that prevents most types of HIV from entering cells.

At that time, she started a combination regimen of AZT (zidovudine, or Retrovir), ddI (didanosine,

or Videx) and nevirapine (Viramune). Two weeks after treatment initiation, her viral load was 2,200, and her CD4 T-cell count was 164—below the threshold for an AIDS diagnosis.

The woman experienced treatment failure a year later and switched to d4T (stavudine, or Zerit), lamivudine (3TC, or Epivir) and indinavir (Crixivan). After that, she maintained an undetectable viral load for a decade—with only a small, transient "blip" reported in 2000—although she changed her regimen several more times due to side effects and difficulties with adherence.

In 2007, she discontinued antiretroviral therapy entirely due to lipodystrophy and abnormal blood lipid levels. Despite stopping treatment, her viral load has remained suppressed ever since, and she continues to maintain a stable CD4 count in the 500 to 900 range.

Intensive testing at the U.S. National Institutes of Health in 2015 and 2017 revealed that her blood plasma viral load was below the limit of detection of the most sensitive tests, and HIV RNA was not detected in lymph node or gut biopsy samples. HIV DNA—the form of viral genetic material in reservoir cells—was not detected in immune cells in the blood or in gut tissue but was present at a very low level in lymph node tissue.

The woman shows only minimal HIV-specific CD8 T-cell responses, indicating that her immune system is not actively fighting the virus—unlike the robust T-cell responses typically seen in elite controllers. Her CD4/CD8 cell ratio is similar to that of a healthy HIV-negative person. What's more, she no longer tests positive for HIV antibodies (known as seroreversion), suggesting she no longer harbors enough replication-competent virus to trigger an ongoing immune response.

"[T]he findings of complete absence of HIV-specific antibodies and weak T-cell responses in this case with a history of advanced HIV infection and non-rebounding viremia for over 12 years after treatment interruption are extremely unique," the study authors wrote. "With a reservoir of replicating virus below the level of detection and only extremely rare copies of HIV DNA, this case might represent the best example of posttreatment functional cure and, like very few other individuals, offers hope that durable remission might be possible without the need for excessively toxic interventions."

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