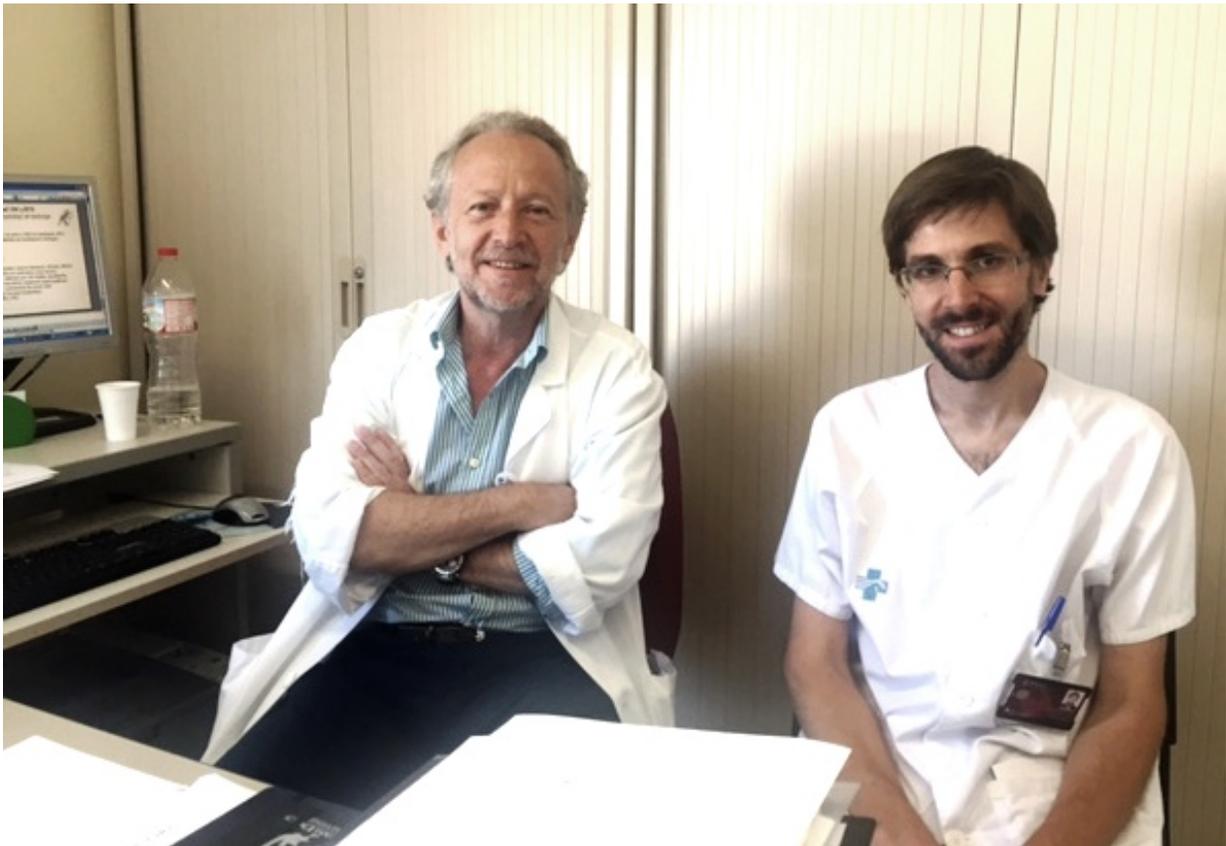


# New antiretroviral drugs decrease chances of HIV sexual transmission

November 22 2016

---



IDIBELL Researchers Dr. Daniel Podzamczar and Dr. Arkaitz Imaz. Credit: IDIBELL

More than 2 million people were infected by human immunodeficiency virus (HIV) in 2015 via sexual transmission. Researchers from the

Bellvitge Biomedical Research Institute (IDIBELL), led by Dr. Daniel Podzamczer, have evaluated the speed at which a new antiretroviral drug, Dolutegravir, is able to reduce the viral load in semen, considered to be a reservoir of the virus difficult to access with drugs. The results, published in *Journal of Infectious Diseases*, show the potential of these new treatments to reduce the chances of sexual transmission of the virus.

Current antiretroviral treatments are able to decrease [blood](#) viral load and render it undetectable in most patients within six to nine months, although it is estimated that about 5 to 25 percent of patients maintain detectable levels of virus [semen](#) after this time, though the reasons are not well understood. "Therefore, in the case of serodiscordant couples in whom only one of the members has the virus, in addition to condoms, it is recommended that the seronegative person also takes antiretroviral drugs as prophylaxis while the viral load of their partner decreases in both blood and reservoirs," says Dr. Podzamczer.

However, there are new drugs known as integrase inhibitors that can act much faster. "In this study, we have focused on evaluating the rate of viral load drop in patients receiving these new treatments, specifically Dolutegravir," explains Dr. Arkaitz Imaz, first author of the study. "We have measured the viral load in blood and semen before starting treatment, at three days, at seven, at 14, at one month, at three months, and at six months. We know that viral load drop goes quickly during the first few days and weeks, then slower, and it finally stabilizes. Adapting a complex mathematical-statistical model to our data and to the characteristics of our patients, we have been able to obtain a kinetic model of the specific viral load drop for each compartment—blood and semen—with this treatment regimen."

The researchers observed that while the rate at which viral load falls during the first few days is significantly higher in blood than in semen, it is equal during the second phase. However, despite the speed difference,

viral load becomes undetectable faster in semen than in blood because the base values are much higher in blood, so there are many more viri to eliminate. "These results suggest the possibility of reducing the time of previous antiretroviral prophylaxis when using these new treatments," the researchers note.

On the other hand, the drop pattern is much more homogeneous in blood than in semen; this heterogeneity demonstrates the differential and more unpredictable nature of semen as a reservoir of the virus. In this sense, it is interesting to note that there is no clear correlation between the concentration of the drug in semen and the decrease in viral load: "The concentration of Dolutegravir in semen is more than enough to ensure viral load drop in this reservoir," explains Dr. Podzamczer, "because even though only 7 to 8 percent of the drug in the blood reaches the semen, the proportion of active drug is much higher than what is observed in blood. This was something that we did not know until now."

Integrase inhibitors are currently recommended by all clinical guidelines as the first line of treatment. "Our study reinforces this decision, especially in light of the current HIV transmission landscape. If we reduce the time of [viral load](#) drop, we clearly reduce the possibility of transmission, especially in groups at risk," argues Dr. Imaz. The editorial that accompanies the study in the *Journal of Infectious Diseases* points out the need to replicate this study with other new drugs currently under development, namely long-term antiretrovirals, to evaluate the potential of these new therapies and their activity in this viral reservoir.

**More information:** Arkaitz Imaz et al, HIV-1-RNA Decay and Dolutegravir Concentrations in Semen of Patients Starting a First Antiretroviral Regimen, *Journal of Infectious Diseases* (2016). [DOI: 10.1093/infdis/jiw406](https://doi.org/10.1093/infdis/jiw406)

Provided by IDIBELL-Bellvitge Biomedical Research Institute

Citation: New antiretroviral drugs decrease chances of HIV sexual transmission (2016, November 22) retrieved 20 September 2024 from

<https://medicalxpress.com/news/2016-11-antiretroviral-drugs-decrease-chances-hiv.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.