

HIV can infect transplanted kidneys in HIV-positive recipients with undetectable virus

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HIV can infect transplanted kidneys in HIV-positive recipients even in the absence of detectable virus in the blood, according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN). The study's investigators also developed a simple urine test to diagnose such infections.

HIV is a common cause of [kidney failure](#), and because of this, approximately 900 HIV-infected patients start dialysis each year in the United States. Kidney transplantation has recently become a therapeutic option for these patients, and the survival rate of HIV-infected [transplant recipients](#) with undetectable HIV in the blood is similar to that of non-HIV-infected transplant recipients. For unknown reasons, however, organ rejection is more common in HIV-infected transplant recipients.

To investigate this issue, Guillaume Canaud, MD, PhD (Necker Hospital, in Paris, France) and his colleagues assessed all 19 of HIV-positive patients in their center who received kidney transplants between June 1, 2006, and October 31, 2011. Genetic analyses demonstrated that HIV infection occurred in 68% of the HIV-positive recipients' new organs even in the absence of any detectable HIV in their blood.

Biopsy experiments revealed two different forms of infection. In the first case, podocyte cells—which constitute the barrier through which blood is filtered in the kidneys—are the main target of HIV, and infection is associated with certain clinical signs of kidney dysfunction. In the second case, HIV infects tubular cells within the kidney, with

fewer clinical manifestations.

The researchers also developed a new and simple urine test to detect HIV infection in the kidneys, which could be a promising non-invasive method for diagnosing problems in HIV-positive transplant recipients.

"This study is going to change the way of thinking of nephrologists and will certainly modify the approach of [kidney transplantation](#) in HIV patients, giving new hope to patients," said Dr. Canaud.

According to an accompanying editorial by Peter Stock, MD (University of California, San Francisco), the noninvasive urine test that detects early HIV-1 infection will help clinicians identify donor and recipient factors associated with recurrent HIV kidney disease. "It is less clear what intervention may control the reinfection, although identification of donor and/or recipient factors associated with early reinfection may provide some clues," he wrote.

More information: The article, entitled "The Kidney as a Reservoir for HIV-1 After Renal Transplantation," will appear online on December 5, 2013, [DOI: 10.1681/ASN.2013050564](https://doi.org/10.1681/ASN.2013050564)

The editorial, entitled "Kidney Infection with HIV-1 Following Kidney Transplantation," will appear online on December 5, 2013, [DOI: 10.1681/ASN.2013101112](https://doi.org/10.1681/ASN.2013101112)

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