

# Updates on Kidney Donation

**Q** A good friend was diagnosed with chronic kidney disease (CKD) and is presently undergoing workup for a transplant. He is 60 and otherwise healthy; his glomerular filtration rate (GFR) is 14, and he has no uremic symptoms. If I volunteer to give him a kidney, are there any long-term risks for me?

*Kidney failure, dialysis, and kidney transplant* are terms that can invoke stress and uncertainty in patients with end-stage renal disease (ESRD) and among their family members and friends. In addition to adjusting to the changes wrought by ESRD, patients may also be burdened by the prospect of a family member or friend donating a kidney to them and the concern that the donation will lead to complications for their donor. Family members or friends who volunteer may also experience stress, uncertain of their own risk for ESRD in the future.

Past research improperly compared relative risk for ESRD in donors with that in the general population (without accounting for higher propensity for complications in donors with preexisting conditions). In an effort to correct this misperception, a study recently published in *JAMA* compared the risk for ESRD in donors with that in a healthy group of nondonors.<sup>1</sup> The nondonor

pool was taken from the National Health and Nutrition Examination Survey (NHANES III), which assesses the health and nutritional status of adults and children in the United States.

The *JAMA* study included a cohort of 96,217 kidney donors in the US in a 17-year period and a cohort of 20,024 participants in a six-year period of the NHANES III trial. This data was then compared to Centers for Medicare & Medicaid Services (CMS) data to determine the development of ESRD in kidney donors. ESRD was defined by CMS as the initiation of dialysis, placement on the kidney transplant waiting list, or receipt of a living or deceased donor kidney transplant.

In addition to comparing risk for ESRD in kidney donors with that of a healthy population of nondonors, the researchers also stratified their results demographically. Thus, the lifetime rate of kidney failure in donors is 90 per 10,000, compared with 326 per 10,000 in the general population of nondonors. In healthy nondonors, the risk for kidney failure was 14 per 10,000. After 15 years, the risk for kidney failure associated with donating a kidney was 51 per 10,000 in African-American donors and 23 per 10,000 in white donors. So while the study did reveal an increased risk associated with kidney donation, the degree of risk is considered small.

These findings demonstrate

the importance of understanding the facts surrounding inherent risk for ESRD in kidney donation. Overall, a donor's lifetime risk is considered minuscule. So, to answer the question, yes, there is a slight increase in risk for kidney failure if you donate to your friend. That said, the risk is 0.014 x a standardized risk of 1. This increases at 15 years to 0.51 for African-American and 0.23 for white donors. With such tiny increases, you can safely feel good about donating a kidney to your friend.

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**Q** Now that patients are living with HIV/AIDS, can they donate kidneys or receive a kidney transplant?

Kidney disease often has multiple causes, including hypertension, diabetes, inherited conditions, and viral illnesses. The latter include primarily HIV, hepatitis C, and hepatitis B. With advances in the treatment of viral illnesses, the question of whether patients with these viruses can donate or receive a kidney transplant is being discussed not only in the United States but also worldwide.

The most recent CDC figures estimate that more than 1.1 million people in the US are living with HIV, of whom one in six (or nearly 16%) are undiagnosed. There are approximately 50,000 new infections reported annually.<sup>2</sup>

The Organ Transplant Amendments Act of 1988 banned HIV-positive people from donating organs. However, with the introduction of highly active antiretro-

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viral therapy (HAART, now often referred to as *active antiretroviral therapy*) and the effective prophylaxis and management of opportunistic infections, mortality has been reduced. HIV/AIDS is often seen as a chronic disease and not the death sentence it once was.<sup>3</sup> Since the development of HAART, there have been successful transplants to HIV-positive recipients from non-HIV-infected donors.

In November 2013, President Obama signed the HIV Organ Policy Equity (HOPE) Act, which lifted the ban on using organs from HIV-infected donors. The legislation directs the Department of Health and Human Services and the Organ Procurement and Transplantation Network to develop standards to make these transplants possible.<sup>4</sup>

Although there have not been any documented cases of transplants from HIV-infected donors to HIV-infected recipients in this country, such transplants have been very successful in South Africa.<sup>5</sup> There, to qualify for kidney transplant, all recipients must have proven adherence, virologic suppression, and immune constitution. Donor suitability is defined as HIV infection (confirmed with the use of enzyme-linked immunosorbent assay), absence of proteinuria, and a normal kidney as assessed with post hoc renal biopsy.<sup>5</sup>

One of the chief concerns has been the effect of further immunosuppression on the recipients and the possibility of disease progression. Although the sample size is limited (four transplants), data from the available cases indicate no evidence of organ rejection at 12 months post-transplantation. In addition, the

recipients' CD4 counts remained lower than baseline due to immunosuppressive therapy. All four patients maintained a viral load of less than 50 copies, which suggested that any virus transplanted along with the kidney had not affected control of HIV infection.<sup>5</sup> However, it should be noted that many of the agents used for post-transplant maintenance immunosuppression (mycophenolate mofetil, cyclosporine, tacrolimus, and sirolimus) have antiretroviral properties.<sup>3</sup>

HIV patients in the US must meet the following criteria to be listed for a transplant:

- Diagnosis of ESRD with at least a five-year life-expectancy
- CD4 count of > 200 cells/ $\mu$ L for at least six months
- Undetectable HIV viremia (< 50 HIV-1 RNA copies/mL)
- Demonstrated adherence to stable antiviral regimen for at least six months
- Absence of AIDS-defining illness following successful immune reconstitution<sup>6</sup>

A prospective trial of 150 patients in 19 US transplant centers who met the above criteria demonstrated patient survival and graft survival rates comparable to those in patients ages 65 and older.<sup>6</sup>

While awaiting the donation, HIV patients can continue hemodialysis and peritoneal dialysis. With the improved antiviral drugs, HIV patients have a survival rate similar to the non-HIV-infected population.

Transplantation is the goal and certainly the hope of many advanced-stage kidney patients, but in reality, the need far exceeds the resources. The HOPE Act opens



The National Kidney Foundation Council of Advanced Practitioners' (NKF-CAP) mission is to

serve as an advisory resource for the NKF, nurse practitioners, physician assistants, clinical nurse specialists, and the community in advancing the care, treatment, and education of patients with kidney disease and their families. CAP is an advocate for professional development, research, and health policies that impact the delivery of patient care and professional practice. For more information on NKF-CAP, visit [www.kidney.org/CAP](http://www.kidney.org/CAP)

the door for many patients who were previously excluded from the possibility of a life without dialysis. Taking care of these patients will be a team effort, encompassing HIV and infectious disease specialists, pharmacists, nephrologists, transplant surgeons and coordinators, and primary care providers—including, of course, advanced practitioners. **CR**

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