Canadian Laws Are on Target—But Is the Transplant Community?

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After the first Canadian human immunodeficiency virus (HIV)-infected donor to HIV-infected recipient kidney transplant, Wright et al¹ reported the early success of the transplant, reviewed the Canadian laws regarding the use of HIV-positive donors, and estimated the number of potential HIV-positive donors in the Canadian system. The authors further discussed whether the utilization of the HIV-positive donors justifies the potential risks for the HIV-positive recipient in the Canadian system. Unlike the US system which required changing an archaic law to permit the use of HIV-positive organs,² the Canadian laws permit the use of HIV-positive organs. However, the Canadian Standards Association (CSA) considers HIV infection as a contraindication for organ donation unless requirements for “exceptional distribution” can be met. These very rationale requirements are outlined in this article, and include the following: (a) an organ that has been determined to be safe by CSA is not immediately available, (b) the transplant physician authorizes the transplant using his or her clinical judgment, and (c) the patient provides informed consent to receive the organ transplant.

Given the increasing length of time on waiting lists in Canada (already reported at 3.7 years for 2010-2014), the first of these requirements for exceptional distribution is clear. The data supporting the better outcomes of kidney transplants performed with minimal or no time on dialysis as compared with transplants that occur with longer dialysis times are well known. Although this article only focuses on kidney transplants, it is important to recognize that HIV-positive patients coinfect with hepatitis B or hepatitis C have more rapid progression to end-stage liver disease requiring transplantation than monoinfected patients.³ For these reasons, it should be clear that a “safe” organ by Canadian standards is not immediately available. Given the challenges that HIV-positive patients have with lengthy dialysis times, and their rapid progression to end-stage liver disease, this first requirement for exceptional distribution is easily met.

The CSA requirement for informed consent should be straightforward. It is disappointing that the authors feel that it will be “challenging to ensure that patients understand the

risks and benefits of accepting an HIV-infected organ.” In our experience, almost all of the HIV-positive patients listed for transplant (both kidney and liver) are highly motivated to receive an HIV-positive organ after receiving a rigorous description of risk and benefit. Of course, it is a challenge to discuss the unknown risks, but it is quite easy to discuss the benefits—especially given the life-threatening challenges HIV-positive patients with end-stage kidney and liver disease encounter while waiting for an organ transplant. With limited numbers of HIV-positive patients on waiting lists, it should be straightforward to have these discussions and obtain consent well before an organ becomes available. Presumably, these systems are already in place for accepting other organs at increased risk for disease transmission. To further address the complex issue of informed consent, independent advocates not part of the research team as required by the Final HIV Organ Policy Equity (HOPE) Act Safeguards,⁴ help ensure that patients willing to be offered an organ from an HIV-positive donor are educated and informed of potential risks and benefits.

The other requirement for exceptional distribution that is questioned is “whether the transplant physician authorizes the transplant using his or her clinical judgment.” Wright et al express 2 concerns regarding expanding and standardizing the use of HIV-positive organs in HIV-positive recipients: (1) The potential to accelerate HIV infections due to a super-infection with a resistant or more aggressive viral strain; and (2) The potential risk of allowing HIV-infected organs into the general organ pool and the need for safeguards to prevent accidental disease transmission.

Regarding the concern for superinfection, Wright et al describe a higher prevalence of primary HIV resistance (9.8%) and a higher proportion of HIV patients treated with ART in Canada as opposed to the experience in South Africa.⁵ This would increase the risk of superinfection with a more virulent strain when using these organs for transplantation in an HIV-positive recipient. In fact, this is more a theoretical risk, in that there are very few strains of HIV that cannot be controlled with the increasing number of effective of antiretroviral agents. Furthermore, it is unclear whether the fitness of a mutated virus would be greater than the established strain of virus. Taken together, the chances of transmitting a highly mutated virus that could not be controlled with a different combination antiretroviral therapy regimen are far smaller than the risk of death waiting for an organ.

The Canadian authors were also concerned about the potential risk of accidental disease transmission by allowing HIV-positive organs into the donor pool. Similar risks are present when using hepatitis C virus-positive donors, and both the US and Canadian systems have been using these donors for many years in hepatitis C virus-positive recipients. In the US,

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the United Network of Organ Sharing has outlined safety strategies used in the procurement and allocation of organs procured from the HIV-positive donor,⁶ and these could be rapidly adopted by the Canadians.

A significant concern expressed by the Canadian team related to the very few number of HIV-positive donors (3-5/year) estimated to be suitable organ donors. With these few numbers, the authors felt that creating a standard system for using HIV-positive donors might not be worth the effort. First, the estimate on potential donors does not include newly diagnosed donors because the algorithm limited the analysis to persons who had a diagnostic code indicating HIV infection. Second, the estimate of the small annual number of HIV-positive donors in Canada is predicated on the requirement for the absence of viremia. However, this is not a requirement in the United States⁴ or South Africa⁵ for deceased donors. There are CD4 count requirements (>200 cells/mm³), but no viral load specifications. Additionally, the estimate does not include the large numbers of donors with very high risks (sex workers, sex with HIV-positive partners, death with a needle in the arm, and so on) that have indeterminate screening tests. Many centers walk away from these young donors secondary to the higher perceived risks of HIV. In fact, the first “Hope Act” donor in California (resulting in 2 donor kidneys and 1 liver) came from a high risk (social history) that had a positive HIV NAT screen. Repeat testing proved the screen to be a false-positive, but had it not been for the Hope Act, these valuable organs from a very young donor would have been discarded. In fact centers on the east coast are also reporting the use of several organs from donors with indeterminate testing that were allocated to HIV-positive recipients that had consented to receiving a HIV-positive donor. Donors with indeterminate testing undoubtedly occur in the Canadian system as well, and using organs procured from these otherwise ideal donors will be a lifesaving opportunity for HIV-positive recipients. In turn, of course, this will free up another organ for the multitude of HIV negative patients waiting for organ availability.

Finally, the authors stated that “there are significant uncertainties and challenges with routinely offering organ donation to HIV-positive persons,” and these “uncertainties include a lack of information about the long-term transplant

outcomes.” At the turn of the century, the uncertainty of immunosuppressing and transplanting the HIV-positive patient precluded most centers from the practice. Fortunately, several centers in the Europe and United States accepted these uncertainties and moved forward with transplanting the HIV-infected recipients. Over 15 years later, many of these recipients are doing well with liver, kidney, and pancreas transplants, and there is sufficient evidence that outcomes after transplantation in the HIV-infected recipient approximate those seen in the HIV-uninfected recipient.⁷⁻¹⁰ The Canadian team should be commended on their efforts to expand their donor pool and expedite transplantation for their HIV-infected kidney recipient. Although there are some remaining uncertainties in long-term outcomes using organs from HIV-positive donors, the risk/benefit for using HIV-infected donors is tilted heavily in the benefit direction, and ongoing utilization of the HIV-positive donor should be encouraged.

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