

Increased Risk Donor Renal Transplants in Children-To Use or Not to Use?

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Editorial

In 2013, the United States Public Health Service (PHS), in conjunction with the Centers for Disease Control and Prevention released revised guidelines aimed at reducing the risk of transmission of HIV, Hepatitis B and Hepatitis C during organ transplantation. As part of this initiative the PHS published a list of donor characteristics associated with a higher risk of transmission of these 3 infections, the so called Increased Risk Donor (IRD) organs. Traditionally, because of the theoretically high risk of transmission of these infections which could have significant consequences in an immuno-compromised patient, such organs were discarded quite frequently. More recently, however, stemming from the ever increasing shortage of transplantable organs, and adult data showing a very low risk of transmission of infections, with equivalent graft and patient survival, the use of IRD organs has increased in the adult population. This increased utilization has also been driven by the recognition that declining such organ offers and remaining on the wait list has significant adverse consequences, including mortality while awaiting a renal transplant. The pediatric transplant community, though, has appropriately been wary. This is because pediatric patients get a higher priority on the deceased donor transplant wait list, and therefore may not need to wait long, even after declining an IRD organ. Moreover, because pediatric patients have a lower cardiovascular burden compared to adults, the risk of death while waiting for a more ideal kidney has not been felt to be high. While these observations are accurate, remaining on dialysis has significant adverse consequences on growth and development, and longer wait times on dialysis have been associated with poor long-term graft survival when these patients do get a renal transplant [1]. Also, over the years, improvement in serologic testing for these viruses has improved considerably, such that the window between infection and positive nucleic acid testing has become quite short, indicating that the risk of infection from these "high risk" kidneys may in fact be quite low. As a result there has been an increased interest in considering using IRD organs in pediatric recipients. Several recent studies are heartening and indicate good outcomes with the use of such organs [2-4]. The first study, published in 2017, was a retrospective logistic regression analysis looking at patient and graft survival for pediatric recipients of IRD versus non-IRD first renal transplants [2]. Using the Organ Procurement and Transplantation Network database, investigators showed equivalent 1 year, 3-year and 5-year patient and graft survival. Moreover, there were no documented instances of viral transmission in any of the IRD organ recipients. A subsequent study [3], looked at the same question over a longer time period and in a more contemporary patient population. In addition, in this study, patient survival after IRD transplants was compared to patient survival of those who remained on the wait list and never accepted an IRD kidney. In this study there were no differences in delayed graft function or acute rejection between

the 2 groups. Importantly, patient survival was significantly higher after IRD transplants compared with remaining on the wait list and declining a subsequent IRD kidney. The causes of death were similar between the 2 groups and similar proportions of patients died from an infectious cause. The most recent study [4], further supports the use of IRD organs in children, but perhaps in a more individualized manner. In a retrospective analysis, these investigators characterized outcomes after declining an IRD kidney to estimate if there was a survival benefit associated with an IRD kidney versus remaining on the transplant wait list and waiting for a non-IRD kidney. Unlike in the previous study, in this study there was no survival benefit associated with accepting an IRD kidney. However, those that declined an IRD offer waited a median of 9.6 months for a non-IRD transplant, which was of otherwise similar quality as the IRD kidney. While there was no overall survival benefit of accepting an IRD kidney, among pediatric candidates who were not on dialysis at the time of the IRD offer the cumulative mortality for those who accepted versus declined to the IRD kidney, was in fact higher, even when adjusting for confounders. Lastly, in this study, following the decline of a IRD organ, 0.8% of candidates died before receiving a transplant. The incidence of waitlist mortality was higher for those under the age of 6 years. In summary, while there remains some stigma and fear associated with the use of IRD organs, overall the use of these organs is safe and associated with a very low risk of viral transmission. IRD organ transplants have equivalent outcomes, at least in the short-term, although the decision to accept such kidneys should be individualized and made in conjunction with the patient, family and transplant team. Older patients and especially those who are not on dialysis may benefit from waiting for a non-IRD kidney if they are otherwise doing well. Clearly more studies are needed and longer-term follow-up required to better understanding how to optimally utilize such donor kidneys in era of increasing donor-recipient number disparity.

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