Commentary: Hepatitis: A way to make organ donation go viral?

Katrien Vandendriessche, MD,^a Frederik Nevens, MD, PhD,^b Johan Van Cleemput, MD, PhD,^c Dirk Van Raemdonck, MD, PhD,^d and Filip Rega, MD, PhD^a

From the Departments of ^aCardiac Surgery, ^bGastroenterology and Hepatology, ^cCardiology, and ^dThoracic Surgery, University Hospitals Leuven, Belgium.

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Address for reprints: Filip Rega, MD, PhD, Department of Cardiac Surgery, University Hospitals, Gasthuisberg Herestraat 49 B-3000, Leuven, Belgium (E-mail: filip.rega@uzleuven.be).

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HCV+ and HBV+ heart donation.

Central Message

Use of HBV and HCV infected donors in pediatric heart transplantation is infrequent. As HBV and HCV treatment is rapidly advancing, use of these organs should be encouraged.

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In 2006, a YouTube video showed Juan Mann on the street, holding a sign: “Free Hugs.” After initial hesitation, people chose to embrace this total stranger, enjoying the warmth of the gesture. Some 78,000,000 views later, this viral video of a random act of kindness represents the launch of a global social movement, the “Free Hugs Campaign.”¹

This exponential increase in numbers stands in stark contrast with the statistics of a different fundamental act of kindness: organ donation. The scarcity of organ availability and the mismatch with the high organ demand remain significant. Use of hepatitis virus–infected organ donors is a controversial, yet rapidly evolving area in the quest for strategies to expand the donor pool.

The article by Radzi and co-workers² represents the first article to describe the outcome of pediatric cardiac transplantation of hepatitis B virus (HBV) or hepatitis C virus (HCV)-infected donors in seronegative recipients. Of all transplant recipients in the United Network for Organ Sharing database from June 2008 to June 2015, only 12 cases were found. In the same database, 2203 potential yet unused donors for pediatric thoracic transplantation were identified. Although this number seems high, it does underline the potential this specific donor category has to offer.

By using propensity score models, the outcomes of the HCV- and hepatitis B virus core antibody (HBVcAB-) recipients with HCV+ or HBVcAB+ donors were compared with HCV- and HBVcAB- recipients and donors. For the 3 recipients of HCV+ donor hearts, post-transplant graft 5-year survival was similar to that of recipients of HCV- donors ($n = 3$ vs $n = 9$; 67% vs 88%, $P = .44$), with 1 death due to respiratory failure. Nine HBVcAB+ donor hearts were transplanted in HBVcAB- and HBsAg- (hepatitis B surface antigen negative) recipients. For these patients, post-transplant 5-year graft survival was similar to that of

recipients with HBVcAB- donors ($n = 9$ vs $n = 27$; 87% vs 91%, $P = .81$), with 1 death due to multiple system organ failure.

Without a doubt, it is important to use consistent and correct terminology regarding the definition of an “HCV positive donor.” Positive serology only indicates contact with the virus. Transmission occurs only if the donor is HCV RNA +.³

For liver transplantation using HCV+ donors, there is a risk of rapid progression to cirrhosis and fibrotic cholestatic hepatitis: a rare but lethal complication. Fortunately, the advent of direct-acting antiviral agents has drastically changed the landscape of hepatitis C treatment. The cure rate is approximately 100%, even in patients under immunosuppression.

In this article, no data were available on antiviral therapy. However, for children aged less than 12 years, there are no Food and Drug Administration–approved direct-acting antiviral agents, and for adolescent children aged 12 years and more, only sofosbuvir/ledipasvir and sofosbuvir plus ribavirin are approved.⁴ Ten of the 12 cases reported by Radzi and co-workers² were children aged less than 12 years.

Regarding the use of HBVcAB+ donors, White and colleagues⁵ found only 1 case of HBV transmission to an HBVsAg- heart recipient who did not receive prophylaxis of 122 adult heart/heart-lung transplants reported in the

published literature involving HBVcAB+ donors. However, there is no literature on the use of HBVcAB+ thoracic donor organs in children. In adults, the risk of transmission is rather low if HBV vaccination has been completed before transplantation. If contamination occurs, effective antiviral treatment exists.⁶ In this study by Radzi and colleagues,² the recipients of all HBVcAB+ donor hearts were 6 months or older. Vaccination status, however, was not provided in the United Network for Organ Sharing database.

For the first time, Radzi and co-workers² shed light on the use of HCV and HBV-infected donors in pediatric heart transplantation. Although limited by size, the 5-year graft survival is promising. Given the rapid advancements in HCV and HBV treatment and the pertinent organ shortage, systematic use of these organs should be encouraged.

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