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Do Center-specific Factors Impact Utilization of Organs From COVID-positive Donors in the United States?

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Utilization of organs from coronavirus disease 2019–positive (COVID⁺) donors for solid organ transplantation remains variable across various centers in the United States.¹ Despite the good quality of available organs from COVID⁺ donors and no known transmission of severe acute respiratory syndrome coronavirus 2 to the recipient,¹ factors associated with utilization of these organs remain poorly defined. The aim of our study was to investigate the correlation between a transplant center's use of organs from COVID⁺ donors, its transplant volume, and its use of hepatitis C virus–positive (HCV⁺) organs.

Retrospective analysis using the United Network of Organ Sharing database between January 2020 to March 2022 was performed. Adult deceased donors for kidney, liver, and heart transplants were included and further separated into COVID–nucleic acid amplification test (NAT) positive (COVID⁺), COVID–NAT negative (COVID⁻), HCV–NAT positive (HCV⁺), and HCV–NAT negative (HCV⁻) groups. The estimated annual transplant volume (eVolume) was calculated: {12*(total transplants between January-2020 to March-2022)/27}. Centers with eVolume <5 were excluded. Linear regression analysis was

performed to evaluate the association between transplants from COVID⁺ and HCV⁺ organs and eVolume. A *P* value of <0.05 was defined as statistically significant.

A total of 248 centers that performed 234 kidney, 130 liver, and 131 heart transplants were included in the study. Solid organ transplantation from COVID⁺ donors was performed in 139 centers (overall 56%), kidney 121 (51.7%), liver 75 (57.7%), and heart 44 (33.6%). A positive association (*P* < 0.001) was seen between utilization of organs from COVID⁺ donors and center's transplant volume as well as utilization of HCV⁺ organs (Figure 1; Table S1, SDC, <http://links.lww.com/TXD/A508>; Figures S1 and S2, SDC, <http://links.lww.com/TXD/A508>). Our results show that transplant centers that used organs from COVID⁺ donor were less likely to be low-volume centers and were more likely to use organs from HCV⁺ donors.

There is a regional and center-wide variation in utilization of organs from various extended-criteria donors, including those with increased infectious risk such as HCV, hepatitis B, concurrent bacterial infections, and now COVID-19.^{1,2} This variation is likely multifactorial based on waitlist size, organ shortage, waiting times, organ availability, transplant center competition, experience of the transplant team, changes in organ allocation systems, and “risk averseness” of the transplant program.³ Besides these factors, utilization of organs from increased-risk donors requires a strong, team-oriented, multidisciplinary approach along with readily available resources for the pursuit of therapeutics and diagnostics for a novel infectious cause. A high-volume transplant center has been shown to be associated with improved risk-adjusted outcomes across various transplant types.^{4,5} An increase in baseline success of such a transplant center, along with the local geographic and population-based challenges, often alters the risk–benefit analysis of pursuing an individual transplant. This may allow for such centers to be more “aggressive” and accumulate additional experience regarding outcomes in higher-risk recipients or utilization of otherwise increased-risk donors.

A significant correlation between utilization of organs from HCV⁺ and COVID⁺ donors of a center highlights the existing regional and center-wide variation in transplant practices. Further identification of factors leading to these disparities will help expand the donor pool by decreasing the discard rate and by increasing the safe utilization of organs from COVID⁺ donors.

Received 4 January 2023.

Accepted 21 January 2023.

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K.O., S.O., and A.D. participated in study design, data analysis, interpretation of data, writing of article. SN: data analysis, interpretation of data, and critical revision of article. All authors approve the final version of the article.

Supplemental digital content (SDC) is available for this article. Direct URL citations appear in the printed text, and links to the digital files are provided in the HTML text of this article on the journal's Web site (www.transplantationdirect.com).

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A.D. received institutional research grant from Regeneron outside this work. The other authors declare no conflicts of interest.

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ISSN: 2373-8731

(Transplantation Direct 2023;9: e1456; doi: 10.1097/TXD.0000000000001456.)

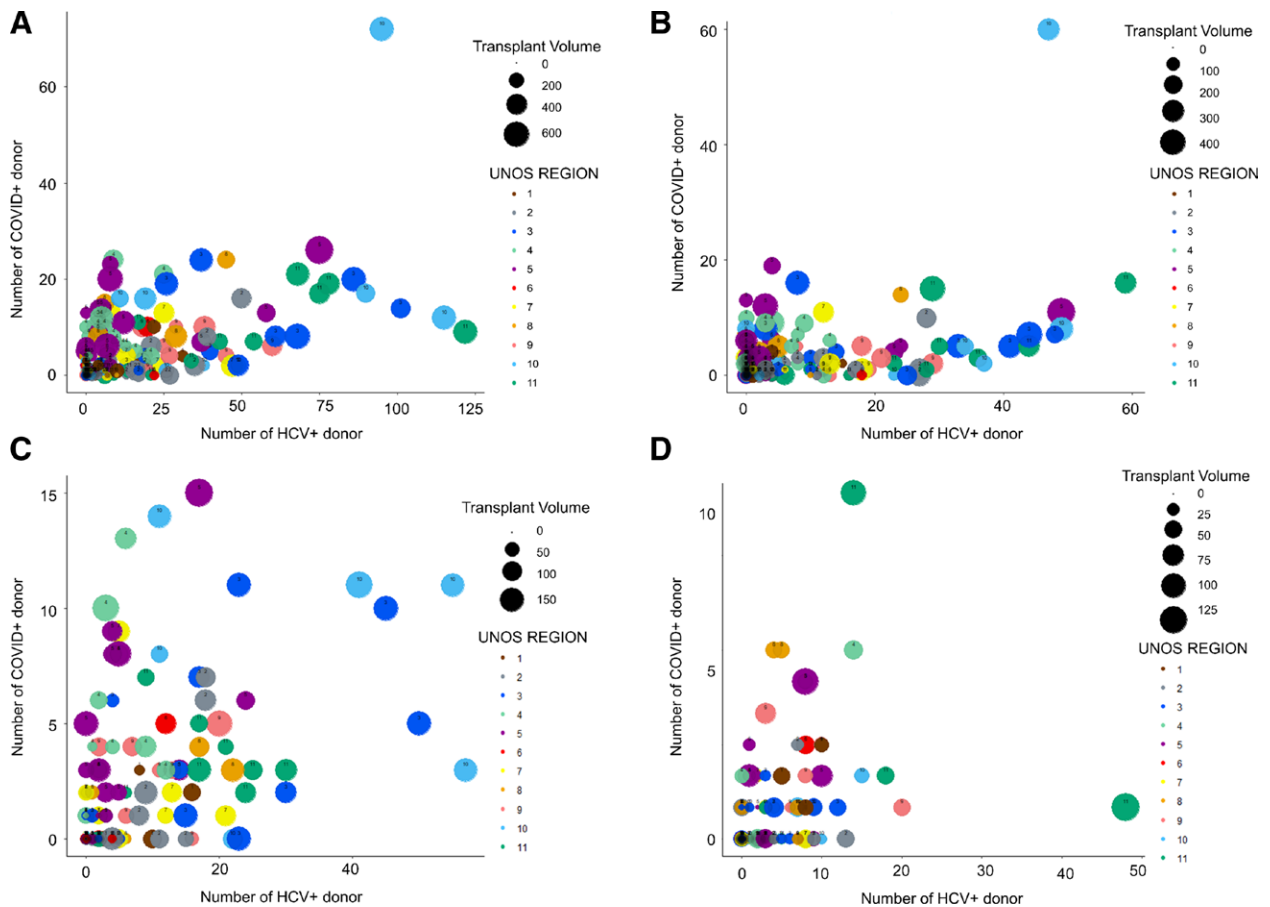


FIGURE 1. Correlation between transplant center's use of organs from COVID-19 positive donors, its transplant volume, and its use of HCV+ organs in the UNOS region: (A) all organs, (B) kidney, (C) liver, and (D) heart. Size of bubble indicates the volume of transplant. UNOS regions are color coded (region 1–11). COVID-19, coronavirus disease 2019; HCV, hepatitis C virus; UNOS, United Network of Organ Sharing.

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