

Using COVID-19 positive donor hearts may impact post-transplant survival

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Heart transplant recipients receiving organs from active COVID-19 positive donors may have an increased risk of death at six months and one year when compared to those receiving organs from recently

recovered COVID-19 patients and COVID-19 negative patients, according to a study published today in the *Journal of the American College of Cardiology*.

"These early trends should be concerning enough such that [heart](#) transplantation centers need to thoroughly evaluate and continue to weigh the risks/benefits of using hearts from active COVID-19 donors," said Shivank Madan, MD, MHA, lead author of the study and a cardiologist at the Center for Advanced Cardiac Therapy at Montefiore Medical Center/Albert Einstein College of Medicine in New York.

The COVID-19 pandemic presented challenges for heart transplantation since [transplant](#) centers had to continuously modify their recipient and donor management protocols as the pandemic and understanding of the virus evolved. There continues to be a lack of data around long-term outcomes of transplants from COVID-19 infected donors, especially as new virus variants emerge.

Researchers in this study sought to determine utilization trends and outcomes of heart transplants using COVID-19 donors. According to researchers, this data is especially important because COVID-19 virus can cause [endothelial dysfunction](#) and myocardial injury in potential donors that may manifest only sub-clinically pre-transplant; currently there is no clear consensus regarding evaluation and use of COVID-19 donors for heart transplants.

The study looked at more than 27,000 donors in the United Network for Organ Sharing (UNOS) between May 2020 and June 2022; in total, donors were given more than 60,000 COVID-19 tests prior to organ procurement. Donors were considered COVID-19 donors if they tested positive at any time during terminal hospitalization. Active COVID-19 status was given to those who tested positive within two days of organ procurement and recently resolved COVID-19 status was given to those

who tested positive initially but became negative prior to procurement.

Of the donors in UNOS, 1,445 were identified as COVID-19 donors, of whom 1,017 were classified as active COVID-19 donors and 428 were recently resolved COVID-19 donors. Overall, 309 heart transplants used COVID-19 donors and 239 of those met study criteria.

Those receiving heart transplants from active COVID-19 donors had increased risk of mortality at six months and one year (7% vs. 13.8% at six months and 9.2% vs. 23.2% at one year for non-COVID-19 vs. active COVID, respectively). Those receiving transplants from recently resolved COVID-19 donors had similar six-month and one-year mortality rates to those receiving transplants from non-COVID donors (7% vs. 8.5% at six months and 9.2% vs. 13.6% at one year for non-COVID vs. recently resolved COVID, respectively).

Researchers also found that during the study period there was increasing use of COVID-19 donors but that transplant centers were selective and mostly used donors who were younger, and about 80% were male. Also, potential donors were tested for COVID-19 multiple times prior to organ procurement, with those who had at least one positive test receiving subsequent tests more often than those who tested negative the first time.

Limitations of the study include variation in the timing and frequency of COVID-19 testing during terminal hospitalization and lack of information on COVID-19 disease activity, including Ct values to indicate viral load, date of disease onset and symptom burden, or vaccination status of [donor](#) or recipient. The authors also emphasized that this is still early data, and continued evaluation of COVID-19 donors with larger sample size, longer follow-up and newer variants of COVID-19 is needed.

Provided by American College of Cardiology

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