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Letter to the Editor

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Kidney Transplantation from COVID-19 Deceased Donors: New Hope on the Horizon

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Dear Editor,

Transplant volumes decreased significantly during the first months of the COVID-19 global pandemic, followed by a shift in the standard of care of transplant medicine [1]. It has become widely accepted to rigorously screen and test donors and recipients for COVID-19 before proceeding with transplant. Discarded kidneys due to positive COVID-19 testing in potential donors are a new challenge for transplant centers. The emerging vaccines and lines of therapy have given us tools that could be utilized to rebalance the shift in practice and maximize organ utilization [2].

In this letter, we present 2 cases of kidney transplantation from a COVID-19-positive deceased donor. The first recipient was a 40-year-old female who was vaccinated with two doses of mRNA-1273 vaccine 5 months before transplant. The second patient was a 41-year-old male without a prior COVID-19 vaccine; he had a natural infection with COVID-19 about 10 months prior to transplant, and the antibody was positive for anti-nucleocapsid IgG at the time of transplantation. Both recipients had negative SARS-CoV-2 nasopharyngeal swab PCRs prior to transplantation, and both received induction with antithymocyte globulin 5 mg/kg.

Both recipients received their transplanted kidneys from the same donor, who tested positive by RT-PCR for COVID-19 from a nasopharyngeal swab 3 days prior to procurement. The cobas® Liat® PCR SARS-CoV-2 single-cycle threshold (CT) value was 31.7 (for the laboratory, a CT of <38 is considered positive). On the following day, the donor's bronchial washing was negative. At the day of procurement, repeated PCR from a nasopharyngeal swab was negative, and the COVID-19 antibody was positive for anti-nucleocapsid IgG (Abbott™ ARCHITECT™). The donor cause of death was head trauma with a terminal serum creatinine of 0.3 mg/dL. Chest imaging did not demonstrate COVID-19 pneumonitis.

Both recipients had an appropriate renal allograft function. Casirivimab 600 mg and imdevimab 600 mg were administered 24 h after the last dose of antithymocyte globulin. Both recipients demonstrated no signs or symptoms of COVID-19 infection during their hospitalization and were instructed to maintain 14 days of COVID-19 exposure precautions postdischarge. At 16 weeks from transplant, both patients had no symptoms of COVID-19 infection.

SARS-CoV-2 RNA has been detected in several organs including kidney, but there was no proof of infective virus

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in extrapulmonary organs. A recent paper documented no proof of productive infection of extrapulmonary organs in reviewing 100 citations [3]. Our 2 cases are consistent with a recent study that reported 10 kidney transplants from 5 deceased donors with new detection of SARS-CoV-2 RNA. All 10 recipients were free of symptoms of infection at 8–16 weeks of follow-up [4]. The use of casirivimab and imdevimab has been approved for postexposure prophylaxis for COVID-19, but they have not been utilized for posttransplant surgery exposure [5].

These 2 cases may broaden the scope of accepting organs from COVID-19-positive deceased donors. The kidneys were accepted for transplant because there were no extrapulmonary manifestations of COVID-19, and there was no compromise of the renal function as evidenced by low terminal creatinine. After transplantation, the donor's CT value of the SARS-CoV-2 PCR was obtained from the laboratory to assess for the viral load. In the context of the donor's clinical scenario, the CT value was interpreted to reflect either a resolving infection or an infection with low viral burden, which reinforced the decision to use casirivimab and imdevimab for immediate posttransplant prophylaxis while following the standard COVID-19 screening protocol. For future COVID-19-positive organ offers, we propose that it may be beneficial to obtain the CT values to further assist in the posttransplant strategy. While we are not sure if the monoclonal antibodies did offer any benefits here, we think that this report may throw light on its potential use in posttransplant surgery prophylaxis. As new variants of COVID-19 continue to emerge, it will be important to adhere to the updated recommendations with the choice of the appropriate postexposure prophylaxis agent, for example, sotrovimab is the monoclonal antibody of choice against the Omicron variant. If approved for postexposure prophylaxis, new oral antiviral agents, such as nirmatrelvir/ritonavir and molnupiravir, may also be adapted with special attention to potential interactions with immunosuppressive therapy to the practice of posttransplant postexposure prophylaxis [6]. Further studies are warranted to examine the benefits of such practice.

Statement of Ethics

This letter/case report was reviewed, and the need for approval was waived by the transplant nephrology committee in Washington University in St. Louis on the bases that this is a case report and not an investigational study. Written informed consent was obtained from the participants prior to the study.

Conflict of Interest Statement

The authors of this manuscript have no conflicts of interest to disclose.

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Author Contributions

All the authors have contributed significantly to this letter. Mohamed M. Ibrahim conceived the manuscript, significantly contributed to writing the manuscript, and obtained informed consents from the patients, corresponding to authors and reviewers. Massini Merzkani, Haris Murad, Tarek Alhamad, and Karen Flores contributed to conceiving the manuscript, data interpretation, and significantly contributed to writing the manuscript. Anupam Pande and Erik R. Dubberke significantly contributed to writing the manuscript, obtained the cycle threshold data, and interpretation.

Data Availability Statement

The data of this study are available from the corresponding author on reasonable request.

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