Received: 15 October 2021 | Accepted: 19 October 2021

DOI: 10.1111/tid.13752

LETTER TO THE EDITOR

WILEY

Small bowel transplantation from SARS-CoV-2 respiratory PCR positive donors: Is it safe?

Dear Editor,

We read with great interest the recently published article titled "The pandemic provides a pathway: What we know and what we need to know about COVID positive donors" by Eichenberger et al.[1] The coronavirus disease of 2019 (COVID-19) pandemic has significantly affected the solid organ transplant (SOT) community. Even though mortality has improved compared to the beginning of the pandemic, it still remains high. Hence, as organ transplantation continues globally, it is crucial to minimize the risk of donor derived severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections in SOT recipients. Till date, there are two possible and one confirmed donor derived infection due to SARS-CoV-2 reported, which were limited to lung transplantation.[1] Eichenberger et al. summarized 13 reports of successfully conducting nonlung (heart, liver, and kidney) transplantation from respiratory SARS-CoV-2 polymerase chain reaction (PCR) positive donors[1]; however, no case of small bowel transplantation has been reported. Two major differences between lung and other SOT are that the graft is directly affected by PCR positive specimen, that is, sputum or bronchoalveolar lavage, and if the graft is the primary infected organ for SARS-CoV-2. Transmissible virus may only be seen in lung tissue, but not in other transplanted organs.[1] However, small bowel would be considered as an exception. While small bowel is not the primary infected organ in COVID-19, it is well known that the stool PCR for SARS-CoV-2 can be detected in high rate, and even positivity continues longer than respiratory specimens,[2] and data suggest that SARS-CoV-2 may spread via fecal-oral route.[3] Also, there is still a concern of infected lymphoid cells left in the donated intestine as active replicating SARS-CoV-2 has been found in intestinal tract.[4]

Historically, donor stool microbiological testing has not been conducted prior to small bowel transplant. However, presence of enteric pathogens acquired from donor stool would be considered a donor-derived infection. This has already been shown for bacterial infection[5]; however, no reports exist for viral pathogens.

Small bowel transplantation warrants higher immunosuppressive medication. It is impossible to determine if infected lymphoid tissue cells are transplanted from donors with previous history of COVID-19, especially when respiratory specimen PCR remains positive. Of course, even if stool PCR is positive, it is still unknown if transmission happens, or the recipient can develop active infection after transplantation. Even it may not be practical to check stool PCR for SARS-CoV-2 at the time of organ offer, especially for the donors with previous history of COVID-19, given the smaller number of small bowel transplant conducted, PCR testing for stool may be reasonable to perform for potential small bowel donors to confirm negativity. In conclusion, our approach should be to avoid using SARS-CoV-2 respiratory specimen PCR positive donor for small bowel transplant regardless of duration from diagnosis or severity of the disease until data are obtained. We hope this helps the transplant community to continue to conduct safe small bowel transplantation.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

All authors were responsible for the study design and writing of the paper.

Yoichiro Natori[1,2]
Shweta Anjan[1,2]
Jacques Simkins[1,2]
Lilian Abbo[1,2]
Eric Martin[1,3]
Jenny Garcia[1,3]
Gennaro Selvaggi[1,4]
Giselle Guerra[1,5]
Rodrigo Vianna[1,4]

[1] *Miami Transplant Institute, Jackson Health System, Miami, Florida, USA*
[2] *Division of Infectious Disease, Department of Medicine, University of Miami Miller School of Medicine, Miami, Florida, USA*
[3] *Division of Hepatology, Department of Medicine, University of Miami Miller School of Medicine, Miami, Florida, USA*
[4] *Department of Surgery, University of Miami Miller School of Medicine, Miami, Florida, USA*
[5] *Division of Nephrology, Department of Medicine, University of Miami Miller School of Medicine, Miami, Florida, USA*

Correspondence
Yoichiro Natori, Division of Infectious Diseases, Department of Medicine, Miami Transplant Institute, University of Miami Miller School of Medicine, 1801 N.W. 9th Ave., Suite 733, Miami, FL 33136, USA.
Email: yxn138@med.miami.edu

KEYWORDS
COVID-19, donor, small bowel transplant

ORCID
Yoichiro Natori https://orcid.org/0000-0002-4938-125X
Shweta Anjan https://orcid.org/0000-0002-7761-1163

REFERENCES

1. Eichenberger EM, Kaul DR, Wolfe CR. The pandemic provides a pathway: what we know and what we need to know about COVID positive donors. *Transpl Infect Dis*. 2021;23:e13727. https://doi.org/10.1111/tid.13727
2. Kipkorir V, Cheruiyot I, Ngure B, et al. Prolonged SARS-CoV-2 RNA detection in anal/rectal swabs and stool specimens in COVID-19 patients after negative conversion in nasopharyngeal RT-PCR test. *J Med Virol*. 2020;92(11):2328-2331. https://doi.org/10.1002/jmv.26007
3. Arslan M, Xu B, El-Din MG. Transmission of SARS-CoV-2 via fecal-oral and aerosols-borne routes: environmental dynamics and implications for wastewater management in underprivileged societies. *Sci Total Environ*. 2020;743:140709. https://doi.org/10.1016/j.scitotenv.2020.140709
4. Roldan-Santiago E, Benito-Berlinches A, Martínez-García L, et al. Severe acute respiratory syndrome coronavirus 2 spreads to lymph nodes and strongly expands $CD4^+$ effector memory RA cells in a patient with mild coronavirus disease 2019. *Clin Infect Dis*. https://doi.org/10.1093/cid/ciaa1422
5. Correa-Martínez CL, Becker F, Schwierzeck V, et al. Donor-derived vancomycin-resistant enterococci transmission and bloodstream infection after intestinal transplantation. *Antimicrob Resist Infect Control*. 2020;9(1):180. https://doi.org/10.1186/s13756-020-00845-z