ISOT Consensus Statement for the Kidney Transplant Recipient and Living Donor with a Previous Diagnosis of COVID-19

Vivek B. Kute*, Sandeep Guleria[1], Anil K. Bhalla[2], Ashish Sharma[3], Sanjay K. Agarwal[4], Manisha Sahay[5], Santosh Varughese[6], Narayan Prasad[7], Prem P. Varma[8], Sunil Shroff[9], Harsh Vardhan[10], Manish R. Balwani[11], Shruti D. Dave[12], Dhamendra Bhadauria[7], Manish Rathi[13], Dhananjai Agrawal[14], Pankaj R. Shah[15], Jai Prakash[16]

Department of Nephrology, Institute of Kidney Diseases and Research Center, Dr HL Trivedi Institute of Transplantation Sciences (IKDRC-ITS), [12]Department of Pathology, IKDRC-ITS, [15]Department of Nephrology, Gujarat University of Transplantation Sciences, Ahmedabad, Gujarat, [1]Department of Transplantation Surgery, Indraprastha Apollo Hospital, [2]Department of Nephrology, Sir Ganga Ram Hospital, [4]Department of Nephrology, All India Institute of Medical Sciences, [8]Department of Nephrology, Primus Super Speciality Hospital Delhi, New Delhi, [3]Department of Renal Transplant Surgery, Postgraduate Institute of Medical Education and Research (PGIMER), [13]Department of Nephrology, PGIMER, Chandigarh, [5]Department of Nephrology, Osmania Medical College, Hyderabad, Telangana, [6]Department of Nephrology, Christian Medical College, Vellore, [9]Managing Trustee, MOHAN Foundation, Chennai, Tamil Nadu, [7]Department of Nephrology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, [16]Department of Nephrology (Former Head), Institute of Medical Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, [10]Department of Nephrology, Patna Medical College, Patna, Bihar, [11]Department of Nephrology, Jawaharlal Nehru Medical College, Sawangi, Wardha, Maharashtra, [14]Department of Nephrology, SMS Hospital, Jaipur, Rajasthan, India

The National Organ and Tissue Transplant Organization (NOTTO) has previously published transplant-specific guidelines with reference to COVID-19.[1] The mortality is higher in dialysis patients with COVID-19 (12%–30%) than posttransplant COVID-19 patients (11.3%) and both are higher than the general population (<2%) in India.[2-5] With the resumption of the kidney transplant program in various parts of India, new issues are expected to occur. There is uncertainty, regarding the safety of performing kidney,[6-8] liver,[9-12] and lung[13] transplantation in a recipient recently recovered from COVID-19. At present, we have limited evidence-based information about safety and feasibility of kidney transplantation from living donors, who have recovered from COVID-19.[14] Recently, Indian Multi-center cohort studies have reported successful kidney transplantation in recipients from living donors with a previous diagnosis of COVID-19.[15,16]

Guidelines of Other Professional Societies

The American Society of Transplantation (AST) recommends that patient who recovered after COVID-19 should be asymptomatic and should preferably have two negative SARS-CoV-2 polymerase chain reaction (PCR) test at least 24 h apart in view of limited sensitivity (70%) of single test, though the optimal timing of multiple tests is unknown.[17-20] The American Society of Anesthesiologists and Anesthesia Patient Safety Foundation Joint Statement on elective surgery and anesthesia for patients after COVID-19 infection suggested waiting time from the date of COVID-19 diagnosis to surgery as follows:

a. Four weeks for an asymptomatic patient or recovery from only mild, nonrespiratory symptoms
b. Six weeks for a symptomatic patient (e.g., cough, dyspnea) who did not require hospitalization
c. Eight to 10 weeks for a symptomatic patient with comorbidities like diabetic, immunocompromised state, or hospitalized
d. Twelve weeks for a patient who was admitted to an intensive care unit due to COVID-19 infection.[20]

The United Network for Organ Sharing/AST suggested proceeding for transplant from a previously infected potential donor if:

a. The timing is between 21 and 90 days from initial symptoms
b. Symptoms have resolved and
c. An infectious disease expert is consulted.[21]

National Institute of Clinical Excellence guidelines for live donors with recovered COVID-19 infection, recommends deferring transplants for 28 and 14 days of comprehensive social distancing and hand-hygiene measures. Donation should

Access this article online

Quick Response Code:

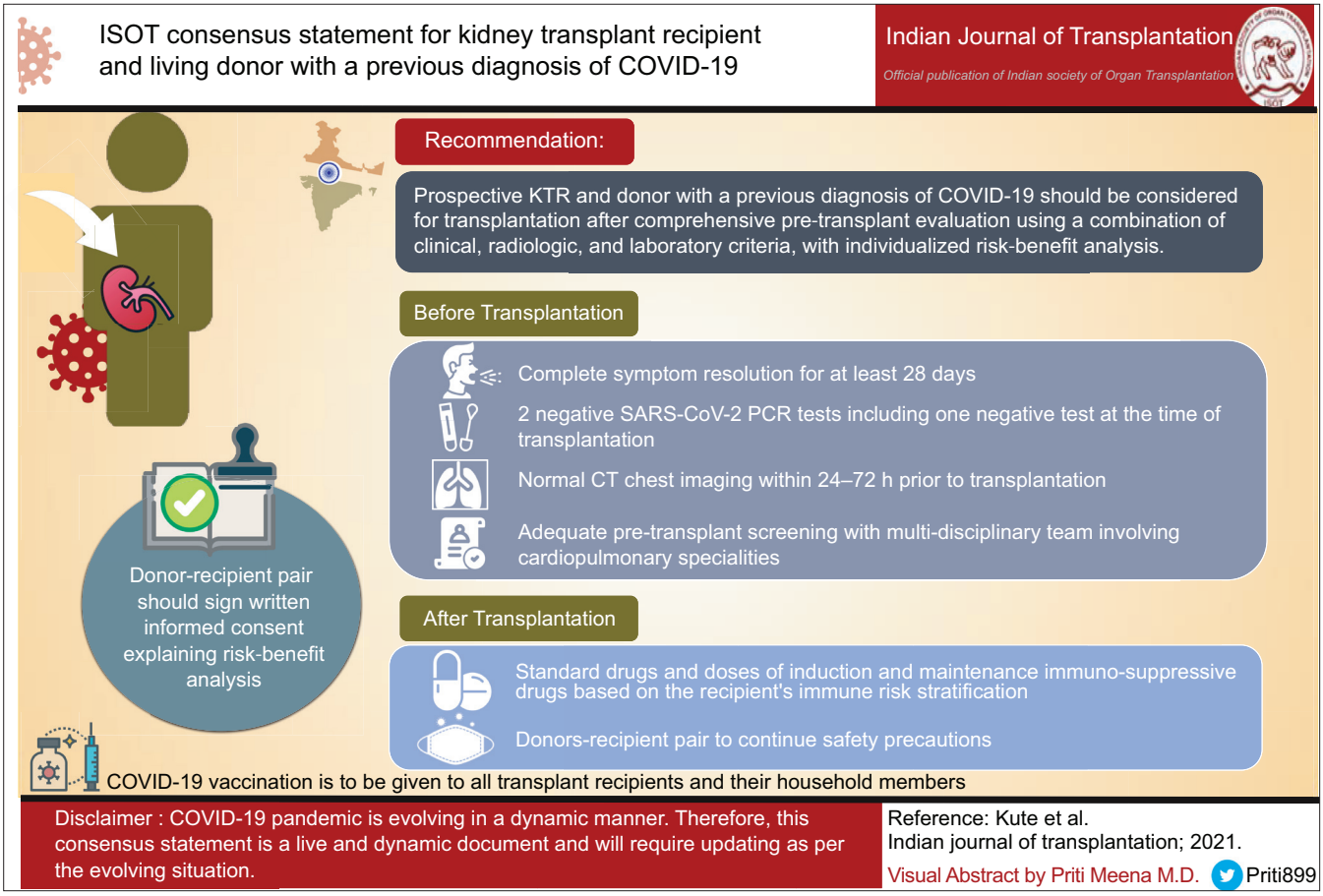
Website: www.ijtonline.in

DOI: 10.4103/ijot.ijot_26_21

Corresponding Author: Prof. Vivek B. Kute, Department of Nephrology and Transplantation, Institute of Kidney Diseases and Research Center and Dr. HL Trivedi Institute of Transplantation Sciences, Ahmedabad - 380 016, Gujarat, India. Indian Society of Organ Transplantation. E-mail: drvivekkute@rediffmail.com

Received: 14 March 2021; **Revised:** 14 May 2021; **Accepted:** 24 May 2021; **Published:** 30 June 2021

How to cite this article: Kute VB, Guleria S, Bhalla AK, Sharma A, Agarwal SK, Sahay M, *et al*. ISOT consensus statement for the kidney transplant recipient and living donor with a previous diagnosis of COVID-19. Indian J Transplant 2021;15:131-3.



Visual abstract

resume only after the donor is clinically asymptomatic and has negative nasopharyngeal swab test result for nCoV 2019 and another negative test within 3 days before donation.[22] NOTTO guidelines suggest accepting donors with a previous diagnosis of COVID-19 with documented two negative COVID-19 tests and complete symptom resolution for 28 days and another negative test at the time of donation.[1]

Consensus Statement for Kidney Transplant Recipient and Donor with a Previous Diagnosis of COVID-19

We recommend that prospective kidney transplant recipients and donors with a previous diagnosis of COVID-19 should be considered for transplantation after comprehensive pre-transplant evaluation using a combination of clinical, radiologic, and laboratory criteria, with individualized risk-benefit analysis.

Based on currently available limited data, we suggest that kidney transplant recipients and prospective living donors with a previous diagnosis of COVID-19 should be considered for transplantation with the following criteria.

A. Regular social distancing, hand hygiene and face-mask use after recovery from covid-19 infection
B. Complete symptom resolution for at least 28 days. The ideal disease-free interval is unknown. The appropriate length of time between recovery from COVID-19 and surgery with respect to minimizing postoperative complications should be individualized, taking into consideration symptom, COVID-19 severity, associated comorbidities, and the benefit/risk ratio of further delaying the surgery
C. Documented two negative SARS-CoV-2 PCR tests including one negative test at the time of transplant surgery. This is done to avoid known false-negative rates of single PCR test in COVID-19. The two negative PCR tests should be at least 24 h apart due to the limited sensitivity (70%) of single test
D. Normal chest imaging by CT scan within 24–72 h before transplants
E. Donors-recipient pair should sign written informed consent explaining them individualized risk-benefit analysis including a potential risk of COVID-19 infection due to reactivation or re-infection during the hospital stay and after transplant
F. Adequate screening in pretransplant evaluation with special attention given to the cardiopulmonary system by a multi-disciplinary team and a planned regular long-term follow-up after discharge. Enhanced frequent follow-up

should be ensured by telemedicine or face to face as required and feasible.

We suggest using standard drugs and doses of induction and maintenance immunosuppressive drugs based on the recipient's immune risk stratification as was being practised before COVID-19.

We suggest that the donors-recipient pair must be advised to continue to take safety precautions post-transplant. We suggest that the donors-recipient pair should get prompt PCR testing and treatment if they have any suspicious symptoms of COVID-19 infection due to reactivation or re-infection after transplantation.

We recommend that transplant recipients and their household members should be vaccinated with ANY coronavirus vaccine that is authorized and approved for use by the local health authority. The World Health Organization suggests that individuals may wish to defer their own COVID-19 vaccination for up to six months from the time of SARS-CoV-2 infection.[23] Ministry of Health and Family Welfare, Government of India suggest that infected individuals should defer COVID-19 vaccination for 14 days after symptoms resolution.[24] Centers for Disease Control and Prevention suggest that there is no recommended minimum interval between recovery from the infection and vaccination. Current evidence suggests that the risk of SARS-CoV-2 reinfection is low in the months after initial infection but may increase with time due to decreasing neutralizing antibody titers. Vaccination should be deferred for at least 90 days[25] in people who previously received passive antibody therapy such as convalescent plasma as part of COVID-19 treatment.

Disclaimer

COVID-19 pandemic is evolving dynamically. Therefore, this consensus statement is a live and dynamic document and will require updating as per the evolving situation.

Note: This special article is being published simultaneously in the Indian Journal of Transplantation and the Indian Journal of Nephrology.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Kute V, Guleria S, Prakash J, Shroff S, Prasad N, Agarwal SK, *et al.* NOTTO transplant specific guidelines with reference to COVID-19. Indian J Nephrol 2020;30:215-20.
2. Deshpande R, Dash S, Bahadur MM, Thamba A, Pathan AK, Dave K, *et al.* Study of COVID-19 pandemic in representative dialysis population across Mumbai, India: An observational multicentric analysis. J Assoc Physicians India 2020;68:13-7.
3. Trivedi M, Shingada A, Shah M, Khanna U, Karnik ND, Ramachandran R. Impact of COVID-19 on maintenance haemodialysis patients: The Indian scenario. Nephrology (Carlton) 2020;25:929-32.
4. Kute VB, Bhalla AK, Guleria S, Ray DS, Bahadur MM, Shingare A, *et al.* Clinical profile and outcome of COVID-19 in 250 kidney transplant recipients: A multicenter cohort study from India. Transplantation 2021;105:851-60.
5. Available from: https://www.mohfw.gov.in/. [Last accessed on 2021 Mar 01].
6. Varotti G, Dodi F, Garibotto G, Fontana I. Successful kidney transplantation after COVID-19. Transpl Int 2020;33:1333-4.
7. Singh N, Tandukar S, Zibari G, Naseer MS, Amiri HS, Samaniego-Picota MD. Successful simultaneous pancreas and kidney transplant in a patient post-COVID-19 infection. Kidney Int 2020;98:1615-6.
8. Waghmare I, Shingare A, Bahadur M. ABO incompatible kidney transplant after recovery from severe COVID-19 pneumonia. Korean J Transplant 2020;34 Suppl 1:S56.
9. Dhand A, Bodin R, Wolf DC, Schluger A, Nabors C, Nog R, *et al.* Successful liver transplantation in a patient recovered from COVID-19. Transpl Infect Dis 2021;23:e13492.
10. Martini S, Patrono D, Pittaluga F, Brunetto MR, Lupo F, Amoroso A, *et al.* Urgent liver transplantation soon after recovery from COVID-19 in a patient with decompensated liver cirrhosis. Hepatol Commun 2020;5:144-5.
11. Raut V, Sonavane A, Shah K, Raj C A, Thorat A, Sawant A, *et al.* Successful liver transplantation immediately after recovery from COVID-19 in a highly endemic area. Transpl Int 2021;34:376-7.
12. Niess H, Börner N, Muenchhoff M, Khatamzas E, Stangl M, Graf A, *et al.* Liver transplantation in a patient after COVID-19 - Rapid loss of antibodies and prolonged viral RNA shedding. Am J Transplant 2021;21:1629-32.
13. Bharat A, Querrey M, Markov NS, Kim S, Kurihara C, Garza-Castillon R, *et al.* Lung transplantation for patients with severe COVID-19. Sci Transl Med 2020;12:eabe4282.
14. Hong HL, Kim SH, Choi DL, Kwon HH. A case of coronavirus disease 2019-infected liver transplant donor. Am J Transplant 2020;20:2938-41.
15. Kute VB, Ray DS, Yadav DK, Pathak V, Bhalla AK, Godara S, *et al.* A multicenter cohort study from india of 75 kidney transplants in recipients recovered after COVID-19. Transplantation 2021 Mar 10. [Online ahead of print].
16. Kute VB, Godara S, Guleria S, Ray DS, Aziz F, Hegde U, *et al.* Is it safe to be transplanted from living donors who recovered from COVID-19? Experience of 31 kidney transplants in a multicenter cohort study from India. Transplantation 2021;105:842-50.
17. American Society of Transplantation. 2019-nCoV (Coronavirus): FAQs for Organ Transplantation. Available from: https://www.myast.org/sites/default/files/COVID19%20FAQ%20Tx%20Centers%2010.26.2020.pdf. [Last accessed on 2021 Jan 01].
18. Galvan NT, Moreno NF, Garza JE, Bourgeois S, Hemmersbach-Miller M, Murthy B, *et al.* Donor and transplant candidate selection for solid organ transplantation during the COVID-19 pandemic. Am J Transplant 2020;20:3113-22.
19. Ritschl PV, Nevermann N, Wiering L, Wu HH, Moroder P, Brandl A, *et al.* Solid organ transplantation programs facing lack of empiric evidence in the COVID-19 pandemic: A By-proxy Society Recommendation Consensus approach. Am J Transplant 2020;20:1826-36.
20. Available from: https://www.asahq.org/about-asa/newsroom/news-releases/2020/12/asa-and-apsf-joint-statement-on-elective-surgery-and-anesthesia-for-patients-after-covid-19-infection. [Last accessed on 2021 Jan 01].
21. Recommendations and Guidance for Organ Donor Testing, American Society of Transplantation. AST COVID-19 Information. Available from: https://www.myast.org/covid-19-information. [Last accessed on 2020 Nov 15].
22. Available from: https://www.nice.org.uk/guidance/ng178/chapter/3-Transplant-donors. [Last accessed on 2021 Mar 01].
23. The Moderna COVID-19 (mRNA-1273) Vaccine: What You Need to Know. Available from: https://www.who.int/news-room/feature-stories/detail/the-moderna-covid-19-mrna-1273-vaccine-what-you-need-to-know?gclid=CjwKCAiAp4KCBhB6EiwAxRxbpAZAQRkAr8iNenG8a5HEtwJhhFXsr25o-ds-A1kcKWQVbS3oxeDGexoCIwIQAvD_BwE. [Last accessed on 2021 Mar 12].
24. Available from: https://www.mohfw.gov.in/covid_vaccination/vaccination/index.html. [Last accessed on 2021 Mar 12].
25. Interim Clinical Considerations for Use of COVID-19 Vaccines Currently Authorized in the United States. Available from: https://www.mohfw.gov.in/covid_vaccination/vaccination/index.html. [Last accessed on 2021 Mar 12].