DOI: 10.1111/ajt.16481

COVID-19 in SOT versus non-SOT

To the Editor:

We read with great interest "Inpatient COVID-19 Outcomes in Solid Organ Transplant Recipients Compared to Non-Solid Organ Transplant Patients: A Retrospective Cohort" by Avery et al.[1] The authors compared outcomes of 45 solid organ transplant recipients with 2427 non-transplant patients admitted with COVID-19 at Johns Hopkins medical system finding no differences in outcomes between the groups and concluded that SOT status does not portend adverse outcome from COVID-19.

While this study is an important contribution to the literature, we have several concerns. A sample size of 45 for an SOT group is small. Important details like type of transplant and time since transplant which could have significant effect on mortality were not reported. The data are from a single hospital system in one region, so they may not be generalizable. The WHO severity score on admission was lower for the SOT group compared to the non-SOT group (3 vs. 4, $p = .042$) as well as oxygen requirement on admission was lower for the SOT group versus the non-SOT group (37.8% vs. 52.5%, $p = .035$). Impairment of oxygen on hospital admission was shown to be a stronger predictor than age and comorbidities for mortality in COVID-19.[2] Our own data from a large multi-state healthcare system in the United States showed a similar finding of significant effect of initial oxygen categorization on mortality with odds ratio of up to 5.95 depending on degree of initial oxygen requirements.[3] The authors did do a propensity score analysis to adjust for this and state that there were no differences in mortality or length of stay between the groups with or without weighting. However, the data with updated numbers in each group after weighting, such analysis and odds ratios were not reported.

Additionally, there were important differences in therapies between the groups. While utilization of methylprednisolone, hydrocortisone, and dexamethasone were under 20% and similar between the groups, prednisone use was more prevalent in the SOT group (as expected given its common use for maintenance immunosuppression) compared to the non-SOT group (60.0% vs. 4.6%, $p < .001$). This is pertinent as data from several randomized studies showed mortality benefit of corticosteroids in COVID-19. Also, tocilizumab usage was higher in the SOT group compared to the non-SOT group (13.3% vs. 3.6%, $p = .006$). Although tocilizumab is not proven to be beneficial for COVID-19 in randomized studies, in our clinical experience[4] and others',[5] tocilizumab has potential benefit in a subset of patients with COVID-19. Lastly, transplant physicians typically take ownership and closely follow the care of their transplant recipients. This might have helped the SOT group sustain better outcomes given the data were from a single transplant hospital system. Given the small sample size of the SOT cohort in the study, only a few more fatalities could have drastically changed the results and conclusions of the study.

A nationwide population study conducted in Italy that included the entirety of the COVID-19 cohort (general screening, outpatient, and inpatient settings) found that SOT recipients are at increased risk of infection (1.02% vs. 0.4%), of hospitalization (72.2% vs. 39.6%), and of mortality (30.6% vs. 15.4%) compared to the non-SOT group.[6] Taken together, we believe it is difficult to conclude that SOT recipients behave similar to the general population when infected with COVID-19.

KEYWORDS

clinical research/practice, health services and outcomes research, infection and infectious agents – viral, infectious disease, organ transplantation in general, patient survival, registry/registry analysis

DISCLOSURE

The authors of this manuscript have no conflicts of interest to disclose as described by the *American Journal of Transplantation*.

Sridhar R. Allam[1,2,3]
Arielle M. Fisher[4,5]
Daniel Schlauch[4,5]

[1]*Tarrant Nephrology Associates/Premier Physicians Group Health, Fort Worth, Texas*
[2]*Medical City Fort Worth, Transplant Institute, Fort Worth, Texas*
[3]*Texas Christian University and University of North Texas Health Science Center, School of Medicine, Fort Worth, Texas*
[4]*Genospace, Boston, Massachusetts*
[5]*Sarah Cannon, Nashville, Tennessee*

Correspondence
Sridhar R. Allam
Email: sallam@tarrantnephrology.com

ORCID

Sridhar R. Allam https://orcid.org/0000-0001-6051-9443

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