

LETTER TO THE EDITOR

Zero health-care-associated respiratory viral infections among solid organ transplant recipients: Infection prevention outcomes during COVID-19 pandemic

To the Editor:

We read with interest the paper by Coll et al that reported a mortality rate of 27% in a large series of transplant recipients with concurrent coronavirus disease 2019 (COVID-19); with nosocomial acquisition in 13% of cases.¹ Outside the pandemic setting, however, solid organ transplant (SOT) recipients are more likely to experience prolonged and severe illness from common respiratory viral infections (RVIs),² and health-care-associated RVI (HA-RVI) is a significant issue. The impetus for implementation of aggressive infection-prevention measures against COVID-19 on transplant units may reduce HA-RVI as a positive consequence.

From February 2020, a COVID-19 containment strategy was implemented at the Singapore General Hospital (SGH), the largest tertiary hospital in Singapore with an active transplant service. Prepandemic, SOT recipients on follow-up at SGH were advised to practice social distancing, hand hygiene, and don masks in public; these behaviors were reinforced during the pandemic. Prepandemic, upon admission, SOT recipients were nursed in multi-bedded cohorted cubicles, with single rooms prioritized for patients in the immediate posttransplant phase. A universal masking policy was instituted in areas designated for transplant patients, prepandemic. During the pandemic, universal masking was extended hospital-wide and additional infection-prevention measures were introduced, including visitor screening and improved segregation of patients with respiratory symptoms.³ All symptomatic inpatients were tested for SARS-CoV-2 and 16 common RVIs via multiplex PCR. Cases were categorized as HA-RVI if identified beyond the maximum incubation period from admission.

During the pandemic, while there was a substantial decrease in admissions with community-onset RVI in the general population,⁴ there was no significant decrease in community-onset RVI among SOT recipients (28.9 cases per 1000 SOT admissions during the pandemic vs. 34.7 cases per 1000 SOT admissions prepandemic; incidence-rate ratio = 0.43, 95% CI = 0.50–1.32, $p < .001$). These differences could potentially be attributed to preexisting emphasis on social distancing, hand hygiene, and mask usage in this immunosuppressed population, prepandemic. However, despite similar driving pressure from community-onset RVI among SOT admissions during the pandemic, we demonstrated a significant and sustained reduction in HA-RVI

among SOT recipients admitted in the pandemic period (Figure 1A). The incidence of HA-RVI was 5.0 cases per 1000 SOT admissions (four cases, 797 admissions) during the pandemic, compared with 37.5 cases per 1000 SOT admissions (108 cases, 2883 admissions) prepandemic (incidence rate ratio = 0.13, 95% CI = 0.04–0.35 $p < .001$). Notably, zero episodes of HA-RVI were recorded among SOT recipients admitted over a 7-month period from May to November 2020. Continuous surveillance for common RVIs was maintained during the pandemic; there was no significant difference in the proportion of SOT recipients tested for common RVIs in the pandemic and prepandemic periods (16.2%, 129/797 admissions tested during the pandemic vs. 17.8%, 514/2883 admissions tested prepandemic; odds ratio, OR = 0.89, 95% CI = 0.72–1.10, $p = .30$) (Figure 1B).

During the pandemic, despite managing ≥ 1600 cases of COVID-19 in our institution, no SOT recipients on follow-up in SGH developed COVID-19.³ The additive impact of visitor screening and improved patient segregation (Figure 1C) to a preexisting universal masking policy not only mitigated the risk of SARS-CoV-2 transmission to staff and patients,⁵ but also helped reduce HA-RVI rates among SOT recipients to zero. Infection-prevention measures originally meant for COVID-19 containment have value in mitigating HA-RVI among SOT recipients and should be continued even postpandemic.

KEYWORDS

clinical research/practice, editorial/personal viewpoint, infection and infectious agents, infection and infectious agents – viral, infection and infectious agents – viral: adenovirus, infection and infectious agents – viral: influenza, infectious disease

DISCLOSURE

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

AUTHOR CONTRIBUTIONS

Wee and Tan conceptualized and designed the study; Wee, Tan, and Conceicao analyzed the data; Wee, Tan, Chung, Tan, and Venkatachalam drafted the manuscript; Venkatachalam involved in study supervision.

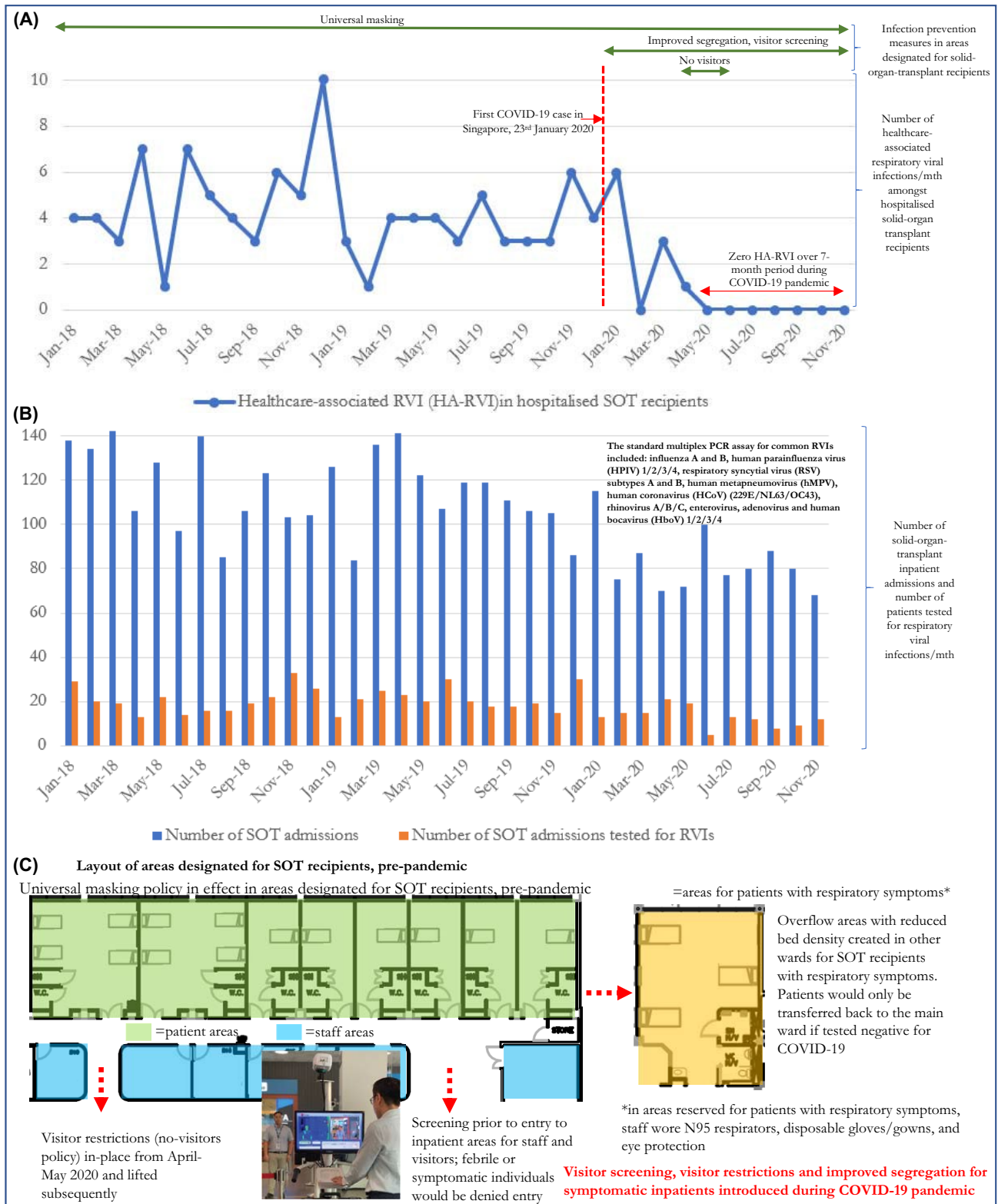



FIGURE 1 Rates of health-care-associated respiratory viral infections among hospitalized solid-organ-transplant (SOT) recipients at a transplant centre in Singapore, before and during COVID-19 pandemic [Color figure can be viewed at wileyonlinelibrary.com]

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