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COVID-19 Clinical Outcomes in Solid Organ Transplant Recipients During the Omicron Surge

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Solid organ transplant recipients (SOTRs) are at risk for severe coronavirus disease 2019 (COVID-19) infection because of immunosuppressive medications and comorbidities.[1,2] When Omicron (B.1.1.529) became the dominant severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) variant, it was unclear what severity of illness this would cause in SOTRs, in comparison with previous variants. We collected data on the clinical outcomes of COVID-19 infection in SOTRs at a single center between December 22, 2021, and February 9, 2022, corresponding to the Omicron surge in our region, and compared these with earlier outcomes from our center in the pandemic.[3]

To identify new cases of COVID-19, a daily report was generated from Epic, the electronic medical record (EMR) at Johns Hopkins, of any positive SARS-COV-2 polymerase chain reaction or antigen test result for a patient identified in the EMR as an SOTR. This report captured SARS-CoV-2 test results from the Johns Hopkins Health System, other centers, community hospitals, and outpatient clinics through Care Everywhere and Chesapeake Regional Information System for our Patients, the designated Health Information Exchange for the state of Maryland. With approval from the Johns Hopkins Institutional Review Board, data on demographics, types of transplant, and clinical outcomes (including hospitalization and death), with at least 14 d of follow-up, were extracted from the EMR. Sequencing of SARS-CoV-2 from clinical samples in our Microbiology Laboratory during this time revealed 96.9% Omicron and 3.1% Delta.

Under the direction of a transplant infectious disease nurse practitioner, transplant teams contacted patients and assessed them for COVID-19–specific outpatient therapies, principally sotrovimab. Immunosuppression management involved the discontinuation of mycophenolate. Hospitalized SOTRs received consultations by transplant and transplant infectious disease clinicians.

Between December 22, 2021, and February 9, 2022, 347 SOTRs were identified as having positive SARS-CoV-2 tests. These included 224 kidney, 58 liver, 31 lung, 19 heart, and 15 dual-organ transplant recipients. Of these, 90 SOTRs (26%) required hospitalization for COVID-19, and 8 SOTRs (2%) died. Lung transplant recipients comprised 31 of 347 (9%) COVID-19–positive patients, with 9 of 31 patients (29%) who required hospitalization and 2 of 31 patients (6.5%) who died.

By contrast, between March and November 2020, our center reported on 129 SOTRs with positive SARS-CoV-2 tests, of whom 77 (59.7%) were hospitalized, and 4 of 77 inpatients (5.2%) at our center died; in the entire cohort, including patients at outside hospitals, mortality was 9.7%.[3] A further contrast is the 28-d mortality data from the University of Washington multicenter study of SOTRs with COVID-19, in which 112 of 571 (19.6%) died between March and June 2020, whereas 55 of 402

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(13.7%) died between June and December 2020, with the advent of newer therapies.[4]

In this single-center study, SOTRs with COVID-19 during the Omicron surge had a low hospitalization rate and low mortality compared with earlier data from our center and national multicenter data from earlier in the pandemic. Although Omicron case numbers were high, severity seemed to be attenuated relative to prior variants. The impact of protection conferred by multiple doses of COVID vaccines,[5] as well as the effects of therapies such as sotrovimab, should be further explored.

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