

## LETTER TO THE EDITOR

# Bamlanivimab for treatment of COVID-19 in solid organ transplant recipients: Early single-center experience

Dear Editor,

Early reports suggested that solid organ transplant (SOT) recipients maybe at higher risk of hospitalization, intensive care unit (ICU) stays, and death when compared to general population.<sup>1</sup> Of 59 adult SOT patients diagnosed with Coronavirus Disease 2019 (COVID-19) at Westchester Medical Center from March-August 2020, 63% required hospitalization, 19% required ICU stay, 14% required mechanical ventilation, and 12% died. In a prior study of 482 SOT recipients with COVID-19 from more than 50 centers, a significant number of patients required hospitalization (78%), mechanical ventilation (31%) and 20.5% patients died during 28-day follow-up.<sup>2</sup>

Bamlanivimab is a recombinant neutralizing human monoclonal antibody which binds to the viral spike protein, blocking attachment to the human angiotensin-converting enzyme-2 receptor. Bamlanivimab received Emergency Use Authorization (EUA) by

the US Food and Drug Administration (FDA) for the treatment of patients with mild-to-moderate COVID-19 who are at high risk for progression to hospitalization.<sup>3</sup> Compared to placebo, Bamlanivimab reduced hospitalization and emergency department visits in high-risk study patients (2.9% vs 10.1%) but did not show benefit among patients who were hospitalized with COVID-19.<sup>4,5</sup> Since its approval, we started using Bamlanivimab routinely for our adult SOT patients and we present our early experience with its use in patients with at least 14-day follow-up post-infusion. Between November and early December 2020, of 12 adult SOT patients diagnosed with COVID-19, 10 met current FDA EUA criteria for Bamlanivimab administration (6-kidney, 2-liver, 1-liver/kidney, and 1-heart) while 2 patients did not meet the criteria (1 required hospitalization, 1 was asymptomatic). All ten patients had mild-moderate symptoms, did not require supplemental oxygen and/or hospitalization from COVID-19, and

**TABLE 1** Characteristics of Solid organ transplant recipients treated with Bamlanivimab

Age(years)/sex/transplant type	Symptoms/days	Chest X-ray	SpO2 on ambient air	Other risk factors for progression	Follow-up (days)
58/M Liver	Nasal stuffiness 6 days	N/A	98%	Cardiac disease, Diabetes	27
60/M Liver	Cough 10 days	N/A	97%		27
56/M Kidney	Fever, Malaise 2 days	N/A	96%	BMI - 35 Diabetes, CKD	27
66/M Liver/kidney	Cough, SOB 3 days	Bilateral opacities	92%	Age >65 years	24
40/M Kidney	Fever, cough, diarrhea, malaise 1 day	Bilateral opacities	93%	Cardiac disease, CKD	21
51/M Heart	Fever, cough, nasal stuffiness 1 day	N/A	96%		20
62/M Kidney	Cough, nasal stuffiness 3 days	N/A	93%	Cardiac disease, Diabetes	20
55/M Kidney	Fever, cough 4 days	Clear	97%		20
41/M Kidney	Fever, malaise 1 day	N/A	98%		17
39/M Kidney	Loss of smell, malaise 2 days	N/A	96%	BMI - 35	14

Abbreviations: BMI, body mass index; CKD, chronic kidney disease; N/A, not available; SOB, shortness of breath.

received treatment with Bamlanivimab in the non-hospitalized setting. (Table 1). The patients were male-predominant (80%), had mean age of 53 (39–66) years, had mean body mass index of 28.4 (20–35), and were on average 43 (10–79) months post-transplantation. Patients received infusion on average of 3.3 (1–10) days after the onset of the symptoms. Other interventions included lowering/stopping mycophenolate (40%) and lowering the dose of calcineurin inhibitor (70%). Besides underlying immunosuppression, the patients had multiple other risk factors for progression of disease including age >65 years (10%), diabetes (30%), chronic cardiac disease (40%), and chronic kidney disease (20%). Adverse events were rare with only one of 10 patients developing mild pruritus during infusion. Patients were followed for a mean of 22 (14–27) days with none experiencing progression of COVID-19 symptoms or requiring hospitalization. When compared to our center's earlier experience, the access to diagnostic tests and notification process was streamlined during the study period. This allowed us an opportunity to intervene and to offer treatment with monoclonal antibody to our SOT patients very early in the disease process.

In this study, following the administration of Bamlanivimab to solid organ transplant patients diagnosed with mild-moderate COVID-19 in a non-hospitalized setting, no patient experienced symptom worsening or required hospitalization.

#### CONFLICT OF INTEREST

AD, SL: received institutional research grant from Regeneron. All other authors of this manuscript have no conflicts of interest to disclose as described by the *Clinical Transplantation*.

#### AUTHORS' CONTRIBUTIONS

All authors contributed toward conception, data collection, and writing of the manuscript.

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There was no funding (research or employment) for this submission.

#### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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