Mycophenolate-mofetil/prednisone/tacrolimus

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COVID-19 infection: case report

A 47-year-old man developed COVID-19 infection during immunosuppressive treatment with mycophenolate-mofetil, prednisone and tacrolimus [*routes and duration of treatment to reaction onset not stated; not all dosages stated*].

The man had a significant history of heart transplantation with antibody-mediated rejection (AMR). He was diagnosed with moderate COVID-19 infection with delta variant (B.1.617.2).

The man had completed 5 days course of remdesivir therapy and was discharged without hypoxemia. After 2 days, he developed worsening of fatigue, low-grade fever, shortness of breath and cough with clear sputum. He again presented with acute respiratory distress syndrome. Subsequent chest CT scan revealed bilateral mid and lower lung pulmonary opacities, consistent with COVID-19 pneumonia. He required oxygen support by high-flow nasal cannula and pulse-dosed unspecified corticosteroids. Additionally, on the following day, he received tocilizumab for acutely worsening hypoxemia. Because of history of AMR, he had been receiving outpatient maintenance immunosuppressive therapies with prednisone 7.5 mg/day (0.1 mg/kg/day), tacrolimus with a goal of trough level of 5-8 ng/mL and mycophenolate-mofetil 1 gram twice a day. Due to competing risks from AMR history with the risks of antimetabolite prescription in COVID-19, the dose of mycophenolate-mofetil was reduced to 500mg twice daily upon re-admission for COVID-19. He required persistent high-flow oxygen support. The quantitative nasopharyngeal SARS-CoV-2 viral load was increased to 7.42 copies/mL_{log10}. Hence, after receiving approval from local institutional review board and the US FDA, he started receiving off-label treatment with ALVR-109 at a dose of 2×10^7cells. The day following the first ALVR109 infusion, his nasopharyngeal SARS-CoV-2 RNA declined from 7.43 to 5.02 log10 RNA copies/m . He received a second infusions of ALVR109 after 10 days from the first infusion. His quantitative nasopharyngeal SARS-CoV-2 viral load was undetectable following second infusions of ALVR109. Therefore, he was discharged with low-flow oxygen support. The quantitative nasopharyngeal PCR showed a negative result for a COVID-19 infection. He received third infusions of ALVR109 after 26 days from the first infusion. Despite undetectable viral load after the second ALVR109 infusion, he had not returned to baseline (pre-COVID) pulmonary status. The dose of corticosteroid dose was decreased following initiation of ALVR109 therapy. After the final infusion of ALVR109, his prednisone dosage was returned to the pre-COVID dose of 0.1 mg/kg/day. A week after discharge, he did not require supplemental oxygen support.

Martits-Chalangari K, et al. ALVR109, an off-the-shelf partially HLA matched SARS-CoV-2-specific T cell therapy, to treat refractory severe COVID-19 pneumonia in a heart transplant patient: Case report. American Journal of Transplantation 22: 1261-1265, No. 4, Apr 2022. Available from: URL: http://doi.org/10.1111/ajt.16927 803659304