Multiple drugs

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COVID-19 pneumonia and compassionate use of clazakizumab for COVID-19 pneumonia: case report

A 61-year-old man developed COVID-19 pneumonia during treatment with mycophenolate-mofetil, prednisone and tacrolimus. Additionally, he received treatment with clazakizumab for COVID-19 pneumonia on a compassionate use basis [*routes and durations of treatments to reactions onsets not stated*].

The man, who had undergone an orthotopic heart transplantation in May 2017, presented with a 1-week history of nonproductive cough and dyspnoea on exertion. His wife had been diagnosed with COVID-19 and he was in contact with his wife. He had been receiving immunosuppressive therapy with mycophenolate mofetil 1000mg twice a day and tacrolimus 4mg in the morning and 3mg in the evening. He had been also receiving chronic prednisone 5mg daily for rheumatoid arthritis and lisinopril for hypertension. His medical history was significant for diabetes mellitus and bladder cancer in remission. On presentation, his temperature was 38°C, HR was 92 beats/min and BP 130/93mm Hg. His oxygen saturation was 98% on room air. He had mild acute renal injury. He had a normal WBC count and a normal count of neutrophils, lymphocytes and eosinophils. He had mild anaemia and mild thrombocytopenia. His liver function tests, serum troponin, serum glucose, electrocardiogram and echocardiogram were found to be unremarkable. A chest radiography demonstrated new bilateral lung infiltrates, consistent with pneumonia. SARS-CoV-2 polymerase chain reaction (PCR) testing done on admission through a nasopharyngeal swab was found to be positive. A repeat test performed the following day confirmed the COVID-19 infection. Subsequent blood tests revealed elevated levels of erythrocyte sedimentation rate, CRP, myoglobin, ferritin, D-dimer and lactate dehydrogenase. Serum tacrolimus level was found to be elevated and the extent of immunosuppression using the T-cell immune function assay (Cylex test) showed an ATP level of 39 ng/mL (reference for low immune cell response <225 ng/mL), indicating over immunosuppression.

Given the initial clinical stability, the man was initially managed by supportive measures [*details not stated*]. To reduce over immunosuppression, the dose of tacrolimus was decreased to 2mg in the morning and 1mg in the evening and the dose of mycophenolate mofetil was reduced to 750mg twice a day. On day 5 of admission, he showed worsening of oxygen saturation, which required a rapid escalation of oxygen therapy to 7L through a facemask. He was hypotensive and tachycardic. A chest radiography showed worsening of pneumonia. His interleukin 6 level was found to be elevated and the CRP was found to be increased further. Due to his deteriorating condition and immunosuppressed state, compassionate use of clazakizumab [Vitaeris] was started after obtaining his consent and Institutional Review Board approval, as well as after the exclusion of tuberculosis and Cytomegalovirus infection. He received a one-time dose of clazakizumab 25mg in 50mL sodium chloride [normal saline] for 30 minutes. No immediate side effects were observed. The following day, he showed a significant symptomatic improvement and his oxygen requirement decreased. His CRP levels, serum ferritin levels and WBC count decreased significantly. Consequently, mycophenolate mofetil was discontinued and the dose of tacrolimus was reduced further to 1mg twice a day. His serum tacrolimus levels predominantly remained within the therapeutic range for the rest of the hospital stay. His prednisone therapy was continued. His WBC count subsequently increased in 4 days, and no worsening was noted in the other cell counts. No other relevant abnormalities were noted in other blood tests. His interleukin 6 levels were not repeated. His chest radiograph showed interval improvement in the parenchymal infiltrates, and he was discharged

on day 11 of admission. A repeat nasopharyngeal SARS-CoV-2 PCR was found to be negative (performed on day 35 on an outpatient basis), and the serum COVID-19 IgG antibody was found to be positive, conferring the prior infection. He continued to do well as an outpatient at day 60, with no ongoing heart-related symptoms.

Vaidya G, et al. Successful Treatment of Severe COVID-19 Pneumonia With Clazakizumab in a Heart Transplant Recipient: A Case Report. Transplantation Proceedings : 2020. Available from: URL: http://doi.org/10.1016/j.transproceed.2020.06.003

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