Prednisone/rituximab

S

COVID-19: case report

A 77-year-old man developed COVID-19 during immunosuppressive treatment with prednisone and rituximab for granulomatosis with polyangiitis (GPA).

The man with GPA on combination therapy with prednisone and rituximab, presented to Emergency Department (ED) in USA with shortness of breath and cough. He had been diagnosed with GPA in 2003. Initially, he was treated with methotrexate and prednisone, which controlled his joint symptoms but not uveitis. Between 2006 and 2015, he received six courses of rituximab for recurrent uveitis. Thereafter, GPA went into clinical remission and rituximab was stopped. In the spring of 2020, he developed GPA-related pachymeningitis. He was prescribed levetiracetam and oral prednisone 40mg daily, which led to resolution of leg weakness. In late July 2020, he additionally started receiving IV rituximab 1000mg infusions, two doses 2 weeks apart, and atovaquone. He received rituximab at the end of August and in early September. Then, he started prednisone taper. On 2 October 2020, he tested positive for SARS-CoV-2 infection by nasopharyngeal (NP) swab polymerase chain reaction (PCR). His only symptom was fatigue. Immunosuppressive treatment was considered as risk factor for COVID-19 infection [*duration of treatment to reaction onset not stated*]. Two weeks later, he developed a nonproductive cough. On 26 October 2020, he tested negative for COVID-19 by NP swab PCR. Over the following week, the cough worsened, and he developed shortness of breath. He was diagnosed with mild pneumonia and was treated with ceftriaxone and azithromycin. However, cough and shortness of breath continued to worsen. He presented to ED 3 days later (current presentation). In the ED, he was febrile, with decreased oxygen saturation on room air. He met **sepsis** criteria due to fever and tachypnoea. COVID rapid test, SARS CoV-2 NP swab PCR (on 15 November 2020) and Influenza A/B were all negative. He was admitted and started receiving vancomycin and piperacillin-tazobactam. A chest X-ray showed patchy airspace densities in the left mid to lower lung, right upper lobe, right lower lung, likely representing pneumonia. A chest CT angiogram showed multifocal ground-glass opacities throughout both lungs, predominantly

surrounding vessels and more prominent in the right upper lobe. Septal line thickening was noted, which suggested multifocal hemorrhage due to an exacerbation of GPA versus viral infection. A bronchoscopy with bronchioalveolar lavage (BAL) showed ongoing inflammation with 22% neutrophils in the lavage cell differential. BAL SARS CoV-2 PCR came positive, confirming COVID-19 pneumonia. Hyperlipidaemia, coronary artery disease and immunosuppressive therapy were considered as risk factors for COVID-19 pneumonia (adverse outcome of COVID-19 infection). His BAL tested negative for other infections.

The man was treated with remdesivir for 5 days in the setting of immunosuppression due to prednisone and rituximab, COVID-19 pneumonia and hypoxia. Oral prednisone 15mg daily was continued. He serum tested negative for SARS-CoV-2 total antibodies indicating lack of humoral immune response to SARS-CoV-2 infection. Therefore, he received off label treatment with convalescent-anti-SARS-CoV-2-plasma [convalescent plasma]. Thereafter, his inflammatory markers decreased. He continued to require intermittent oxygen supplementation. He was discharged home on oxygen 6 days following admission. A month later, he tested positive for SARS-CoV-2 nucleocapsid total antibodies, and the oxygen supplementation was stopped. Three months later, he was doing well and received COVID-19-Vaccine-Pfizer-BioNTech.

Rodriguez-Pla A, et al. COVID-19 pneumonia in a patient with granulomatosis with polyangiitis on rituximab: case-based review. Rheumatology International 41: No. 0, Aug 2021. Available from: URL: http://doi.org/10.1007/s00296-021-04905-4

803579850