Immunosuppressants

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COVID-19 pneumonia: case report

A 55-year-old man developed COVID-19 pneumonia following immunosuppressive therapy with azathioprine, cyclophosphamide, prednisone, methotrexate and rituximab for granulomatosis with polyangiitis (GPA) [*not all routes and dosages stated*].

The man was treated for GPA since 1994 (episcleritis, arthralgia, pulmonary involvement with alveolar haemorrhage, renal involvement and pachymeningitis). He had since received many immunosuppressive agents such as cyclophosphamide, azathioprine and methotrexate. He was on 4mg of prednisone in addition to a periodic 6-monthly infusion of 500mg of rituximab as a maintenance therapy since 2005 (his next infusion was scheduled in April 2020). He was also on a prophylactic cotrimoxazole [trimethoprim/sulfamethoxazole] treatment (3 times weekly). His main comorbidities included hypertension treated with atenolol, irbesartan and hydrochlorothiazide, and type 2 diabetes treated with glimepiride. He was known to have stage 3B chronic kidney disease. On 21 March 2020, he developed respiratory symptoms with a dry cough, followed 3 days later by a 40°C of persistent fever. He was admitted in Lebanon on 28 March 2020 (Day 0). His clinical examination was normal. COVID-19 pneumonia was diagnosed on that day after a positive nasal reverse transcription PCR (RT-PCR) test and chest CT showing bilateral mild ground-glass opacities with a minimal degree of involvement of 10%. On the day of admission, the patient was stable with a National Early Warning Score 2 (NEWS2) and COVID-19 score of 0.

The man was treated according to the hospital protocol with 7 days of hydroxychloroquine (400mg twice daily on day 1 and then 200mg three times a day) and 5 days of azithromycin (500mg on day 1 and then 250mg daily for 4 days). He was also given zinc for 7 days, as well as pitavastatin for 14 days. Despite the treatment, he remained highly febrile, with a profuse watery diarrhoea treated with diosmectite after eliminating an infectious cause. He was haemodynamically stable and did not require oxygen therapy. On day 7 of hospitalisation (Day 14 from the appearance of symptoms), he remained febrile and therefore different tests (blood cultures, qualitative Cytomegalovirus PCR testing of blood samples, brucellosis and typhoid fever serologies) were performed and the test results were found to be negative. As per the hospital protocol, he was also initiated on off-label therapy with lopinavir/ritonavir 400mg/100mg twice daily, but it was discontinued 7 days later due to severe diarrhoea [*aetiology not stated*]. On 8 April 2020, he continued to be febrile, without a progression in respiratory symptoms (NEWS2 score of 2), and all cultures remained negative. A full body CT scan carried out on that day showed a significant progression of the bilateral ground-glass opacities with 60% involvement of pulmonary fields. In view of the immunocompromised status and the impossibility of differentiating between an opportunistic infection and the disease itself on CT images, a broad-spectrum antibiotic (piperacillin/tazobactam) was started, and a second course of hydroxychloroquine was initiated. On day 13, he developed lymphangitis confirmed by venous Doppler ultrasound revealing superficial venous thrombosis of the left cephalic vein. A glycopeptide [*specific drug not stated*] was added, and therapeutic heparin therapy was initiated. Despite broad-spectrum antibiotics, he remained febrile until day 19 of hospitalisation (day 26 after the onset of symptoms). On day 18, RT-PCR test was repeated and was found to be positive. On day 20, the fever as well as the patient's other symptoms disappeared, without any change in the treatment. After 48 hours of complete apyrexia, he was discharged home with specific instructions on home isolation. His condition improved clinically and he became completely asymptomatic but PCR testing remained positive for approximately 2 months (the first negative RT-PCR test was on 6 June 2020). He also had a COVID-19 serology test with IgG and IgM antibody negativity. His absolute CD4 count in peripheral blood was 564 /mm^3.

Daniel P, et al. COVID-19 in a patient treated for granulomatosis with polyangiitis: Persistent viral shedding with no cytokine storm. European Journal of Case Reports in Internal Medicine 7: No. 10, 2020. Available from: URL: http://doi.org/10.12890/2020_001922