Anti-inflammatory therapy may ameliorate the clinical picture of COVID-19

We present a 70-year-old woman who was diagnosed 5 years ago with cryopyrin-associated periodic syndrome on the basis of her clinical picture (episodes of fever, urticarial and maculopapular rash, myalgia, arthralgia and/or arthritis, especially after cold exposure), and genetic testing which confirmed an *NLRP3* missense mutation. Since then she has been treated with anti-interleukin-1 subcutaneous therapy (initially on anakinra daily and subsequently on canakinumab 150 mg every 8 weeks). This treatment resulted in complete resolution of disease signs and symptoms. On 15 March 2020 she

received her last canakinumab injection. Ten days later she experienced low-grade fever (37.5°C) and malaise. Her friend, with whom she was exercising, was diagnosed with COVID-19. The following day the patient was tested for SARS-COV-2 and she was found positive. At that time her white cell counts were $4{,}28x10^9$/L (polymorphonuclear leucocytes 48%, lymphocytes 32%) and serum C-reactive protein was 9 mg/dL (normal value (nv) <5 mg/dL). In a couple of days her symptoms resolved and repeated testing for SARS-COV-2, 12 days later, was negative.

Based on the patient's age and immunomodulation due to the interleukin-1 blockade, she would be classified as high risk for developing a serious COVID-19 infection. However, the patient's clinical picture was very mild.

The question which arises from this and other recently presented cases of patients with autoimmune disorders treated with biological or targeted disease-modifying agents[1 2] is, whether cytokine blockade may protect patients for a cytokine storm and thus ameliorate the gravity of the clinical picture of their COVID-19 infection.

Definitive conclusions cannot be drawn from a limited number of cases; however, the presentation of this case intends to fuel a fruitful discussion on this issue.

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