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LETTER

Coronavirus disease 2019 in a psoriatic patient with concomitant chronic obstructive pulmonary disease under treatment with risankizumab

Dear Editor,

With the emergence of the coronavirus disease 2019 (COVID-19) pandemic, concern has risen among physicians if treatment with biologic agents for psoriasis may result in a more severe disease course.[1,2] To date, only a limited number of cases have been published on the outcomes of COVID-19 infection in psoriatic patients under guselkumab, ustekinumab, adalimumab and secukinumab treatment,[3-5] yet no such case was reported on patients receiving risankizumab therapy.

Here, we report on a 77-year-old male patient who has been suffering from chronic plaque psoriasis for 18 years, previously treated with several conventional and biologic drugs, including cyclosporine, methotrexate, infliximab, ustekinumab and secukinumab. The patient was switched to risankizumab 8 months ago as the last biologic agent, secukinumab, caused episodes of diarrhea. The patient's medical history included various diseases relevant to his psoriasis, such as rheumatoid arthritis, hypertension, acute myocardial infarction 20 years ago and chronic obstructive pulmonary disease (COPD) for 15 years. In addition, he is a heavy smoker with tobacco consumption of one pack a day on average. He received his last dose of risankizumab on 26 March 2020, and then on 9 April 2020 he was admitted to our infectious diseases unit 5 days after he developed 39°C fever, productive cough with dyspnea, diarrhea, nausea and vomiting. Upon admission, oxygen saturation levels ranged between 91% and 93%, similar to previous values due to his COPD. Initial laboratory tests showed white blood cell count of 13.4×10^9/L, hemoglobin level of 17 g/dL, hematocrit value of 0.53, lactate dehydrogenase of 698 U/L, creatine kinase of 482 U/L, D-dimer of 0.78 μg/mL, glomerular filtration rate of 68 mL/min, C-reactive protein of 85.1 mg/L and procalcitonin of 0.779 ng/mL. Chest X-ray revealed bilateral, right-side-dominant consolidations at the lung bases. Diagnosis of COVID-19 viral infection was confirmed by two subsequent reverse transcription polymerase chain reaction tests. The patient was initially treated with hydroxychloroquine, ceftriaxone and azithromycin for COVID-19-related pneumonia, but after 6 days, the latter two were replaced by metronidazole due to diarrhea. His condition required oxygen support only. As chest X-ray findings showed progression after 11 days of treatment, hydroxychloroquine was switched to lopinavir-ritonavir combination therapy. In the following days, fever and diarrhea ceased, and laboratory findings and general condition markedly improved, although the X-ray findings remained unchanged. Three weeks after admission, the patient was discharged from the hospital in a good clinical condition. Presently, he is free of complaints.

To the best of our knowledge, this is the first report of COVID-19 infection in a patient under risankizumab therapy. Our patient was a typical high-risk subject for severe outcome of COVID-19 due to his age, smoking habit and comorbidities, such as severe COPD.[6,7] The favorable clinical outcome gives no hint that the discontinuation of risankizumab treatment is necessary in psoriatic patients who are at high risk for severe COVID-19 illness. Moreover, it was also hypothesized by some authors that treatment with biologic agents, including interleukin (IL)-23 inhibitors, plays a protective role against COVID-19 infection, which our case further supports.[3,4] The role of tumor necrosis factor-alpha and IL-17 has been implicated in the development of "cytokine storm" and adult respiratory distress syndrome in COVID-19. However, IL-23 does not seem to contribute to these complications, neither to have a major impact on antiviral immunity.[3] This is relevant in the light of clinical trial data where the administration of IL-23 blockers showed a 9% increase in overall infection rate.[1] Thus, the role of IL-23 in the inflammatory response against COVID-19 remains largely unexplained. Further studies are needed to elucidate these findings.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

Norbert Kiss, Kende Lőrincz, Márta Medvecz and Norbert Miklós Wikonkál drafted the paper with input from all authors. Kende Lőrincz, Márta Medvecz, Luca Fésűs and Norbert Miklós Wikonkál interpreted patient data regarding psoriasis. Péter Csuha and Zsolt Hermányi examined and analyzed patient data regarding COVID-19 infection and the internal medicine aspect. Norbert Kiss, Kende Lőrincz, Luca Fésűs and Norbert Miklós Wikonkál collected the relevant papers regarding this case. All authors read and approved the final manuscript.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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