Received: 16 May 2020 | Accepted: 21 May 2020

DOI: 10.1111/dth.13668

LETTER

DERMATOLOGIC THERAPY WILEY

Apremilast as a potential treatment option for COVID-19: No symptoms of infection in a psoriatic patient

Dear Editor,

After the COVID-19 pandemic had broken out, dermatologists were concerned about the safety of biologic treatment in psoriatic patients, hence more susceptible to infections.[1,2] However, there is some evidence of discrete COVID-19 symptoms and a rapid recovery in patients receiving guselkumab (anti-interluekin [IL]-23) and ixekizumab (anti-IL-17).[3,4] Moreover, Conti et al reported how elderly psoriatic patients receiving secukinumab (anti-IL-17) and adalimumab (antitumor necrosis factor alpha [anti-TNFα]) were completely unreceptive to COVID-19.[5] As cytokine-mediated immune response plays an important role in the development of infection, the use of ixekizumab and adalimumab associated to antiviral drugs are currently being studied in the treatment for SARS-CoV-2 infection.[6,7]

Mugheddu et al reported on apremilast in psoriatic patient contracting severe COVID-19 infection. He was a high-risk patient with the possibility of a very bad prognosis because of obesity along with recent chemotherapy for a persisting brain tumor. However, the COVID-19 was clinically cured within a week of admission to an intensive care unit without stopping the apremilast therapy.[8] The authors concluded that the safety of apremilast in COVID-19 was confirmed, without interfering with the infection. However, no information is available about how long he had been using apremilast when he was infected with COVID-19.

We would like to report a case of a 61-year-old male suffering from moderate psoriasis for almost 15 years. Since September 2019 he has been treated with apremilast in a recommended dosing regimen (30 mg orally twice a day), which has led to complete remission. He was previously treated by psoralen-UVA (PUVA) phototherapy and conventional systemic treatment including methotrexate. In mid-April his wife and children, who live all together with the patient, were diagnosed as being SARS-CoV-2-positive and developed symptoms of infection including severe cough with fever (38.5°C-39.1°C), bilateral interstitial pneumonia, myalgia, anosmia and fatigue. Despite the prolonged close contact with his family members during self-isolation, with all the inherent risks of contracting the disease, and the added vulnerability due to age, the patient had no symptoms of infection. However, due to the contact with COVID-19 positive subjects the patient was quarantined for 14 days and tested for coronavirus using nasopharyngeal swab, which was positive. Computed tomography findings revealed no pulmonary changes.

Such an infection route may be regarded as a result of taking apremilast for 8 months by the time of contact with COVID-19, and we suppose that the drug has already been accumulated in the body, resulting in its defense against COVID-19. This is due to its mechanism of action, which has the following sequence: phosphodiesterase inhibition, increase in intracellular cyclic adenosine monophosphate levels, and a decreased expression of TNF-α, which is reported to be markedly increased during COVID-19.[9]

COVID-19 pandemic has spread all around the world with, to date, 4 586 915 confirmed cases and 309 184 deaths.[10] However, currently no specific treatments exist. We suggest that ongoing treatment with phosphodiesterase type 4 inhibitor apremilast might play a protective role against the evolution of the infection. Nevertheless, further investigations are needed to confirm our hypothesis.

ACKNOWLEDGMENT

The patients in this manuscript have given written informed consent to the publication of their case details.

CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

Olga Yu Olisova
Ekaterina M. Anpilogova
Dariya A. Svistunova

Dermatology Department, I.M. Sechenov First Moscow State Medical University (Sechenov University), Moscow, Russia

Correspondence
Ekaterina M. Anpilogova, Dermatology Department, I.M. Sechenov First Moscow State Medical University (Sechenov University), Moscow, Russia.
Email: truelass@hotmail.com

ORCID

Olga Yu Olisova https://orcid.org/0000-0003-2482-1754
Ekaterina M. Anpilogova https://orcid.org/0000-0001-9478-5838

REFERENCES

1. Conforti C, Giuffrida R, Dianzani C, et al. COVID-19 and psoriasis: is it time to limit treatment with immunosuppressants? A call for action. *Dermatol Ther*. 2020;33(4):e13298.
2. Lebwohl M, Rivera-Oyola R, Murrell DF. Should biologics for psoriasis be interrupted in the era of COVID-19? *J Am Acad Dermatol*. 2020; 82(5):1217-1218. https://doi.org/10.1016/j.jaad.2020.03.031.

3. Benhadou F, Del Marmol V. Improvement of SARS-CoV2 symptoms following Guselkumab injection in a psoriatic patient. *J Eur Acad Dermatol Venereol*. 2020. https://doi.org/10.1111/jdv.16590.
4. Balestri R, Rech G, Girardelli CR. SARS-CoV-2 infection in a psoriatic patient treated with IL-23 inhibitor. *J Eur Acad Dermatol Venereol*. 2020. https://doi.org/10.1111/jdv.16571.
5. Conti A, Lasagni C, Bigi L, Pellacani G. Evolution of COVID-19 infection in 4 psoriatic patients treated with biological drugs. *J Eur Acad Dermatol Venereol*. 2020. https://doi.org/10.1111/jdv.16587.
6. ChiCTR. A Randomized, Blinded, Controlled, Multicenter Clinical Trial to Evaluate the Efficacy and Safety of Ixekizumab Combined with Conventional Antiviral Drugs in Patients with Novel Coronavirus Pneumonia (COVID-19). ICTRP Search Portal, World Health Organization; 2020. http://www.chictr.org.cn/showprojen.aspx?proj=50251. Accessed 10 May, 2020.
7. ChiCTR. A Clinical Study for the Efficacy and Safety of Adalimumab Injection in the Treatment of Patients with Severe Novel Coronavirus Pneumonia (COVID-19). 2020. http://www.chictr.org.cn/showprojen.aspx?proj=49889. Accessed 10 May, 2020.
8. Mugheddu C, Pizzatti L, Sanna S, Atzori L, Rongioletti F. COVID-19 pulmonary infection in erythrodermic psoriatic patient with oligodendroglioma: safety and compatibility of apremilast with critical intensive care management. *J Eur Acad Dermatol Venereol*. 2020. https://doi.org/10.1111/jdv.16625.
9. Torres T, Puig L. Managing cutaneous immune-mediated diseases during the COVID-19 pandemic. *Am J Clin Dermatol*. 2020(Apr 10): 1-5. https://doi.org/10.1007/s40257-020-00514-2.
10. Johns Hopkins Coronavirus Resource Center. COVID-19 Map. 2020. https://coronavirus.jhu.edu/map.html. Accessed May 16, 2020.