

LETTER

Psoriasis, COVID-19, and acute respiratory distress syndrome: Focusing on the risk of concomitant biological treatment

Dear Editor,

The management of psoriatic patients under biologics during severe acute respiratory syndrome - CoronaVirus - 2 (SARS-CoV-2) outbreak is of great concern, as well as the outcome of the coronavirus disease (COVID-19) in this population.

We report here nine cases of three Italian districts largely hit by COVID-19 (Bologna, Lucca, and Trento).

On a pool of 720 psoriatic patients followed by our three referral centers for severe psoriasis, we registered nine swab-confirmed cases of SARS-CoV-2 infection (Table 1). Mean age was 53.9 ± 9.7 years. The most common comorbidity was obesity (mean Body Mass Index = 30.9 ± 5.5), followed by hypertension.

At the time of the diagnosis, four patients were being treated with an anti-tumor necrosis factor- α (anti-TNF- α) and five with an anti-interleukin (IL). Eight patients reported COVID-19-related symptoms, of which the most common were fever, arthralgias, and cough. One patient was asymptomatic. The course of the disease was mild in most patients, except for a 69-year-old woman under adalimumab, who developed unilateral pneumonia, and a 62-year old man, under etanercept and affected by multiple comorbidities (obesity, hypertension, diabetes, and chronic renal failure) who presented acute respiratory distress syndrome (ARDS), requiring intensive care. Eventually, all patients clinically recovered. The biologic therapies were discontinued in eight patients after the symptom onset. The asymptomatic patient never interrupted the treatment.

Our case series roughly reflects the study of Gisondi et al,¹ who concluded that despite the cardiovascular and metabolic comorbidities affecting psoriatic patients and also representing risk factors for severe COVID-19, patients seldom required hospitalization.

Among our cases, one middle-aged man developed critical COVID-19. This is the first report of ARDS in a psoriatic patient undergoing biological treatment; however, this may be related to his other serious comorbidities. This percentage (1/9%-11.4%) is consistent with the rate of ARDS in the general population, estimated at around 14.8% of affected individuals.²

The appropriateness of withdrawing biologic therapies preventively in psoriatic patients is still debated and it is also unclear whether their use influences the course of COVID-19 or not.³

Although it seems that most psoriatic patients experience mild COVID-19, our case series raises some considerations. We know that the main risk factor for severe COVID-19 is old age.⁴ The psoriatic population treated with biologic therapies is on average young,⁵ since elderly patients with multiple comorbidities are usually excluded from systemic treatments. Our sample is in line with these data, therefore we can expect a lower fatality rate than in the general population.

Nevertheless, the course of COVID-19 could be complicated by the concomitant administration of immunomodulators, which in pivotal trials have demonstrated to increase the susceptibility of respiratory infections. Particularly, anti-TNF drugs seem to increase such condition by up to 7% compared with placebo.⁶ However, high levels of TNF- α have been observed in severe COVID-19 patients, while IL-17 may also be involved in the cytokine cascade, having been linked to severe cases.⁷ Therefore, the abrupt interruption of biologics may increase the systemic inflammation, which may worsen the associated comorbidities and the prognosis of COVID-19. However, we decided to withdraw biologic therapies in eight of the nine patients after the diagnosis, mainly to avoid other microbial infections, although the asymptomatic patient did not develop any complications throughout the course of the disease.

It is also noteworthy that obesity was the most represented comorbidity. Despite the fact that obese patients tend to have more severe forms of COVID-19 also at younger ages,⁸ 88.9% of our patients were mild or asymptomatic. Biologics may play a role in these cases, modulating the inflammatory response, usually overexpressed in obese patients.

Although this case series is limited, we evidenced that ARDS can represent a complication also in patients under biologics. However, these subjects do not seem to develop critical COVID-19 more often than the general population of same age range.

TABLE 1 Our survey

Age	Sex	Weight (kg)	Height (cm)	Smoker (yes/no)	Comorbidities	Date of SARS-CoV-2 swab positive	Biologic therapy at the moment of diagnosis	Date of symptom onset	Reported symptoms	Hospitalization (yes/no)	ICU (yes/no)	Outcome	Withdrawal of biologic (yes/no)
1	41	M	125	170	No	Obesity	Ixekizumab	March 13, 2020	Fever, arthralgias, anosmia	No	No	Recovered	Yes
2	54	F	67	164	No	None	Guselkumab	April 01, 2020	Fever, arthralgias, anosmia	No	No	Recovered	Yes
3	56	M	100	170	Yes	Obesity	Secukinumab	April 05, 2020	Fever, cough, arthralgias	No	No	Recovered	Yes
4	62	M	98	170	No	Obesity, dyslipidemia	Adalimumab	March 09, 2020	Fever, cough, arthralgias, anosmia	No	No	Recovered	Yes
5	69	F	85	165	No	Obesity, hypertension	Adalimumab	April 11, 2020	Fever, anosmia	No	No	Recovered	Yes
6	55	M	86	170	Yes	None	Ixekizumab	March 19, 2020	None	No	No	Recovered	No
7	37	F	74	172	No	None	Ustekinumab	March 17, 2020	Fever, cough	No	No	Recovered	Yes
8	49	F	76	170	No	None	Adalimumab	March 14, 2020	Fever, cough, arthralgias, anosmia	No	No	Recovered	Yes
9	62	M	84	170	Yes	Obesity, hypertension, diabetes, chronic renal failure	Etanercept	February 25, 2020	Fever, cough, dyspnea	Yes	Yes	Recovered	Yes

Abbreviation: ICU, intensive care unit.

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

CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

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