Research letters

The impact of the COVID-19 pandemic on patients with chronic plaque psoriasis being treated with biological therapy: the Northern Italy experience

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Dear Editor, Severe acute respiratory syndrome coronavirus 2 has spread across the globe, causing respiratory manifestations of coronavirus disease (COVID)-19 and satisfying the epidemiological criteria for a pandemic.[1] As of 1 April 2020, more than one million cases testing positive for COVID-19 have been identified and more than 54 000 deaths have occurred worldwide (https://systems.jhu.edu). In Italy, 110 574 positive cases, 49 285 hospitalized patients and 13 155 deaths from a population of 60 359 546 inhabitants were reported.[2] The highest number of deaths occurred in the northern Italian regions, i.e. Lombardy, Emilia-Romagna, Veneto and Piedmont.[3]

There is uncertainty concerning the outcome of COVID-19 infection in patients with chronic plaque psoriasis receiving biological systemic therapies.[3] Indeed, it is largely debated whether biologics for psoriasis should be interrupted for preventing severe complications of the COVID-19 infection, such as interstitial pneumonia.[4–6]

We performed a retrospective multicentre observational study, which included patients with chronic plaque psoriasis (n = 5206) who were being treated with biological therapy, with the objective of reporting the number of patients hospitalized or who died from COVID-19 infection between 20 February 2020 and 1 April 2020. The inclusion criteria for the study were patients with psoriasis who were being regularly followed at the Divisions of Dermatology at the hospitals of Verona, Padua, Vicenza, Modena, Turin or Milan (Humanitas and San Donato hospitals) and were being treated with a biologic, including tumour necrosis factor-α, interleukin (IL)-17, IL-12/23 or IL-23 inhibitors. Clinical data, including comorbidities, were obtained by consulting the electronic medical records of each hospital and/or by contacting patients directly either by visit, phone or email (Table 1). Descriptive statistical analyses, including means ± SDs or proportions and incidence rates (IRs) with exact Poisson 95% confidence intervals (CIs) were calculated. IR differences from general

Table 1 Characteristics of patients with chronic plaque psoriasis being treated with biological therapy

	Verona	Padua	Vicenza	Modena	Milan – Humanitas	Milan – San Donato	Turin	Total
Number of patients with psoriasis	1002	650	180	508	475	1093	1298	5206
Male sex, n (%)	631 (63)	461 (71)	130 (72)	340 (67)	299 (63)	66 (68)	896 (69)	2823 (67)
Age, years (mean ± SD)	56 ± 12·1	54 ± 10·2	58 ± 12·1	53 ± 13·2	48 ± 14·5	55 ± 10·1	49 ± 10·3	53·2 ± 11·2
Outcome measure, n								
Hospitalized for COVID-related disease	0	0	0	1	0	2	1	4
Deaths from COVID-related disease	0	0	0	0	0	0	0	0
Comorbidity, n (%)								
Obesity	301 (30)	162 (25)	54 (30)	193 (38)	133 (28)	197 (18)	273 (21)	1313 (25)
Cardiovascular disease	150 (15)	52 (8)	14 (8)	43 (8·4)	57 (12)	153 (14)	156 (12)	625 (12)
Hypertension	340 (34)	227 (35)	18 (10)	177 (34·9)	162 (34·1)	317 (29)	363 (28)	1604 (30·8)
Psoriatic arthritis	301 (30)	247 (38)	54 (30)	165 (32·5)	71 (15)	273 (25)	324 (25)	1435 (27·6)
Diabetes mellitus	120 (12)	78 (12)	22 (12)	45 (8·8)	57 (12)	131 (12)	182 (14)	635 (12·2)
Biological therapy, n (%)								
TNF-α inhibitors	501 (50)	312 (48)	108 (60)	188 (37)	57 (12)	240 (22)	273 (21)	1679 (32·2)
IL-17 inhibitors	280 (28)	175 (27)	27 (15)	183 (36)	190 (40)	492 (45)	649 (50)	1996 (38·3)
IL-12/23 inhibitor	170 (17)	162 (25)	36 (20)	99 (19·4)	185 (39)	361 (33)	376 (29)	1389 (26·7)
IL-23 inhibitors	50 (5)	–	9 (5)	39 (7·6)	43 (9)	–	–	141 (2·7)

COVID, coronavirus disease; TNF, tumour necrosis factor; IL, interleukin.

population data were assessed based on exact Poisson test. Analyses were performed using STATA version 12·0 (StataCorp, College Station, TX, USA).

There were no cases of deaths from COVID-related disease in our study population (IR 0 per 10 000 person-months, 95% CI 0–5·1) compared with an IR of 1·6 in the general Italian population ($P = 0·64$). In our study, four of 5206 patients were hospitalized for COVID-related interstitial pneumonia (IR 5·6 per 10 000 person-months, 95% CI 1·5–14·3) compared with an IR of 5·9 in the general population ($P = 1$). The first patient was a 62-year-old man from Modena, who was being treated with guselkumab and was affected by arterial hypertension, diabetes, overweight and chronic renal failure. He was hospitalized in an intensive care unit for 12 days, but then fully recovered. Two patients were from Milan (San Donato). One of these patients was a 57-year-old woman who was being treated with adalimumab and was affected by obesity and arterial hypertension. She was hospitalized in an internal medicine unit for 5 days, then fully recovered. The third patient was a 73-year-old man receiving ustekinumab who was affected by arterial hypertension and diabetes. He was hospitalized for 10 days in an internal medicine unit, then fully recovered. The last patient was from Turin. He was a 64-year-old man treated with secukinumab who was hospitalized for 12 days in an internal medicine unit and fully recovered. Two additional patients from the total of 5206 (0·03%) had a molecular diagnosis of COVID-19 infection by nasopharyngeal swab, but were mildly symptomatic or not symptomatic, so they were not hospitalized. In particular, a 32-year-old woman from Padua, treated with guselkumab, without any comorbidities, had a cold for 10 days and a fever (37·3 C) for 1 day only. A 50-year-old nurse from Vicenza, treated with etanercept, tested positive for COVID-19 after being in close contact with an infected patient in the emergency unit. She has been in quarantine without developing any infective symptoms.

We acknowledge the limitations of this retrospective observational study, which include the lack of standardization for the control group and the absence of serological or molecular investigations for the diagnosis of COVID-19 infection in the study population. However, the objective of the study was not to investigate the incidence of COVID-19 infection in patients with psoriasis, but to report the occurrence of hospitalization and death, as indicators of severe outcomes related to COVID-19 infection. A strength of this study is the large number of patients included who were resident in the Italian areas most at risk of infection. Moreover, we had full access to their hospital medical records, so that if there had been a case of hospitalization or death from COVID-19, it would be detected. Although patients with psoriasis are generally burdened by metabolic and cardiovascular comorbidities and, most importantly, treated with immunosuppressive/immunomodulating agents, there was not a significant number of hospitalizations or deaths from COVID-19.

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References

1 Callaway E. Time to use the p-word? Coronavirus enter dangerous new phase. *Nature* 2020; **579**:12.
2 European Centre for Disease Prevention and Control. Situation update for the EU/EEA and the UK. Available at: https://www.ecdc.europa.eu/en/cases-2019-ncov-eueea (last accessed 2 April 2020).
3 D'Antiga L. Coronaviruses and immunosuppressed patients. The facts during the third epidemic. *Liver Transpl* 2020; https://doi.org/10.1002/lt.25756.
4 Lebwohl M, Rivera-Oyola R1, Murrell DF. Should biologics for psoriasis be interrupted in the era of COVID-19? *J Am Acad Dermatol* 2020; **82**:1217–18.
5 American Academy of Dermatology. Guidance on the use of biologic agents during COVID-19 outbreak. Available at: https://www.aad.org/member/practice/managing/coronavirus (last accessed 2 April 2020).
6 Bashyam AM, Feldman SR. Should patients stop their biologic treatment during the COVID-19 pandemic. *J Dermatolog Treat* 2020; **31**:317–18.

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