Papadimitriou Ilias (Orcid ID: 0000-0002-8096-156X)
Sotiriou Eleni (Orcid ID: 0000-0001-6235-4718)
Bakirtzi Katerina (Orcid ID: 0000-0001-5515-2536)

Long-term efficacy of biologic treatment for psoriasis after COVID-19 infection

Katerina Bakirtzi,[1] Ilias Papadimitriou,[1] Efstratios Vakirlis,[1] Themis Chatzi-Sotiriou,[2] Dimitrios Ioannides[1] and Eleni Sotiriou[1]

[1] First Department of Dermatology and Venereology, School of Medicine, Aristotle University of Thessaloniki, Greece

[2] Department of International and European Studies, School of Social Sciences, Humanities and Arts, University of Macedonia, Thessaloniki, Greece

Corresponding Author: Bakirtzi Katerina

Email: bakirtzicatherine@hotmail.com

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Dear Editor,

Biological therapy has demonstrated long-term efficacy in psoriasis.[1] During the COVID-19 pandemic, it remains unclear whether patients with psoriasis affected with SARS-CoV-2 still experience the same beneficial results. The aim of the study was to examine the efficacy of biologic agents in patients with psoriasis undergoing biological treatment after SARS-CoV-2 infection over one year after the infection.

This was a retrospective, observational study of the outpatient psoriasis clinic of the First Dermatology Department (Aristotle University, Thessaloniki, Greece). Patient records regarding the period March 2020-April 2022 were analyzed. Eligibility criteria were: (i) age ≥18, (ii) biologic treatment during COVID-19 infection, (iii) SARS-CoV-2 infection confirmed by a positive Real Time Polymerase Chain Reaction (RT-PCR) test, (iv) complete and updated with the follow-up visits patient records. Efficacy was assessed by the difference in Psoriasis Area Severity Index (ΔPASI ±4) and was compared to patients with psoriasis under biologics who were not affected by COVID-19. Biologic treatment was classified as follows: anti-TNFα agents, anti-Interleukin (IL) -17 agents, anti-IL-23 agents, and anti-IL-12/23 agent. Descriptive statistics, chi-square test and logistic regression were used as needed (IBM SPSS v.25: Armonk, NY, USA).

A total of 562 patients with psoriasis affected by SARS-CoV-2 were included in the study. All these patients had mild COVID-19 course, and none needed hospitalization. The mean age

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was 61 ±12, and 326 of 562 patients (58%) were male. All patients had comorbidities, such as hypertension, diabetes mellitus, or dyslipidemia, and 140 patients (24.9%) suffered from psoriatic arthritis. Regarding the distribution in the various classes of biologic treatment, 241 of 562 patients (42.9%) were on anti-TNFα, 179 (31.9%) on anti-IL-17, 114 (20.3%) on anti-IL-12/23, and 28 (5%) were on anti-IL-23 agents. All patients had been vaccinated against the flu and COVID-19 depending on the availability of the latter during the particular time period. Biological therapy was not interrupted in any case of SARS-CoV-2 infection either by the dermatologist or the patient's own volition.

Of the 562 affected patients, 432 patients (76.9%) experienced an exacerbation of psoriasis during COVID-19 infection defined as an increase in PASI by at least 4 units. Remarkable sustained efficacy with ≤4 ΔPASI was observed in patients receiving IL-17 inhibitors where 112 patients (62.6%) maintained their absolute PASI score and outperformed the other agents ($p < .05$). The second most durable treatment in terms of efficacy was anti-TNFα biologics (n=18/241), however with a low rate of non-relapse patients (7.5%). All patients treated with anti-IL-12/23 or anti-IL-23 demonstrated an increase in PASI of ≥4 units (Table 1). Nonetheless, this regression in psoriasis was transient and was as brief as a period of approximately 30 days (±20 days). No modification in treatment regimen nor agent switch was required due to psoriasis exacerbation.

Our study suggests that biologic treatment of psoriasis, particularly anti-IL-17 agents, sustain their beneficial results in the long run even during COVID-19 infection. Given that SARS-CoV-2 seems to initiate IL-17-enriched response, this might explain why different active principles could lead -even temporarily- to different degrees of effectiveness.[2-4] Long-term, larger studies are needed, however, to draw definite conclusions.

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Table 1. Class of biologic agent for psoriasis at time of onset of COVID-19 and relevant sustained efficacy.

Biologic agent	No of patients with ΔPASI ≤4 / Total No of affected patients in each class (%)
Anti-TNFα	18/241 (7.5%)
IL-12/23 inhibitor	0/114 (0%)
IL-17 inhibitor	112/179 (62.6%)
IL-23 inhibitor	0/28 (0%)

ΔPASI: difference in Psoriasis Area Severity Index; IL: Interleukin