better treatment response to omalizumab. Colchicine is a well-known anti-inflammatory drug with suppressive effects on recruitment of neutrophils and activation of myeloid cells, through inhibiting the NLRP3 inflammasome, caspase 1 activation and interleukin-1β processing. Neutrophil infiltration has been reported as relevant to the pathogenesis of chronic allergic diseases including bronchial asthma and rhinosinusitis. Likewise, a neutrophilic subtype among patients with CSU has been proposed, and colchicine treatment was able to improve the symptoms and patient quality of life. Previous studies have demonstrated that colchicine improved both skin and systemic manifestations in urticarial vasculitis. However, our case had normocomplementaemia and no findings of vasculitis with fibrin deposits or of erythrocytic extravasation, suggesting a more likely diagnosis of CSU.

Therefore, colchicine, an ancient, inexpensive and relatively safe drug, would be a reasonable therapeutic candidate in some patients with refractory CSU, especially with neutrophilic features, although further large-scale clinical trials are needed.

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Immune response to COVID-19 mRNA vaccination in patients with psoriasis undergoing treatment with biologics

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Dear Editor,

Several strategies have been adopted to fight against COVID-19. Among these, vaccination is the main weapon to overcome the pandemic. Currently, two viral vector-based vaccines Ad26.COV2.S (Johnson & Johnson) and AZD1222 (AstraZeneca) and two mRNA vaccines [mRNA-1273 (Moderna) BNT162b2 (Pfizer/BioNTech)] have been authorized by the Italian Medicines Agency. The possible impaired efficacy of vaccines in patients with psoriasis under immunosuppressive/immunomodulant treatment is being widely debated. In this context, we read with great interest the article recently published in Clinical and Experimental Dermatology by Marovt et al., which showed that antibody response against COVID-19 following two doses of BNT162b2 vaccine in patients with psoriasis undergoing biologic treatment did not differ significantly from that of healthy controls in terms of seroconversion. We conducted a similar prospective study at the Dermatology Centre of the University of Naples Federico II.

Blood samples were collected from patients at approximately 4 weeks (range 3–6 weeks) following the second dose of COVID-19 vaccination. Only mRNA vaccines were considered; patients receiving viral vector-based vaccination or with a history of COVID-19 infection were excluded.

IgG antibodies to COVID-19 protein spike were detected using an indirect chemiluminescence immunoassay, considering a titre of < 50 binding antibody units (BAU)/mL to be a negative result. Demographic and clinical variables were analysed through descriptive statistics. Student t-test and χ² test were used to assess the statistical significance of the differences for quantitative and qualitative characteristics. P < 0.05 was considered statistically significant.

In total, 44 patients with psoriasis under biologics [21 female (47.7%), 23 male (52.3%); mean ± SD age 51.2 ± 11.2 years, disease duration 18.7 ± 14.2 years, therapy duration 32.9 ± 7.3 months] were enrolled (Table 1). Of the 44 patients, 19 (43.2%) were treated with anti-tumour necrosis factor-α, 2 (4.5%) with ustekinumab, 18 (40.9%) with anti-interleukin (IL)-17 and 5 (11.4%) with anti-IL-23. The healthy control (HC) group
Vaccination is the main strategy to overcome the COVID-19 pandemic. Several concerns about both the risk and the effectiveness of COVID-19 vaccination in patients with psoriasis have been raised. Our experience confirms the results of Marovt et al., showing no differences in rate of seroconversion between HCs and biologic-treated patients with psoriasis. Moreover, even though we observed a trend towards a slightly higher mean antibody titre in HCs compared with patients, this was not statistically significant, suggesting that biologic treatment did not affect the effectiveness of vaccination. Compared with the study of Marovt et al., our cohort was larger, patients and controls were also compared for age, and the mRNA-1273 vaccine was considered. The main limitations of our study were the small numbers of patients and HCs, and no testing for cell-mediated immunity.

COVID-19 has revolutionized the management of patients with psoriasis (e.g. through teledermatology), including those undergoing treatment with biologics. Several concerns on the safety of biologic treatment have been raised and several strategies have been adopted to increase compliance with treatment and reduce vaccine hesitancy among these patients. Currently, data on the immune response to COVID-19 vaccination in patients with psoriasis receiving biologics are scant and often conflicting.

Clinicians must keep in mind the safety and effectiveness of COVID-19 vaccination in patients undergoing biologic treatment, and also consider the risk of psoriasis worsening following the vaccine. Being on biologics for psoriasis does not seem to reduce the immune response of vaccination and a booster dose is advisable to increase vaccination efficacy. Further studies are needed to better understand the relationship between immune response and biologic treatment.

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Table 1 Clinical features and comparison between patients with psoriasis and control groups.

| Parameter                  | Patients | Controls | P      |
|----------------------------|----------|----------|--------|
| Patients, n                | 44       | 57       |        |
| Age, years; mean ± SD      | 51.2 ± 11.2 | 40.8 ± 14.2 | 0.001 |
| Female sex, n (%)          | 21 (47.7) | 32 (56.1) | NS     |
| Disease duration, years    | 18.7 ± 14.2 | NA       | NA     |
| Therapy duration, months   | 32.9 ± 7.3 | NA       | NA     |
| Psoriatic arthritis        | 12 (27.3) | NA       | NA     |
| Type of vaccine            |          |          |        |
| mRNA BNT162b2              | 41 (93.2) | 52 (91.2) | NS     |
| mRNA-1273                  | 3 (6.8)  | 5 (8.7)  | NS     |
| Number of responders       | 43 (97.7) | 56 (98.2) | NS     |
| Antibody titre, BAU/mL     |          |          |        |
| All patients               | 468.4 ± 420.3 | 586.5 ± 408.3 | NS |
| < 55 years a               | 497.5 ± 437.0 | 575.42 ± 366.90 | NS |
| > 55 years b               | 426.3 ± 403.5 | 620.64 ± 530.53 | NS |
| Medication                 |          |          |        |
| Anti-TNFα (19 of 44; 43.2%)| 517.4 ± 455.7 | NA       | NA     |
| Anti-IL-12/23 (2 of 44; 4.5%) | 364.5 ± 372.6 | NA       | NA     |
| Anti-IL-17 (8 of 44; 40.9%) | 483.5 ± 424.3 | NA       | NA     |
| Anti-IL-23 (5 of 44; 11.4%) | 269.0 ± 311.7 | NA       | NA     |

BAU, binding antibody unit; IL, interleukin; mRNA-1273, Moderna mRNA-1273; mRNA BNT162b2, Pfizer mRNA BNT162b2; NA, not applicable; NS, not significant; TNF, tumour necrosis factor.*26 of 44 patients in the psoriasis group vs. 43 of 57 patients in the control group. b18 of 44 patients in the psoriasis group vs. 14 of 57 patients in the control group.

Consisted of 57 people [32 female (56.1%), 25 male (43.9%); mean age 40.8 ± 14.92 years].

The BNT162b2 and mRNA-1273 vaccines were respectively given to 41 (93.2%) and 3 (6.8%) patients with psoriasis, and to 52 (91.2%) and 5 (8.7%) controls. A positive antibody response was detected in 43 (97.7%) patients and 56 (98.2%) HCs, with no significant difference between the groups. Despite mean antibody titres being slightly higher in the HC than in the psoriasis cohort (586.5 ± 408.3 BAU/mL vs. 468.4 ± 420.3 BAU/mL), we found no statistically significant differences between the study groups, in contrast to the results of Marovt et al. In line with that report, we also did not observe significant differences in antibody titres between patients > 55 years (426.3 ± 403.5 BAU/mL) and those aged < 55 years (497.5 ± 437.0 BAU/mL) in the psoriasis group. In addition, there were no significant differences between the psoriasis and HC cohorts. Finally, no statistically significant differences in antibody titres were found between the different treatment groups.
Dear Editor,

Several strategies have been adopted in the fight against the COVID-19 pandemic.\(^1,2\) We read with great interest the recently published paper in Clinical and Experimental Dermatology by Oh \textit{et al.},\(^3\) reporting the case of a 47-year-old woman who developed superficial morphoea 3 weeks after the second dose of the Pfizer-BioNTech vaccination.\(^3\) The authors also suggested three pathogenetic mechanisms that could explain the correlation between vaccination and morphoea development, but they did not explain which of these they thought would be the most likely.\(^3\)

Subsequently, Sookaromdee and Wiwanitkit\(^4\) responded to Oh \textit{et al.},\(^3\) posing some interesting thoughts that we would like to explore further. We agree with Sookaromdee and Wiwanitkit\(^4\) that the reported case\(^3\) has many limitations, including a lack of medical data such as comorbidities or current therapies of the patient that could relate to the vaccination and the development of morphoea; the missing details may or may not correlate the two events. We also consider that the period between vaccination and morphoea development is too long to confirm the relationship. Moreover, we disagree with the authors that there is a need to routinely evaluate vaccination history in patients with recent-onset morphoea,\(^3\) as there is a lack of strong evidence. Even though morphoea following COVID-19 vaccination has been reported in the literature,\(^5,6\) the cases described to date verge more toward generalized morphoea, confirming our hypothesis of a coincidence.

In our department, we have seen many reactions following COVID-19 vaccination. In addition to the well-established reactions such as local injection site reactions, morbilliform eruptions and pityriasis rosea-like reactions, we have also encountered other conditions such as shingles, alopecia areata, and worsening of chronic inflammatory diseases such as psoriasis, atop dermatitis and hidradenitis suppurativa.\(^7,8\) These types of reactions have been widely described in the literature and allow us to relate the onset of the manifestations to the COVID-19 vaccination. Furthermore, cutaneous reactions related to COVID-19 vaccination have also been reported following the booster dose.\(^9,10\)

To date, there are still too few reports about the occurrence of post-vaccination morphoea. We believe that further studies or case reports are needed to better explain the pathogenetic mechanism and understanding this possible correlation. Vaccination against COVID-19 should not be discouraged on the basis of a small number of adverse cutaneous reactions.

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