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DERMATOLOGIC THERAPY WILEY

LETTER

Psoriasis exacerbation after COVID-19 vaccination in high-risk group: How to manage it?

Dear Editor,

Since achieving herd immunity is an integral part of fighting a pandemic, the COVID-19 vaccination campaigns represent an essential step toward achieving this goal, thereby not only decreasing the mortality and morbidity of this virus, but possibly eliminating it.[1] Nonetheless, growing evidence suggests that COVID-19 vaccines may be associated with a wide range of cutaneous reactions.[2] Recently, these vaccines have also been linked to new onset and flare-up of pre-existing psoriasis, all of which attained complete clearance after the use of standard treatments.[3,4]

Herein, we report the case of a 53-year-old man with severe plaque psoriasis since 2016, who had been previously but unsuccessfully treated with topical steroids, UV-therapy, methotrexate, adalimumab, secukinumab, guselkumab and apremilast. The patient, a heavy smoker, had been suffering from several comorbidities including hypertension, diabetes mellitus, thrombo-embolism and chronic obstructive lung disease complicated by several episodes of pulmonary infections. He presented to our outpatient department on March 2021 with extensive desquamative psoriatic lesions (PASI score of 31) and a body mass index of 24.84 kg/m^2. Cyclosporine was started and PASI 100 was achieved after 1 month of treatment. In the following days, on April 22nd, he received the first dose of the Comirnaty® COVID-19 (BNT16B2b2 mRNA) vaccine (Pfizer-BioNTech). One week after the vaccination, the patient experienced a mild flare-up of psoriasis on his legs. However, 1 week following the second dose which was administered on May 27th, he developed generalized erythematous desquamative plaques and thoracic zona. Cyclosporine was thus interrupted, and acyclovir was started. Routine blood tests were normal, and the zona was successfully treated with acyclovir. Nevertheless, despite the reintroduction of cyclosporine, the use of topical steroids and the intake of acitretin, the patient's psoriasis remained uncontrolled. Consequently, oral corticosteroids were started on September 21st with ensuing clinical amelioration.

To our knowledge, we report the first case of severe psoriasis flare-up following COVID-19 vaccine in a patient with significant comorbidities. And although the mechanisms underlying such exacerbations are poorly understood, they might be explained by the similar cytokine profiles of psoriasis and of the immune response induced by the COVID-19 vaccine. Psoriasis has long been proven to be a Th1-mediated chronic disorder whose pathogenesis is dominated by the IL-23/IL-17 axis.[5] As for the BNT162b2 vaccine, it had been proven that in addition to inducing humoral immunity in humans, it can also stimulate Th1 cells.[6] Moreover, animal models have recently demonstrated that COVID-19 mRNA vaccines can lead to production of IL-17.[7] Yet, vaccinations remain a rare trigger of psoriasis and psoriasis-like eruptions, with other reported cases being linked to influenza, bacillus Calmette-Guerin, pneumococcal and tetanus-diphtheria vaccines.[8] With respect to the temporal relationship of the Pfizer-BioNTech vaccine and the zoster, a possible explanation lies in the immunomodulation provoked by COVID-19 vaccination. Liu et al.[9] demonstrated that even if this vaccine enhances the adaptive immunity against the novel coronavirus, it can decrease type I interferon responses reducing the host's ability to fight other viruses. This immune alteration can thereby explain the reactivation of varicella-zoster virus in our patient.

Therefore, considering the importance of the COVID-19 vaccination campaigns in the fight against the pandemic, it is of major relevance that dermatologists be aware of the vaccines' possible role in inducing or exacerbating psoriasis and of the risk of severe relapses in patients suffering from several comorbidities. Thus, by increasing awareness and by managing psoriasis comorbidities, we can improve the care and the quality of life of patients suffering from this disease.

CONFLICT OF INTEREST

None.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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