LETTER TO THE EDITOR

Reply to 'Cutaneous adverse effects of the available COVID-19 vaccines in India: A questionnaire-based study'. by Bawane J *et al*

Dear Editor,

The vaccination campaign is the main weapon to overcome Covid-19 pandemic. Currently, two mRNA vaccines (Pfizer/BioNTech; BNT162b2 and Moderna; mRNA-1273) and two viral vector-based vaccines (AstraZeneca; AZD1222 and Johnson & Johnson; Ad26.COV2.S) have been authorized by the Italian Medicines Agency (AIFA).[1] Several benign and self-limited cutaneous reactions related to these vaccines have been described. We read with great interest the article recently published by Bawane *et al.* reporting the results of a questionnaire-based study investigating the cutaneous adverse events (AEs) related to the available COVID-19 vaccines in India in healthcare workers,[2] and we also want to report our experience regarding the development of cutaneous reactions following Covid-19 vaccination in patients attending our department. A retrospective study was conducted on data collected from patients attending our Dermatology Department for the development of skin manifestations related to Covid-19 vaccination. Data were collected from March 2021 to March 2022. Age, sex, vaccine type, date of administration, number of doses, cutaneous AE, time between vaccine administration and cutaneous AE onset (if present) and AE management were collected. Patients receiving viral vector-based vaccines were excluded. A total of 312 patients (151 males and 161 females; mean age 47.2 years) reporting at least one cutaneous AE following the Covid-19 vaccination were included in the study.

Among these, 211 (67.6%) and 101 (32.4%) patients received vaccination with BNT162b2 and mRNA-1273 respectively (Table 1). In particular, at least one AE was collected in 97 (46%) and 114 (54%) patients receiving the first and the second dose of BNT162b2 vaccination and 38 (37.6%) and 63 (62.4%) receiving mRNA-1273 first and second dose respectively. Moreover, 32 and 18 patients undergoing vaccination with mRNA-1273 and BNT162b2 reported a cutaneous reaction for both doses respectively. Overall, the median time between the vaccination and the onset of cutaneous reaction was similar for both mRNA vaccines, being 6 days (1–13 days) for the first dose and 5 days (1–16 days) for the second one. As regards to skin reactions, local injection site reaction, including swelling, pain and erythema, was the AE most frequently reported (197/312; 63.1%) for both types of vaccines, followed by pain and

Table 1 Cutaneous reactions following the COVID-19 vaccination. Patients who reported dermatological findings after both vaccine doses are counted in both the first- and second-dose columns

Type of vaccine/dose	BNT162b2 1st dose	BNT162b2 2nd dose	mRNA-1273 1st dose	mRNA-1273 2nd dose
N of patients	97	114	38	63
Local injection site reaction*	62 (63.9)	81 (71.49)	25 (65.8)	48 (76.1)
Pain	31 (32.0)	48 (42.1)	14 (36.8)	29 (46.0)
Erythema	23 (23.7)	32 (28.1)	10 (26.3)	21 (33.3)
Swelling	18 (18.6)	24 (21.1)	7 (18.4)	15 (23.8)
Urticarial reaction	3 (3.1)	5 (4.4)	3 (7.9)	4 (6.4)
Morbilliform rash	1 (1.0)	2 (1.8)	0 (0)	1 (1.6)
Pityriasis rosea-like eruption	9 (9.3)	11 (9.6)	5 (13.2)	4 (6.3)
Herpes Zoster	2 (2.1)	6 (5.3)	1 (2.6)	3 (4.8)
Pernio like reaction	6 (6.2)	9 (7.9)	2 (5.3)	3 (4.8)
Flare of existing dermatological condition†	4 (4.1)	10 (8.7)	3 (7.9)	6 (9.5)
Vasculitic eruption	1 (1.0)	3 (2.6)	2 (5.2)	2 (3.2)
Diffuse pruritus	11 (11.3)	15 (13.1)	6 (15.8)	12 (19.0)
Diffuse hair loss	27 (27.8)	40 (35.1)	11 (28.9)	23 (36.5)
Other‡	3 (3.1)	6 (5.3)	2 (5.3)	4 (6.3)

BNT162b2: Pfizer/BioNTech; BNT162b2. mRNA-1273: Moderna; mRNA-1273.
*Both delayed and not delayed reactions.
†Includes flare of psoriasis, atopic dermatitis, acne and hidradenitis.
‡Includes lichen planus, unspecified eczema, hypopigmentation, monomorphic papular eruption, purpuric reactions, erythromelalgia.

erythema usually developing in the first 3 days after the vaccination. Other cutaneous findings included: urticarial reactions (11/312; 3.8%), pityriasis rosea-like eruptions (27/312; 8.6%), pernio-like reactions of the acral sites (19/312; 6%), vasculitic-eruptions (7/312; 2.2%), morbilliform rashes, (4/312; 1.2%), herpes zoster (12/312; 3.8%), diffuse pruritus (32/312; 10.2%) and diffuse hair loss (91/312; 29.1%). Data on the cutaneous reactions following Covid-19 vaccination have been reported in Table 1.

Several strategies were adopted by clinicians to fight against Covid-19 pandemic.[3,4] Among these, vaccination played a key role in overcoming the pandemic. In this *scenario*, several cutaneous reactions have been associated to Covid-19 vaccination.[5,6]

However, epidemiological data on the cutaneous AEs following the Covid-19 vaccination are scant as well as studies on possible pathogenetic mechanisms which may explain the correlation between the vaccine and the AEs in order to identify risk factors.[7,8]

Bawane *et al*. experience and ours showed that Covid-19 vaccines are safe and vaccines-related cutaneous AEs are mild, often self-limited and without consequences. Indeed, even if a broad spectrum of cutaneous diseases may be related to Covid-19 vaccination, no serious AEs were collected, and no patients reported that they did not plan to receive the second dose due to fears regarding their first-dose cutaneous reactions. Furthermore, all patients requiring therapeutic management completely responded to topical or brief-course oral corticosteroids, oral antihistamines, emollients and pain-relieving drugs.

The main strength of our study was the diagnosis of cutaneous AE performed by a dermatologist, while, main limitations included some self-reported skin reactions, the small cohort and the limited knowledge of the possible pathogenetic mechanisms.

However, further studies are still required in order to adopt strategies to prevent or treat these clinical conditions. Certainly, Covid-19 vaccination should not be discouraged, and the possibility of cutaneous AEs should not limit the vaccination campaign.

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Conflict of interest

The authors declare no conflict of interest.

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Data availability statement

Data are reported in the current study.

L. Potestio, L. Genco, A. Villani, C. Marasca, G. Fabbrocini, L. Fornaro, A. Ruggiero, F. Martora

Section of Dermatology – Department of Clinical Medicine and Surgery, University of Naples Federico II, Via Pansini 5,80131,Napoli, Italy

*Correspondence: A Villani. E-mail: ali.vil@hotmail.it

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