

Hypothesis & Experience
Letter to the Editor



Skin testing with Pfizer SARS-CoV-2 vaccine and PEG 2000

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To the editor

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has rapidly become one of the biggest health threats the world has faced. The importance of controlling the disease and its worldwide spread cannot be understated. Vaccination arises as the cornerstone of this fight against coronavirus disease 2019 (COVID-19), though new challenges have emerged with it.

Anaphylactic reactions to vaccines are very rare, occurring at a rate of 1.31 per million doses administered [1]. Reports on the new mRNA Pfizer-BioNTech SARS-CoV-2 vaccine show a higher rate of anaphylactic reactions: 4.7 cases/million doses administered [2]. There is great uncertainty about which patients might be at risk of developing an anaphylactic reaction to the vaccine. Current recommendations state that the vaccine should not be administered if subjects have hypersensitivity to COVID-19 vaccines or any of its components [3].

The Pfizer-BioNTech SARS-CoV-2 vaccine is an mRNA vaccine that uses a lipid-based nanoparticle carrier system, stabilized by polyethylene glycol (PEG) 2000. Although evidence on the pathogenesis of severe immediate reactions to the SARS-CoV-2 vaccine is lacking, the PEG molecule has been proposed as a possible culprit for these reactions due to existing evidence of its ability to cause immunoglobulin E (IgE)-mediated anaphylaxis [4-6].

Assuming the reactions to the Pfizer-BioNTech vaccine resulted from IgE-mediated mechanisms, skin testing might prove a valuable method to identify patients with allergy to the vaccine or its components. Published data by Marcelino et al. [7] showed that skin prick (SP) and intradermal (ID) testing with the Pfizer-BioNTech SARS-CoV-2 vaccine in its undiluted form can be performed and are not irritant. However, multicentric data on the usefulness and validity of skin testing with the SARS-CoV-2 vaccine is still lacking.

Our aim is to evaluate skin test positivity to the Pfizer-BioNTech SARS-CoV-2 vaccine and its association with PEG 2000 skin tests and with allergic reactions to the vaccine.

As part of our national COVID-19 vaccination program, 2,755 healthcare workers were vaccinated at our Hospital. A total of 115 performed skin tests with the Pfizer-BioNTech SARS-CoV-2 vaccine (83% women, mean age of 44±12 years). Fifty-five of them were control subjects, who had tolerated the vaccine, and confirmed the nonirritant test concentrations (Marcelino et

