Allergic Reactions to COVID-19 Vaccines: An Allergist's Perspective

Reações Alérgicas às Vacinas para a COVID-19: A Perspetiva do Imunoalergologista

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To the Editor,

The COVID-19 vaccines approved so far for use in the European Union (EU) include those from Pfizer/BioNTech®, Moderna® and AstraZeneca®. Two severe cases of anaphylaxis that were resolved after treatment were reported on the second day of the vaccination program.[1] In the following days, an additional potential allergic reaction to the Pfizer/BioNTech® vaccine was described in the United Kingdom (UK) and another eight cases were reported in the United States (US).[2] This triggered the need to provide recommendations on how to manage the safety concerns that had been raised.[3]

Regulatory agencies from the EU, US and the UK agree that vaccination is contraindicated when there is allergy to one of the vaccine components, a severe reaction after the first dose or if there is a previous history of a severe allergic reaction to vaccines.[3] According to the Centers for Disease Control and Prevention (CDC), a history of severe allergic reaction to an injectable medication will have to be carefully evaluated.[2]

Polyethylene glycol (PEG), also known as macrogol, is an excipient of the Pfizer/BioNTech® and Moderna® vaccines. While PEG is considered generally safe for use in medical devices and drug formulations, IgE-mediated allergic reactions and anaphylaxis have been reported.[4] Polysorbate 80, also known as Tween 80, is a synthetic non-ionic surfactant used as an excipient in the AstraZeneca® vaccine, as well as in various drug formulations. Polysorbate 80 is cross-reactive to PEG and may cause IgE-mediated hypersensitivity reactions as well.[4]

The fear of a hypersensitivity reaction, particularly among patients with pre-existing allergic diseases, may lead to unfounded vaccine hesitancy. This may compromise the achievement of herd immunity, and thus unnecessarily extend the pandemic, with devastating social, economic and health consequences.

We highlight that there is absolutely no indication for carrying out a systematic preventive allergy study, prior to the administration of a COVID-19 vaccine, to any individual with allergic rhinitis and/or asthma and/or eczema. These vaccines are contraindicated in case of allergy to the COVID-19 vaccine components (namely PEG and polysorbate 80) or in case of anaphylaxis after administration of the first dose. In case of previous anaphylaxis to other vaccines, severe or multiple drug allergy, mastocytosis/mast cell activation syndromes or idiopathic anaphylaxis, precautions should be taken and an immunoallergy evaluation must take place before vaccination in a hospital setting, but these are not considered contraindications. There is already evidence that the administration of COVID-19 vaccines with premedication is safe in patients with mastocytosis and mast cell activation symptoms, including anaphylaxis.[5]

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