

The role of emergent food allergies in rethinking vaccine strategies



Galactose-alpha-1,3-galactose (alpha-gal) is a heat-stable mammalian carbohydrate that has been implicated in causing a new type of allergic reaction. This allergic reaction is unique in comparison to most food type I hypersensitive reactions as:

- sensitisation is due to a carbohydrate and not proteins
- allergic reactions can start at any time over one's lifetime whereas other food allergies start during the early stages in life
- reactions occur $3\pm$ hours after ingestion of allergen while typical food allergies are immediate.

Alpha-gal syndrome (AGS) is a food allergy to red mammalian meat which naturally contains alpha-gal except for old-world primates and humans. The allergy begins in some individuals after bites from certain ticks. AGS has also resulted in a reaction to medicine with mammalian derivatives.

Recent studies have shown the ability of vaccines that contain gelatin from a bovine or porcine source to result in basophil activation in individuals with alpha-gal allergy with a potential risk of anaphylaxis.

Basophil activation tests on different dilutions of gelatin containing measles, mumps, and rubella (MMR) live vaccine;

attenuated varicella (V) vaccine; an attenuated V-zoster (VZ) vaccine showed strong positive basophil activation in patients with alpha-gal allergy. Gelatin-containing vaccines therefore pose a risk for anaphylaxis in these patients.

Schmidle et al, stated “Gelatin-containing vaccines should be administered with caution or avoided in patients with AGS because of their high potential to activate basophils indicating a risk for anaphylaxis”.

Journal Article: Schmidle, P. et al. 2021. [Gelatin-Containing Vaccines for Varicella, Zoster, Measles, Mumps, and Rubella Induce Basophil Activation in Patients with Alpha-Gal Syndrome](#). Int Arch Allergy Immunol

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