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**Discussion:** We presented a case of a successful graded-dose administration of the second dose of the Pfizer-mRNA vaccine for SARS-CoV-2 in a patient with previous anaphylaxis to the first dose. The use of skin testing to the vaccine and its components remains controversial. Graded-dose administration of vaccines may improve vaccination rates in patients with high-risk of hypersensitivity reactions to these vaccines.

**Table 1** Four-step graded dose administration protocol used for the Pfizer COVID-19 vaccine

| Dose        | Dilution      | Time   |
|-------------|---------------|--------|
| 0.05 mL     | 1:10 Dilution | 0 min  |
| 0.05 mL     | Full-strength | 15 min |
| 0.1 mL      | Full-strength | 30 min |
| 0.15 mL     | Full-strength | 45 min |
| Observation |               | 75 min |

## M014

### NSAID ASSOCIATED EXERCISE-INDUCED ANAPHYLAXIS

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**Introduction:** The pathogenesis of exercise-induced anaphylaxis is not well-understood. However, the addition of another trigger such as food or medications may be a predisposing factor for exercise-induced anaphylaxis. We present the case of a woman who developed exercise-induced anaphylaxis after ingesting an NSAID.

**Case Description:** A 40-year-old woman with no history of food or medication allergies presents to clinic. She is an avid runner preparing for a marathon who developed anaphylaxis during a training run. While the patient has previously tolerated NSAIDs, she took prophylactic naproxen prior to her run and by mile four she developed pruritus and periorbital swelling. By mile six she developed hives, dyspnea, lightheadedness, and vomiting for which she called her husband to present to the hospital. She was supported through anaphylaxis without epinephrine in the emergency room and discharged home. No foods were ingested leading up to the event that were not tolerated subsequently. Following the clinic visit she now strictly avoids NSAIDs, carries an epinephrine autoinjector, and has not had recurrence of symptoms with exercise.

**Discussion:** NSAIDs are capable of both eliciting IgE-mediated allergic responses and directly promoting mast cell degranulation of histamine. Furthermore, exercise can result in various physiologic changes that may promote basophil histamine release. For these reasons, the combination of NSAID use and exercise may predispose certain individuals to anaphylaxis. It is important to be mindful of this phenomenon to provide appropriate guidance regarding safe exercise and how to approach the management of anaphylactic symptoms that may arise during exercise.

## M015

### A PATIENT WITH AN ALLERGIC REACTION TO THE PFIZER COVID-19 VACCINE SUBSEQUENTLY TOLERATES JOHNSON&JOHNSON VACCINATION

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**Introduction:** Messenger RNA (mRNA) vaccines have been critical to combating COVID-19. While most patients tolerate these vaccines, a small number of individuals experience immediate reactions consistent with mast cell degranulation. Given this is the first time mRNA vaccine technology has been used on this scale, many questions remain about the evaluation and management of these patients.

**Case Description:** A 52-year-old male with a medical history of seafood allergy, allergic rhinitis, and asthma was referred to our clinic after he had an adverse reaction to the first dose of the COVID-19 Pfizer vaccine. Within 30 minutes of the injection he developed generalized pruritus, a raised rash on his chest, throat irritation, and wheezing. These symptoms resolved without treatment within 6 hours. We performed vaccine excipient skin testing which demonstrated sensitization to polyethylene glycol 3500 via skin prick testing at a concentration of 1.7mg/mL. To complete his vaccine series, he was given the Johnson & Johnson vaccine, which he tolerated.

**Discussion:** Adverse vaccine reactions are a barrier to opposing the COVID-19 pandemic. While the mechanisms of immediate-type hypersensitivity reactions to the mRNA COVID-19 vaccines are not fully understood, our patient had a compelling history for an immediate-type reaction. Although the validity of COVID-19 vaccine excipient skin testing is unclear, it is reasonable to counsel patients with sensitization to avoid repeat vaccination. Fortunately, alternative vaccine platforms exist, and we now have concrete evidence that they can be safe for those with an immediate-type hypersensitivity reaction to an initial mRNA vaccine.

## M016

### A CASE OF HEREDITARY ALPHA TRYPTASEMIA PRESENTING AS PERIOPERATIVE ANAPHYLAXIS

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**Introduction:** Hereditary Alpha Trypsinemia (H $\alpha$ T) is an autosomal dominant disease with increased copies of *TPSAB1* causing an elevated tryptase. Patients with H $\alpha$ T may be at increased risk of anaphylaxis.

**Case Description:** We present a 64 year old male who developed perioperative anaphylaxis during a shoulder graft surgery. The patient was given Lidocaine, Propofol, Cefazolin, Succinylcholine, Midazolam, Rocuronium, Fentanyl, Ondansetron, Fevoflurane, and Chlorohexidine pre-operatively. Shortly after the patient experienced diffuse body hives, difficulty in ventilation, increase in end tidal Co<sub>2</sub>, and drop in blood pressure with a serum tryptase of 27 ug/mL. Symptoms resolved with IV epinephrine. The patient presented to allergy clinic 4 weeks later, and in the meantime had already tolerated Lidocaine, Midazolam, and Fentanyl for another procedure. The patient was skin tested with non-irritating concentrations of Cefazolin, Cis-atracurium, Succinylcholine, Rocuronium, Pancuronium, and Propofol. All skin testing was negative. A baseline tryptase remained elevated at 19 ug/mL. Bone marrow biopsy was negative for systemic mastocytosis. In light of negative workup and elevated tryptase a decision was made to order gene testing for H $\alpha$ T. The patient's gene testing was positive for extra allelic alpha tryptase copies at *TPSAB1* which is consistent with H $\alpha$ T.

**Discussion:** Our case shows importance of considering H $\alpha$ T in the differential of patients with anaphylaxis, especially in those with an elevated baseline tryptase.

## M017

### THE STINGS THAT KEEP ON GIVING: DELAYED ANAPHYLAXIS TO HYMENOPTERA VENOM

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**Introduction:** Delayed allergic reaction to Hymenoptera venom is a rare cause of anaphylaxis.

**Case Description:** A 4-year-old previously healthy male developed anaphylaxis 9 days after Hymenoptera stings. He was stung twice behind his left ear, likely by a yellow jacket. He immediately developed left-sided facial and periorbital angioedema, lasting 3 days. He was symptom-free for 2 days. Five days after the stings, he developed left cheek urticaria and left-sided periorbital angioedema, which progressed despite antihistamines. Nine days after the