

Table 1. Selected Constituents of Relevant Vaccines^a

	Histamine control	Saline glycerol control	Adult influenza vaccine (thimerosal, ^b 25 µg/dose) ^c	Thimerosal-free pediatric influenza vaccine ^d		Egg	Tetanus toxoid (thimerosal, 0.05 µg/dose) ^e	Tetanus and diphtheria toxoids (thimerosal, ≤0.6 µg/dose) ^f
				1:10	Full strength			
Initial evaluation	5/25	1/1	3/25	ND	ND	ND	ND	ND
Follow-up evaluation	5/20	1/1	ND	1/1	1/2	1/1	1/2	1/2

Abbreviation: ND, not done.

^a Data are given as the size of the wheal/erythema in millimeters.

^b Thimerosal is approximately 50% mercury by weight.

^c Fluzone, Aventis Pasteur Inc, Swiftwater, Pennsylvania (thimerosal, 50 µg/dose).

^d A 0.5-mL prefilled syringe, 2005–2006 formula, Fluzone, Aventis Pasteur Inc (no preservative).

^e Tetanus Toxoid Adsorbed USP, Aventis Pasteur Inc (thimerosal, 0.05 µg/dose).

^f For adult use, DECAVAC, Aventis Pasteur Inc (thimerosal, ≤0.6 µg/dose).

as happen. However, this was not formally proved by in vitro IgE measurements, and, therefore, a non-IgE mechanism is possible. We believe that she tolerated earlier exposure to the tetanus vaccine and did not have skin test reactivity to the tetanus vaccine because the dose of thimerosal is much less than in the adult influenza vaccine (0.05 vs 25 µg).

ACKNOWLEDGMENTS

We thank the members of the Hypersensitivity Working Group of the Clinical Immunization Safety Assessment Network for advice regarding this communication.

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EVALUATION AND MANAGEMENT OF PEDIATRIC PATIENTS WITH ANAPHYLACTOID REACTIONS TO DEFEROXAMINE MESYLATE

Deferoxamine mesylate (Desferal; Novartis Pharmaceuticals Corp, East Hanover, New Jersey) is an iron-chelating agent indicated for the treatment of chronic iron overload.^{1,2} Anaphylactic reactions related to its use have been reported³; however, review of the literature reveals that the approach to the patient with an anaphylactic reaction to deferoxamine mesylate has been reported only by individual case reports and mainly in adult patients.^{4–8} Herein we describe 3 children with transfusion-dependent anemias for thalassemia major

(patients 1 and 2) and sickle cell disease (patient 3) who were evaluated for adverse reactions to deferoxamine mesylate.

Evaluation included prick (1/10 dilution) and intradermal (1/100, 1/1,000, 1/10,000, and 1/100,000 dilutions) skin tests. Five healthy patients were tested to establish a nonirritating dose. An advanced rapid desensitization protocol, as previously described,⁵ was used for patients 1 and 2. In short, a 7-step challenge was performed using 0.00375 mg in 10 mL of saline solution followed by 0.0375, 0.375, 3.75, and 37.5 mg in 10 mL of saline solution at 15-minute intervals and then 375 and 500 mg in 15 mL of saline solution at 70-minute intervals. If there were no adverse symptoms the day after desensitization, the patients continued with the next infusion of deferoxamine mesylate (35 mg/kg per day 5 days a week).

The 3 patients had started deferoxamine mesylate therapy at ages 6, 8, and 14 years. After exposure to deferoxamine mesylate they presented with anaphylactic-like symptoms, including breathing difficulties, wheezing, diffuse urticaria, and generalized itching in patient 1; diffuse hives in patient 2; and hypotension and severe abdominal pain in patient 3. The patients' conditions were diagnosed clinically, and tryptase or other measurements to ascertain whether the deferoxamine mesylate reactions were mast cell related were not performed. However, skin test results were positive in 2 patients (patients 2 and 3), including a pseudopod, which was evident in the 1/100 dilution (patient 3).

Patients 1 and 2 underwent successful desensitization procedures, and later the drug was used safely and effectively. Because at the time of the evaluation an alternative oral iron-chelating agent was available (deferisirox [Exjade; Novartis Pharmaceuticals Corp]), a desensitization procedure with Desferal was not indicated. The desensitization procedure is classically referred to as the process of immunologic tolerance to an antigen against which specific IgE antibodies are present.⁹ Detection of such antibodies against deferoxamine mesylate are usually not found even in the face of a true immediate-type reaction.^{4,6} We used an advanced protocol that is slightly different from what has previously been described.⁵ The protocol included the desensitization phase (infusing increasing concentrations of deferoxamine mesy-

Authors have nothing to disclose.

late) before starting the maintenance dose (deferioxamine mesylate, 50 mg/kg per day 5 days a week).

Skin testing with deferioxamine mesylate is complicated because the specific determinants are not yet well defined and standardized tests have not been established. Results of intradermal tests with full-strength deferioxamine mesylate have been shown to be falsely positive in healthy individuals.^{4,6} We used lower concentrations of deferioxamine mesylate (1/100 to 1/100,000 dilutions) to find a nonirritating dose, which would be useful in the diagnosis. Indeed, using lower concentrations for skin testing allowed us to confirm the diagnosis in 2 of the 3 patients. Based on this, we assume that although positive results using low dilutions should be considered valid, a negative skin test result in a patient with a suspected anaphylactoid reaction should be interpreted with caution, and in the face of a clinical history of an anaphylactic reaction, desensitization should be considered.

In conclusion, these cases highlight the utility of low concentrations of deferioxamine mesylate for skin testing in the evaluation of patients with suspected anaphylactic reactions to deferioxamine mesylate. When an alternative therapy is not available for patients with intolerance to deferioxamine mesylate, a rapid intravenous desensitization procedure is safe and efficacious.

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OCCUPATIONAL ASTHMA TO FRESH SEA LAVENDER AND CROSS-REACTIVITY TO SWEET VERNAL GRASS POLLEN

Limonium sinuatum (statice or sea lavender) is one of the most common ornamental plants used for flower arrangements as dried flowers. It is an herbaceous, perennial plant of the Plumbaginaceae family. It is picked when the flowers are well colored, tied in small bunches, and hung upside down until dry. Dust from this dried plant has been described as a cause of occupational asthma,¹ but no case of IgE-mediated bronchial asthma to the newly gathered plant has been reported. *Anthoxanthum odoratum*, also known as sweet vernal grass, holy grass, or vanilla grass, belongs to the Poaceae family. The leaves of *A odoratum* can be woven into baskets and used in potpourri because of the vanillalike smell achieved after being cut and dried. *L sinuatum* and *A odoratum* are unrelated except for the common use as dried flowers and leaves, respectively.

The patient was a 42-year-old nonsmoking woman with no history of atopic disorders. As the owner of a greenhouse and floral shop, she has been handling, cutting, binding, and selling fresh flowers for 20 years. For the past 7 months she noticed nasal obstruction with itching, water discharge, and anosmia accompanied by ocular pruritus and palpebral edema. Symptoms of wheezing dyspnea appeared while working with fresh *L sinuatum* flowers. Symptoms improved outdoors. On physical examination, 1 nasal polyp was present in the right nasal cavity. Basal spirometry findings were within the reference range. Results of nonspecific bronchial challenge testing with methacholine were borderline positive, with a provocation concentration that caused a decrease in forced expiratory volume in 1 second of 20% of 25 mg/mL. Her total serum IgE level was 144 kU/L (reference range, <100 kU/L). Results of skin prick tests with common aeroallergens were positive only to pollen from *A odoratum*, and serum specific IgE to *A odoratum* (Phadia CAP System, Phadia AB, Uppsala, Sweden) was mildly positive (0.89 kU/L) but negative to *Lolium perenne* and cross-reactive carbohydrate determinants. Results of prick-prick tests² with white and yellow flowers of *L sinuatum* were positive (12 × 7 and 18 × 11 mm, respectively) but with violet flowers and stems were negative. In response to skin testing with *L sinuatum* extracts from white, yellow, and violet flowers

Authors have nothing to disclose.