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Treatment Guidelines

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Administering the H1N1 influenza vaccine in patients with suspected egg allergy

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Introduction

The current H1N1 influenza pandemic has heightened awareness of the health benefits of influenza vaccination. Because the H1N1 vaccine is expected to contain egg antigen (concentration unknown at this time), persons with suspected egg allergy are instructed to check with their physicians before receiving H1N1 vaccination. Previous experience with seasonal influenza vaccines (which also contain egg antigen) suggests that many people with diagnosed or suspected egg allergy can receive influenza vaccination safely, if precautions are followed. This paper offers guidance on the evaluation of the patient with suspected egg allergy who needs H1N1 vaccination, and outlines precautionary measures that can enhance the safe administration of vaccine.

Evaluation with medical history, egg and vaccine skin testing

Persons with a history of suspected egg allergy and who have an indication for H1N1 vaccination should first be evaluated by a specialist in food and vaccine allergy. The evaluation begins with a detailed history to assess the likelihood that the patient has an anaphylactic sensitivity to egg. If the clinical history is consistent with anaphylaxis from egg allergy, then (prick) skin testing for egg allergy, or specific in vitro IgE antibody testing for egg allergy is indicated. Skin testing is preferred because of superior sensitivity, faster results and lower cost.

Skin testing should also be performed with the H1N1 vaccine itself. Based on experience with seasonal influenza vaccines, a prick test with full strength vaccine is appropriate for most patients (with appropriate positive and negative control skin tests). Those with a history of life-threatening anaphylaxis can be first tested with diluted vaccine. If the prick skin tests are negative, the patient should undergo intradermal skin testing with a 1:100 dilution of the vaccine.

The operating characteristics (ie “false negative” and “false positive” rates) of H1N1 skin testing in the diagnosis of vaccine allergy is unknown. Experience with seasonal influenza skin testing suggests that the irritant response rate (ie “false positive” rate) is about 15%.

If skin tests are negative

If the skin testing or specific in vitro IgE antibody testing for egg allergy are negative and the skin test to H1N1 vaccine is negative, the full dose of the vaccine can be administered. However, because the predictive value of H1N1 skin testing has not been studied, it is recommended in this situation that the H1N1 vaccine be administered in a clinical setting prepared to manage anaphylaxis. Patients should be observed for at least 30 minutes after vaccine administration.

If skin tests are positive

If the skin testing or specific in vitro IgE antibody testing for egg allergy are positive or if the skin test to the H1N1 vaccine itself is positive, it may still be possible to administer the vaccine safely for many patients. Experience with seasonal influenza vaccine suggests that patients with egg allergy can be vaccinated safely if the content of egg protein in the vaccine is 1.2 micrograms/ml or less. Studies suggest that when the content of egg protein in the vaccine is not known, systemic reactions (none fatal) to influenza vaccine administered to patients with known egg allergy develop in 0-40% of patients. Because the egg protein content of this year's H1N1 vaccine is unknown, it is recommended that a graded dose protocol be used if the H1N1 vaccine is administered to a patient with positive skin tests to the vaccine. One example of such a graded dose protocol (full dose volume 0.5 ml) is shown below.

Administer at 15-minute intervals

0.05 ml 1:10 dilution

0.05 ml full-strength

0.1 ml full-strength

0.15 ml full-strength

0.2 ml full-strength

For children under 3 years, the full-dose volume is 0.25 ml, so a modified protocol should be used.

Anaphylaxis and even death from allergic reactions to seasonal influenza vaccine have been reported. Thus, if skin tests to egg or the H1N1 vaccine are positive, the vaccine should be administered in a clinical setting equipped to assess and manage anaphylaxis. The patient should be observed for at least 30 minutes after the last dose. The decision to administer the H1N1 vaccine in a patient with positive skin tests (to egg or to vaccine) should be made after careful consideration of risks and benefits, and with patient consent.

Second vaccine dosing

There may be significant lot-to-lot variability in egg protein content of the H1N1 vaccine. Thus, it is prudent to proceed with vaccine skin testing, and graded dosing (if positive) for subsequent doses of vaccine. A more conservative approach is to proceed with graded dosing and not repeat the vaccine skin testing.

Patients with suspected influenza vaccine allergy without egg allergy

Patients with a history of possible anaphylaxis to previous influenza vaccination (without a clinical history of egg allergy) should proceed with skin testing to egg and the H1N1 vaccine itself.

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