Influenza Vaccine for Egg-Allergic Patients—Safe?

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A MOTHER ASKS:

My 18-month-old son has had a diaper rash, with no other symptoms, within a few days of eating a poached egg on 3 separate occasions. I have not fed him eggs otherwise, but he is able to eat baked goods with eggs in them and doesn’t get a rash. Can my son get a flu shot?

THE PARENT COACH ADVISES:

With the current push to provide influenza vaccination to all children 6 months and older, pediatricians are likely to hear this question from many parents who are unsure whether their child has egg allergy. It is important to be able to identify whether a child's symptoms are consistent with a hypersensitivity reaction to egg and whether it is safe to administer influenza vaccine. In accordance with the American Academy of Pediatrics (AAP) guidelines, a child can be considered at low risk for anaphylaxis after influenza vaccination when his or her symptoms after egg exposure are not acute (eg, the findings do not clearly indicate an IgE-mediated process) and egg proteins are tolerated in other parts of the diet without reproduction of symptoms. For these children, a brief observation period postvaccination in the office or clinic, where a reaction could be treated with appropriate medications, would be reasonable, as would parental education about monitoring for specific developments at home. Allergy referral and testing may be sought to determine what the offending agent may be, and avoidance of more concentrated egg preparations, such as a poached egg, can be recommended until the follow-up evaluation is completed.

The burden of egg allergy. Egg allergy is the most common food allergy in childhood after milk protein allergy. It affects an estimated 1% to 2% of young children and can cause severe hypersensitivity reactions, including anaphylaxis. Egg components are a leading cause of food-triggered atopic skin disease. Allergic sensitivity to egg can also be a future predictor of other atopic processes, such as asthma, and is associated with higher rates of sensitivities to other environmental agents, including aeroallergens. It may also influence vaccination decisions. Thus, child caregivers need to be aware of the prevalence, presentation, and management of egg allergy to avoid potential harm.

Identifying the presence of true allergy. There are misperceptions about what constitutes an adverse food reaction and what causes it. Many good references summarize the topic; most of them differentiate between food allergy and food intolerance by the underlying immunological mechanism. Allergic reactions to foods can be divided into IgE-mediated (humoral) and non-IgE-mediated (nonhumoral, or cell-mediated).

IgE-mediated reactions typically affect the GI tract, respiratory system, and skin. The corresponding signs and symptoms may include vomiting, facial swelling, difficulty in swallowing, trouble breathing, and widespread hives. Reactions resulting in anaphylaxis can affect multiple organ systems and lead to shock or death. Humoral-mediated reactions and anaphylaxis are typically associated with a rapid onset of symptoms, within minutes to hours after ingestion. Non-IgE-mediated reactions predominantly cause GI disturbance, although localized skin
manifestations can occur. The clinical features often include diarrhea or a blotchy, erythematous rash in places in direct contact with the allergen, such as the mouth or diaper area. These reactions are usually more insidious in onset, with hours to days being the norm, and can vary significantly in severity. Celiac disease and infantile milk protein colitis are well-known examples. Food intolerances are abnormal reactions to food components that do not involve the immune system. Mechanisms may include altered metabolism of food components, such as specific sugars in lactose intolerance, or food-induced destabilization of mast cells and histamine release. A large percentage of intolerances can also be idiopathic. Although this form of food sensitivity may cause significant discomfort, it is generally considered benign. Determining whether a child's symptoms are related to food ingestion and categorizing the type of reaction can be difficult. This is because of symptom overlap among the different reactions, combined reactions, and other variables (eg, illnesses) that may produce symptoms in coincidence with food intake. Although an elimination diet can help isolate the offending food, this may not be advisable for a child with a potential IgE-mediated food reaction. Allergy testing is helpful in determining whether presenting symptoms and history are linked biochemically to foods and the nature of the reaction. Some testing can be performed by general practitioners, such as blood tests for food-specific IgE antibodies. Alternatively, or additionally, an evaluation by an allergist can be prescribed.

Current recommendations for vaccination of egg-allergic patients. Conventional wisdom and lack of scientific data have resulted in vaccination deferral for many infants and children, even those deemed at high risk for severe disease and complications from influenza. Although the feasibility and safety of vaccinating egg-allergic children with influenza vaccine has been studied, no guidelines have been established. Some studies suggest a role for skin prick and intradermal testing with influenza vaccine in egg-allergic persons and administration of the vaccine in a 2-dose or graded-dose protocol, even if the results of testing are positive. In addition, in children who had egg protein anaphylaxis after skin testing, influenza vaccine has been administered safely after appropriate desensitization. However, the AAP recommends that such egg-allergic children not be vaccinated because of their risk of reactions, the need for annual vaccination, and the availability of chemoprophylaxis and treatment against influenza infections. Localized manifestations or less severe (non–IgE-mediated) reactions to egg, such as this child's diaper rash, are not considered contraindications to influenza vaccines, and children with these reactions do not warrant vaccine skin testing before vaccination.

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