



EGG ALLERGY



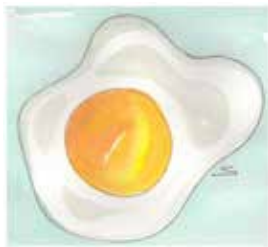
Dr Do-a-Lot's student presents short notes on egg allergy:

Egg is a common cause of allergic reactions in children. Egg allergy occurs in about 2% of infants and children and is often present in the first year of life, especially in children with eczema. Most egg-allergic children develop

tolerance to egg proteins in early childhood, but in cases where levels of antibodies to ovomucoid are high it is less likely that the allergy will be outgrown.

may occur due to widespread vasodilatation and a sudden decrease in blood pressure, resulting in anaphylactic shock.

Highly sensitised individuals may develop respiratory symptoms from the inhalation of protein particles in the fumes of cooked eggs. Patients with eczema may experience a worsening of their skin condition in a delayed reaction. Some patients may develop gastro-intestinal inflammation with symptoms that include reflux, difficulty swallowing, diarrhoea, constipation, abdominal pain and bloating as a result of delayed reactions.



Most reactions to egg are caused by the proteins in egg white

Egg proteins

Most reactions to egg are caused by the proteins in egg white, which include ovomucoid, ovalbumin, ovotransferrin and lysozyme. The main allergenic protein found in egg yolk is called alpha-livetin.

Symptoms of egg allergy

Hypersensitivity reactions to egg are typically immunoglobulin-E (IgE)-mediated and therefore occur within minutes of exposure. Sometimes, however, symptoms may take more than an hour to present. Mild symptoms include skin manifestations such as flushing or urticaria and a tingling or itchiness in the mouth. Severe symptoms are less common and include swelling of the face, tongue and throat, nausea, vomiting, abdominal pain, shortness of breath and wheezing. Cardiovascular collapse



Patients with eczema may be sensitised to egg proteins

Testing for egg allergy

Following a detailed history and careful examination, the following tests and procedures may be helpful in the diagnosis of egg allergy:

1. **Skin-Prick Test (SPT):** An SPT may be performed, even on young babies, by placing a few drops of fresh egg or egg solution on the skin and pricking through the droplet.
2. **Specific IgE test:** This is a blood test that measures IgE which has been produced by a patient's plasma cells and which is specific to egg proteins. Tests available from commercial laboratories include those for egg white, egg yolk and ovomucoid.
3. **An elimination diet followed by re-introduction of egg:** This may be useful, for example, in a patient with

eczema or non-specific gastro-intestinal symptoms where it is uncertain whether or not symptom flares are caused by the ingestion of egg.

4. **Oral food challenge:** This test may be helpful in establishing a clinically significant allergy in some of the following situations: where tests are equivocal, where the history and the blood or skin-prick tests do not concur, or where known allergic patients require re-testing to assess whether or not they have developed tolerance to an important food allergen over time. It is also helpful in establishing whether or not patients can tolerate the baked or cooked forms of the foods to which they are sensitised.

The oral food-challenge test is performed by feeding the patient increasing quantities of egg (or other allergenic food) under controlled circumstances, usually in a hospital, with sufficient trained staff and immediately accessible resuscitation facilities available should they develop a severe reaction. The test is stopped if at any stage the patient develops signs of an allergic reaction.

Management

The management of egg allergy revolves largely around the avoidance of the allergen. Egg is an affordable source of protein, and a ubiquitous food ingredient, which complicates the task, so it is ideal to work closely with a dietician who specialises in food allergy when managing a patient with egg allergy.



Egg is a good source of protein and is found in many foods

Foods that may contain egg include: cakes, biscuits, pastries, pasta, crumbed foods, soups, sauces, dressings, mayonnaise, meatloaf, meat pies, ice-cream, desserts, sweets, nougat, chocolates, custard and health drinks.

Education regarding the reading and understanding of labels is essential. Terms that imply that a product may contain egg include: albumin, globulin, lecithin (E322), livetin, lysozymes, vitellin, and words starting with 'ov' such as ovalbumin, ovomucin or ovoglobulin.

Follow-up

It is important to assess children with food allergies regularly to evaluate their growth and nutrition. This also provides an opportunity for ongoing education about egg allergy and avoidance, as well as the management of allergy symptoms and anaphylaxis.



Understanding food labelling is important

Allergy testing is repeated annually to assess whether patients are outgrowing their allergy. This allows a decision to be made regarding the appropriate timing of an oral food challenge to establish whether or not tolerance has been achieved.

Tolerance

A patient may be able to tolerate the egg that has been exposed to high temperatures for long periods in muffins and cookies, but may react to lightly cooked egg in scrambled eggs or pancakes or to raw egg in mayonnaise.

More than 70% of egg-allergic children will tolerate baked goods containing small amounts of extensively heated egg. These patients should be encouraged to consume baked egg regularly as they may develop tolerance to egg sooner with regular exposure to the baked form. At least 66% (two-thirds) of children with egg allergy will have developed tolerance to all forms of egg by the time they are 16 years of age.

Note that children who have outgrown their allergy to egg may well not willingly agree to include it in their diets as the taste is unfamiliar and the food may be tainted with negative associations.



Raw, cooked and baked egg

Immunising individuals with egg allergy

Children with egg allergy should receive their scheduled childhood immunisations. This includes the measles and the measles-mumps and rubella (MMR) vaccines. Although they are generally grown on chick embryos, these vaccines have been shown to be safe, even in children who have had previous anaphylaxis to egg. The influenza, yellow fever and

rabies vaccines may contain traces of egg protein and should be given under the guidance of an allergist. The intranasal topical influenza vaccine should not be given to individuals known to have egg allergy.



'MMR' vaccine

The management of egg-allergy symptoms

If an egg-allergic individual has been exposed to egg and the symptoms are mild, involving only the skin (e.g. itching, flushing or hives), it may be sufficient to treat the patient with antihistamines. Second generation non-sedating antihistamines are recommended.

If symptoms are moderate to severe and involve more than one system, it is essential that the patient carry injectable adrenaline (e.g. adrenaline auto-injector). Adrenaline is life-saving in anaphylaxis and must be available for use at all times. Empowering education that leaves patients, parents and caregivers prepared rather than scared must accompany a new script for an adrenaline auto-injector.



All patients should have a detailed written allergy action plan that differentiates between mild and severe reactions and provides clear instructions on management. Copies should be provided to schools and caregivers.

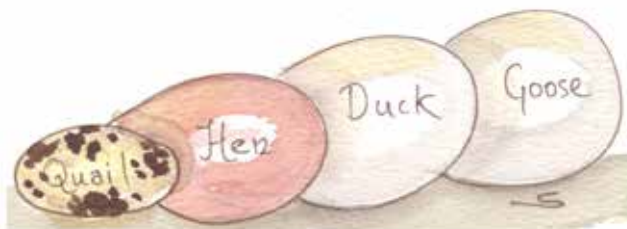
Risk of other allergies

Research has shown that infants who have egg allergy have an increased risk for developing peanut allergy, and that it is probable that

Patients with adrenaline auto-injectors must carry them at all times.

these children will develop allergies to inhalant allergens such as house dust mites and pollens, with the subsequent development of asthma and allergic rhinitis.

It is advisable for people who are allergic to hens' eggs to avoid eggs from ducks, geese, quails and other birds because of the risk of cross-reactivity. In very rare cases patients who suffer from egg allergy may also be sensitive to chicken meat.



Cross-reactivity may occur between the eggs of different birds

Is there a cure?

Oral immunotherapy has shown some promise, but the treatment is still experimental and only carried out in specialist centres.

Advice to patients with egg allergy

- It is essential to receive a definitive diagnosis and work out a treatment plan with a doctor, and preferably a dietitian, who specialises in allergy management.
- Learn to be vigilant regarding food and understand food labelling.
- Communicate clearly with others about your allergy when eating away from home.
- Carry allergy treatment everywhere.
- Patients who carry adrenaline auto-injectors must always have them available for use, and use them early in anaphylaxis.
- Patients with asthma must use their controller medications every day and always have their reliever medications with them.

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