

# Food Allergy Epidemic: Can We Reverse the Trend?

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Guest Editor

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**F**ood allergy is a widespread medical problem that has reached global, epidemic proportions over the past decade [1]. The extent of its importance is highlighted by the volume of publications on this topic, which has exceeded 10,000 articles over the past 10 years alone. The question arises whether the prevalence of allergy has actually increased over the years, or whether the increased reporting of this entity is merely a reflection of an increased public awareness or even based on false perceptions [2]. The striking differences between the reported prevalence of allergy based on self-reporting versus objective criteria are well known. A review of the literature does not necessarily provide a clear answer to this question. Even among well-designed studies that were population-based and utilized an oral food challenge for diagnosis, a wide range of prevalence was noted for cow's milk [3,4] and peanut allergy [4,5] (0.5% vs. 5.6% and 0.15% vs. 3.0%, respectively). While genetic differences fail to explain the disparities, the timing of exposure, confounding environmental factors, and the interpretation of OFC results may all account for the large variation of data.

Regardless of the exact prevalence data, preventive treatment of food allergy is clearly a desired clinical target. The early exposure to an allergen, for example, may prevent the development of immunoglobulin E-mediated food allergy [3,5]. Toward this end, oral immunotherapy has emerged in recent years as a promising treatment for persistent IgE-mediated food allergy. Thus, through the acquisition of tolerance we may have an opportunity to reduce the prevalence, change the direction of the growing prevalence and, possibly, even largely eliminate IgE-mediated food allergy. The role of acquisition of tolerance is a central theme in preventing food allergy and is the topic of an international conference to be held in Tel Aviv, Israel in January 2012, for which this issue of *IMAJ* is devoted.

OFC = oral food challenge  
IgE = immunoglobulin E

The urgency of this topic is underscored by the four cases of mortality due to food allergy described by Levy et al. [6] in patients ranging in age from 6 to 26 years old: three were due to cow's milk and the fourth presumably to nuts. Most worrisome about these reports is that in all four cases the fatal event was their first life-threatening event. Furthermore, in only one of the four was injectable epinephrine prescribed [6]. Perhaps of even greater concern is, as Segal et al. [7] point out, that even when patients are prescribed an epinephrine injector the majority of individuals are incapable of effectively using it.

The correct diagnosis of food allergy is crucial not only to avoid inadvertent exposure and subsequent risk of anaphylaxis in a truly IgE-allergic patient, but also, at the other end of the spectrum, to prevent misdiagnosis in non-allergic children. The latter may lead to unnecessary dietary restrictions, and the failure of a proper nutritional replacement can lead to malnutrition [8]. The gold standard for the diagnosis of a food allergy is the oral food challenge. However, this procedure is expensive, time and labor-consuming, and not readily available for all patients. Cianferoni et al. [9] suggest a method to predict the outcome of an OFC, thereby potentially reducing the number of unnecessary OFCs performed. Calvani and co-researchers [10] suggest a new model for cow's milk OFC, with both diagnostic and therapeutic aims. In their model, milk is not discontinued if mild reactions are encountered during an OFC but is either continued or the patient is prescribed a gradual increase in cow's milk feeding at home. Thus, a significant portion of patients who would otherwise be considered cow's milk-allergic actually tolerated cow's milk. In essence, the OFC became the first step in an oral immunotherapy program. Sanchez-Garcia et al. [11] and Ojeda et al. [12] describe their experience with milk (105 patients) and egg OIT (36 patients), respectively. Both report a success rate of over 80%. These rates are similar to other reports of OIT programs, as reviewed by Crisafulli et al. [13] and Ismail and Tang [14]. Taken together, the accumulating scientific results position OIT as the most promising treatment for persistent IgE-mediated food allergy. However, whether OIT treatment programs should be conducted in research settings only, as suggested by Ismail and Tang [14], or whether OIT can be a widespread therapeutic modality provided that the neces-

OIT = oral immunotherapy

sary safety requirements are present, as suggested by others [12,13], is a question still open for debate.

Another possible mode of reducing the prevalence of food allergy may be by eliminating the allergy before it begins. The notion that early nutritional manipulation can affect the atopic predisposition of an individual is interesting. The literature is not conclusive and the subject is reviewed by one of the leaders in this field [15]. Less attention has been placed on the possible effect of feeding practices on the development of celiac disease. Shamir [16] suggests that there is a window of opportunity between 4 and 7 months of age whereby one can introduce gluten into the infant diet, preferably along with breastfeeding, and thereby reduce the risk of celiac disease developing. The early introduction of cow's milk formulae should not, however, downplay the importance and beneficial effects of breastfeeding. Lubetzky and colleagues [17] suggest that prolonged breastfeeding may provide higher concentrations of C12 and C14 saturated fatty acids in breast milk, which may confer important immunological advantages, among others.

In summary, this issue of *IMAJ* provides an excellent opportunity to be acquainted with various and controversial aspects of food allergy in general, and possible mechanisms by which to reduce its burden through the induction of tolerance.

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