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Diet – the key to allergy prevention?

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Food allergy prevalence has been documented to be a major problem worldwide in several epidemiologic studies [1,2]. For these individuals, diet is the central issue for discussion not only because restriction of common, nutritious foods is the mainstay of management, but also because what, when, and how mothers and children are (or are not) being fed are increasingly implicated as risk factors for food allergy development. Several putative dietetic risk factors for food allergy have been identified, including timing and route of introduction of foods, vitamin D sufficiency, and exposure to infections. Modulating these risk factors through dietary interventions could result in a reduction of the incidence of food allergy, as discussed in several articles in this issue [3–6]

To date, the only ‘allergy preventative’ intervention assessed in evidence-based guidelines is the choice of formula for an at-risk infant. When breastfeeding is no longer possible and supplementation is necessary, considering the use of a hypoallergenic (HA) formula is suggested by the NIAID guidelines[7]: “...the use of hydrolyzed infant formulas, as opposed to cow’s milk formula, may be considered as a strategy for preventing the development of food allergy in at-risk infants who are not exclusively breast-fed. Cost and availability of extensively hydrolyzed infant formulas may be weighed as prohibitive factors”. This GRADE recommendation is based on a moderate to high quality of evidence [8]. These indications were issued to inform formula choice for allergy prevention by integrating clinicians’ and patients’ underlying values, preferences and remarks into recommendations which serve to facilitate the interpretation of evidence. This method allows every pediatrician/allergist to follow the changing variables of hypoallergenic formulae and tailor their prescription for individual patients accordingly. Of importance, the values and preferences considered by the NIAID panel necessarily reflect the American viewpoint. However, will a similar approach be followed at the same level in other countries? It is known that recommendations on nutritional products are cost-sensitive; will the recommendations be followed by families with lower economic status (even in the United States)? Cost differences are proportionally more relevant for patients at lower mean income, and an affordable expense for one family can hardly be affordable for another.

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Thus, widening the view, it is possible that the same evidence would not generate the same recommendations in populations with a lower per-capita income. Needless to say, if the recommendations are based on values including costs, then a variation of price could generate different recommendations [9]. This example illustrates how delicate the balance of benefits and risks is and the need to consider these in food allergy prevention strategies. To further compound the issue, new data seem to challenge the efficacy of HA formulae as a prevention strategy.

On the other hand, the genesis of allergic disease is now viewed differently than in the past, and data from research are becoming enticing enough to translate into proposals of 'preventive' nutritional interventions. However, many of these theories are based on epidemiologic, and not on interventional, studies. As an example, the recommendations on the introduction of solid foods for children at risk of allergy have been changed prior to completion of interventional studies on the effects of early or late exposure to food allergens [6, 10]. Thus, issue of 'food allergy prevention' is urgent (increasing incidence), complicated (evanescent evidences) and tempting (new theories). This mix generates a situation of uncertainty, leaving the field open to the intrusion of third parties who, completely skipping the rigors of scientific investigation, directly target consumers with inappropriate claims. Regulatory agencies have expressed their opinions on specific products and claims in the European region. EFSA [11]¹ and FAO [12]² have a position on probiotics, but none of these organizations produced a comprehensive position statement on the effect of such products on allergy. In contrast, several consensus documents have been published on the prevention of food allergies by international scientific societies [13–17]. In this context, there is a need for an EBM guideline on the prevention of allergy, guided by scientific societies with a worldwide vision. This guideline should discuss the range of possible interventions, some which are reviewed in this issue of Current Opinion in Allergy and Immunology. Among them,

- a. early or late exposure to food allergens (Palmer D)
- b. use of hypoallergenic formulae
- c. integration with fatty acids
- d. role of Vitamin D (Peroni D)
- e. effects of probiotics (M. Kuitunen)
- f. effects of prebiotics (M. Kuitunen).

Ideally, such guidelines should weigh the effects of nutritional supplementation on the following outcomes:

- a. allergic sensitization to food
- b. frequency of atopic dermatitis
- c. occurrence of anaphylaxis
- d. nutritional deficiencies and growth as a consequence of 'preventative' measures (M. Groetch)

e. QoL issues.

The prevention guidelines should follow the most strict rules of EBM, and – ideally today – be constructed using the GRADE methodology. The panel must be representative not only of the developed, but also of the developing world where the challenge of food allergy is mounting. Therefore, the values and preferences of such a guideline should take into consideration issues pertinent to less affluent countries, which are increasingly affected by allergic disease [18, 19]

A similar guideline would invariably have a great impact on the behavior of families, food producers, regulatory authorities and all the stakeholders of the allergy world. It would become an important tool to harmonize the efforts of the medical community to tackle the challenges of food allergy, one of the most rapidly growing diseases of our time.

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