



One of every four children in Europe is allergic

- The most frequent allergic diseases among children are rhino conjunctivitis, asthma, atopic dermatitis and food allergies.
- Food is the first cause of anaphylaxis in children.
- Immunotherapy is the only treatment able to prevent and alter the natural course of the allergic disease in the paediatric age.

The development of allergic pathologies during childhood is determined by genetic and environmental factors. Although genetic predisposition has not significantly changed and hereditary predisposition is essentially the same as in the past years, external environmental factors such as pollution and hygienic measures have indeed changed and could therefore be considered the most relevant causes for the increase of cases of paediatric allergy.

According to Doctor Belén de la Hoz, allergologist from the Hospital Ramón y Cajal in Madrid, “lifestyle habits common in big cities, together with hygienic measures, pollution and increasingly younger ages in the moment of starting attending nurseries, are all elements which favour first manifestations of allergy appearing during earlier stages of life. In fact, the prevalence of asthma among children and youngsters has been multiplied by three or even four in most modern countries”.

### **Food-induced anaphylaxis, most frequent among children**

One of the most relevant aspects contemplated when approaching paediatric allergic diseases is the treatment of anaphylaxis. The anaphylactic shock is a generalised reaction affecting several organs and systems and derived from the contact of the patient with the allergen. The most serious expression of anaphylaxis is the circulatory or respiratory collapse, which can even lead to the patient’s death. In words of Doctor De la Hoz, “foods are the first cause of anaphylaxis among children and the second cause among adults. As many trials reveal, the

hygiene theory is directly involved in the maturation process of the digestive tract and therefore in the immune response of infant babies”.

In this sense, feeding habits of each country determine the most frequent food-related allergens during childhood. “Until the toddler turn 3 years old, there are no differences and milk and egg are the most frequent allergy causes”, doctor De la Hoz explains. “After that, in the case of Spain it is fruits -like peach, pear and apple- and vegetables the foods most commonly involved in allergic processes. In the US and in the UK, peanuts take the lead”.

Avoiding contact with the allergen is the best treatment possible if willing to prevent anaphylaxis and it is therefore extremely important to know the real origin of the reaction through an in-depth diagnosis. Physicians should receive a detailed clinical history of the patients, including all events taking place immediately before the beginning of the reaction (food intake, use of medicines, physical exercise, contact with materials like latex, etc.). As expressed by Doctor De la Hoz, “it is basic to avoid children’s exposition to casual foods and drugs, if the diagnosis states so. Many preventive factors (prolonged breastfeeding, family history of allergies) have been assessed when aiming to prevent paediatric allergy, especially among high risk kids”.

Adrenalin is the standard therapy of choice for the management of anaphylaxis. Steroids and antihistamines are widely used by ER departments and turn to be quite useful for the prevention of recurrences. In cases of bronchospasm, oxygen should be administered, in addition to bronchodilator nebulization, use of hydrocortisone or methylprednisolone and a fast blood volume replacement. “All these measures are the ones used by intensive care units at hospitals around the world; it is very important to highlight that paediatricians should always take into account the concept of adrenalin being the first measure relevant”, concludes this expert.

### **Asthma in childhood**

Several long-term trials reveal that up to 80% of children allergic to milk or eggs during the first two years of their life will later develop a respiratory allergic disease (from 3 years old onwards).

Respiratory pathologies sometimes remain “hidden”, until the kid turns 4 or 5 years old, and then they are clearly manifested. But 80% of asthmatic patients see their disease begin before 5 years old (50% of patients experience initiation at 2 years old). Doctor De la Hoz adds: “in Spain, one fourth of children under 14 already suffer from an allergic disease, mainly rhino conjunctivitis, asthma, atopic dermatitis and food allergy”.

Although prevalence numbers vary depending on each geographical area, experts know that there has been a global increase, especially when it comes to food allergies and respiratory pathologies-related reactions. “The incidence of allergy to cow’s milk has grown between 1.5 and 2.5%, while allergic asthma in children is settled in around 10%”. Environmental and climactic factors also impact on this increase, since prevalence depends on them too. “In the case of Europe, allergy asthma in children is more frequent in the Mediterranean countries with mild climate and not so in rural settings with extreme weather”, signals De la Hoz.

### **Immunotherapy against paediatric allergy: the best option**

Allergology experts explain that one of the key elements in getting to restrain or at least slow down the geometrical progression of allergic pathologies around the world would have to present two actions as double goal: avoid the allergen responsible for the reaction and/or implement targeted therapies directed to the direct cause of the diseases (immunotherapy).

At this point, experts highlight that since allergy is a reaction of the immune system, its treatment should not only focus on reducing or avoiding symptoms, but also on fighting the origin of reactions. According to Doctor Antonio Nieto, from the Hospital Infantil La Fe of Valencia, “scientific evidence available leaves no doubt about the efficacy of immunotherapy or anti-allergic vaccination in children. When administered at early stages of the disease, this approach can prevent the development of new sensitizations and slow down the descending evolution of respiratory allergic pathology, from rhinitis to asthma”.

Immunotherapy is indicated when there are clinical symptoms of asthma or allergic rhinitis, when the allergen is identified and when treatment is adequately administered. “Guidelines recommend the use of immunotherapy when children turn 5 years old, mainly because before that age the responsibility of allergens in seen reactions and symptoms’ triggering can be questionable. But if the implication of allergen is clear and the intensity of symptoms justifies this type of intervention, then being under 5 years old would not be a contraindication for immunotherapy”, doctor Nieto explains.

Some clinical trials reveal the strong capacity of immunotherapy in order to alter the natural course of paediatric allergic diseases: the PAT (Preventive Allergy Treatment) study shows that anti-allergic vaccination is able to prevent asthma development in a significant percentage of children with allergic rhinitis when subject to immunotherapy with birch and/or grass pollen during three years, “and this effect is maintained at least 7 years more after immunotherapy is suspended”, doctor Nieto signals.

There are vast differences in Europe when it comes to how immunotherapy is administered to allergic children. In the United Kingdom, for instance, the use of this measure is quite low, while Germany, France or Italy exhibit a largely extended trend to indicated immunotherapy. Part of a possible explanation behind these differences might have to do with national organisation of healthcare systems and of the representativity of the Allergology specialty in each country.

As expressed by doctor Nieto, “the number of children who should receive immunotherapy is probably much lower than the one really existing right now. It is not easy to explain, but a significant percentage of children who could in theory benefit from this treatment do not have access to a proper etiological diagnosis and to the potentially positive results of immunotherapy. In this sense, it seems vital to make healthcare authorities become aware about the fact that an adequate use of immunotherapy might be extremely beneficial for allergic children”.

### **Paediatric allergy in Europe**

Paediatric allergies have extremely increased during the last years and they have now become the non-infectious epidemics of the 21st century. One of every four European children is actually allergic. This situation has led to destining to this disease’s research the same budget targeted to the study of obesity and paediatric cancer, two pathologies which complete the setting of the most frequent illnesses affecting children in modern countries.

*EAACI Press Office*