

test. On the contrary, most children evaluated for suspected beta-lactam antibiotic hypersensitivity (excluding those with a history of severe IgE or not IgE-mediated reaction) should have a drug provocation test performed to verify, easily and undoubtedly, whether they should or should not be treated with such antibiotic if needed.

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Possible recurrence of symptoms after discontinuation of omalizumab in anti-IgE-assisted desensitization to egg

To the Editor,

Procedures of desensitization to food in children who do not spontaneously outgrow their food allergy are increasingly being used. Some patients, especially those with severe allergy, have reactions during this process and must quit the procedure (1, 2). An alternative for these cases is to use omalizumab, as an off-label indication, and there are reports of successful and safe results in this type of patients (3–6). We report three cases of children with successful anti-IgE-assisted desensitization to egg who experienced reactions after discontinuation of omalizumab.

Case 1: A 9-yr-old girl was referred to our hospital for desensitization. She had been diagnosed with egg allergy when she was 11 months of age, because she had had vomiting and abdominal pain when first fed egg and had shown positive skin test and specific IgE. When first seen at our clinics, she had had symptoms of abdominal pain, vomiting, and oral pruritus with inadvertent ingestion of egg. Her skin tests were positive to ovalbumin (OVA) and ovomucoid (OVM), and specific IgE was 155 kUA/l for OVA and 135 kUA/l for OVM. After informed consent, we tried a desensitization procedure, on prophylactic H1 antihistamines, with doubling doses of raw pasteurized egg white, starting from 0.5 ml diluted 1/100 (0.5 mg of protein). With 8 ml diluted 1/100 (8.5 mg of protein), she had repeated vomiting and the procedure was interrupted. A course of omalizumab, using doses recom-

mended by the manufacturer, was started, and 2 months later, we performed the procedure again, which was successful, and the girl could tolerate a final dose of 50 ml of raw egg white (5400 mg of protein). She was challenged with an omelet, which was also well tolerated. She was instructed to eat at least an egg three times a week, and additional amounts were allowed at her own will. Omalizumab was administered 2 months after reaching the final dose, and it was then discontinued. The girl went on having the recommended amount of egg with good tolerance. Four months after stopping omalizumab, she started having symptoms of abdominal pain and vomiting when having egg. The symptoms persisted, so we decided to perform an open challenge with egg. The patient experienced the same symptoms with 5 ml of raw egg white. She was put on omalizumab again, and 2 months later, she underwent an open challenge with 1, 2, 4, 8, and 16 ml of raw egg white at one-h intervals, with good tolerance. The next day she tolerated one whole egg omelet. She is currently on the maintenance dose of at least one egg three times a week while receiving omalizumab.

Case 2: A 10-yr-old girl with egg allergy was referred to our hospital for desensitization. Her specific IgE was 23 kUA/l for OVA and 18 kUA/l for OVM. She was unable to tolerate the procedure, despite prophylactic H1 antihistamines, because of repeated vomiting with 8 ml diluted 1/100 of raw egg white. She was administered omalizumab for 3 months and could

gradually reach the amount of 50 ml of raw egg white. Omalizumab was administered 2 months more and then discontinued. Three months later, the patient presented with vomiting when eating egg that was being previously tolerated. The challenge with egg was positive, with repeated vomiting after ingesting one quarter of omelet. Omalizumab was restarted, and the patient is currently scheduled for an open challenge.

Case 3: A 10-yr-old girl, diagnosed with allergy to egg, who had specific IgE of 690 kUA/l for OVA and 340 kUA/l for OVM and in whom problems with desensitization were anticipated, was scheduled to start the procedure after 3 months of treatment with omalizumab. She could reach an amount of 50 ml of raw egg white, passed uneventfully a challenge with an omelet and was recommended to eat egg as described previously. Omalizumab was stopped 4 months later, and the child continued to tolerate egg. Three months after discontinuation, the girl presented with cough, vomiting and abdominal pain on eating egg. She was challenged and had symptoms of nausea, abdominal pain, and vomiting with 1/8 of omelet. She received omalizumab again, and 2 months later, she underwent a challenge test as described in case 1, with good tolerance thereafter while receiving omalizumab.

Desensitization to food has spread during the last years. There are no clear accepted guidelines, and there is a high variability in protocols regarding the starting and the final dose, or the frequency and amounts for increases of allergen, and even the product used for the procedure (1, 2, 7). Omalizumab does not have, up to now, an accepted indication for this procedure, although it has been used in desensitization to milk and peanut, with a high rate of success, and has proved to be safe (3–6). One concern is what happens to these patients after discontinuing omalizumab. The published studies show very good results, with no reactions after stopping it (3–6). However, one could expect that some patients would present symptoms with the waning of the effects of omalizumab, and our report confirms it can happen. An important fact is that the three of them presented symptoms after the same interval of 3–4 months since discontinuation.

The referenced studies performed challenges 8 or 12 weeks after stopping the medication, and found no reactions, and during an extended 1-yr follow-up period without omalizumab, the ingestion of the food continued with no or minor tolerable symptoms (3–6), but this outcome should not be taken for granted. One possible reason for our patients to relapse is that they were selected on the basis of resistance (or expected resistance) to non-assisted omalizumab. We could probably consider these patients more sensitive than children regularly included in other studies, and thus, more prone to relapse after stopping medication. We have two more patients on the same basis (one with specific IgE of 2,4 kUA/l for OVA and 4,6 kUA/l for OVM who could not tolerate desensitization without omalizumab; another with specific IgE to casein of

183 KU/l), who have undergone the same procedure with omalizumab and tolerate the food after stopping the treatment. Nevertheless, no conclusions can be drawn from such a very small number of patients, and our report just wants to draw attention to the fact of potential recurrence of symptoms in some patients, which has not been described before.

Vomiting has been described in other studies (3, 4, 6), occasionally leading to withdrawal from the process of desensitization (4) but generally transient, so this could be continued in most of the patients. Some episodes were attributed to viral infections or even to taste, but usually mild and controlled with antihistamine treatment (4). Our patients presented with vomiting first spontaneously and later in the challenge test, so we attributed it to egg. As protracted vomiting had been the reason of failure of their first attempt of desensitization in two cases, despite antihistamines, and led to administer omalizumab, we decided to restart it, with good tolerance again thereafter.

Omalizumab is able to down regulate IgE production (8) and high-affinity IgE receptors in the membrane of effector cells (9), with long-term effects. For this to be persistent, it probably requires a longer duration of treatment than that used in our patients, in whom symptoms appeared when the IgE blocking effect of omalizumab waned.

Large studies with a high number of patients would be able to estimate the proportion of them who relapse and maybe identify risk factors. Among these, the allergenic food might be important; usually desensitization with cow's milk is better tolerated than with egg (10). Other factors, such as levels of specific IgE and severity of previous reactions, may arise. Meanwhile, we consider that patients and families should be warned of the critical period of 3–4 months for relapse and that studies should not perform challenges until this period has been passed, to avoid potential misclassification of these patients with late response.

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Conflict of interest

Antonio Nieto has participated in the Advisory Board for Novartis and as invited speaker in meetings sponsored by Novartis. Angel Mazon, Sonia Uixera, and Raquel Pina have participated as invited speakers in meetings sponsored by Novartis.

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Prevalence of food allergen-free diets in school canteens in Hortaleza district, Madrid

To the Editor,

In the last 15 years, food allergy (FA) prevalence has doubled worldwide (1). Therefore, it is one of the allergy areas where most developments have occurred in recent years (2). Its importance is, first, because it affects a significant percentage of the population, especially children. In Spain data on the current prevalence in the general population is not yet available, but FA is increasing, as the number of diagnoses has doubled in just over a decade, from a prevalence of 3.6% in 1992 to 7.4% in 2005, according to the results of epidemiological studies 'Alergológica' conducted by the Spanish Society of Allergology and Clinical Immunology (SEAIC) (3).

In the majority of patients, the FA diagnosis was established on the basis of a positive case history together with the presence of specific IgE. With this approach, food allergy has probably been over-diagnosed taking into account the diagnostic performance of skin prick test and specific IgE (without a 100% positive predictive value even with a positive case history) (4–6).

FA, for the sufferer, and for parents in the case of children, is perceived as a permanent risk, with the resulting lower quality of life of these patients (7).

A quarter of European children suffer from some type of FA, but their teachers are not trained to prevent and treat these life-threatening episodes (8).

Within preventive medicine, and in the field of food security factors, emphasis must be placed on improving consumer information in general and for allergic patients in particular (1).

In relation to food security, the Health Authorities do not have a system for collecting events related to food allergies that occur in catering and especially in the school environment, as is the case for the data on outbreaks of food poisoning (9).

Taking this into account, we carried out this study to show FA-free diet prevalence in schools and kindergartens in the

Hortaleza District during the period 2009–2013, as reported by specialists.

A structured questionnaire on special diets was applied in different school years during the period 2009–2013. Special diet by means of FA-free diets was recorded on the basis of clinical reports by specialists. 5.24% FA-free diets were reported in the last year of the surveyed schools with upward trend year on year ($p < 0.016$) (total studied period 4.31%), fig. 1. The most common allergenic foods declared by allergists were egg (32.78%), fruits (21.04%), nuts (17.87%), milk (17.08%), fish (13.92%) and legumes (10.54%) (upward trend for nuts, $p < 0.003$). Milk and egg were the most common foods in patients <6 years of age, whereas fruits, nuts, and legumes were the most prevalent foods in patients over 6 years, Table 1. Significant differences were shown in FA-free diet prevalence in private schools ($p < 0.001$), Table 1. Prevalence of FA-free diets in the Hortaleza District

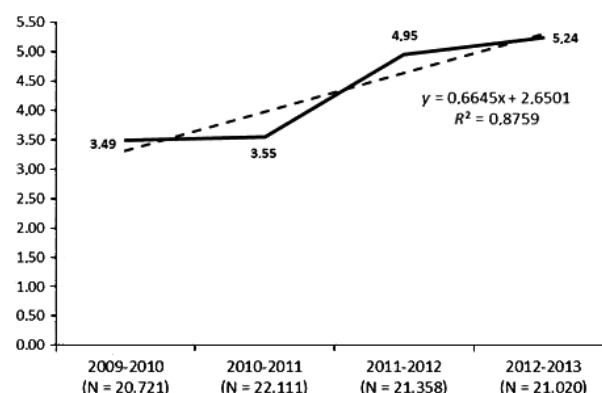


Figure 1 Prevalence (%) of food allergen-free diets in school canteens in Hortaleza district, Madrid, Spain.