

molecule on the surface of IECs and DCs that presents lipid antigens to invariant natural killer T cells, leading to the release of IL-4 which promotes the differentiation of Th2 cells and allergy expansion.

Conclusion: Lipids from egg yolk promote the expression of T cell costimulatory molecules and genes that drive Th2 responses.

73 | Identification of a thaumatin-like protein as a new allergen in persimmon (*Diospyros kaki*) with cross-reactivity with banana (*Musa acuminata*)

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Case Report: Allergy to persimmon (*Diospyros kaki*) has been only rarely reported. The antigenic composition of the fruit is not entirely known. So far, only three allergens have been identified: Dio k 1 (PR-10 protein, 19 kDa), Dio k 4 (profilin, 14 kDa) and Dio k IFR (Isoflavone Reductase, 38 kDa). Thaumatin-like proteins (TLPs) have been described as allergens in pollens and various fruits, such as kiwi and banana, but have not been reported as persimmon allergens.

We report the case of a 22 year-old man, with persistent moderate-severe allergic rhinitis, sensitized to house dust mites. The patient described an episode of oral mucosa and ear canal pruritus, followed by diffuse urticaria, which rapidly evolved to dysphonia, dyspnea, and dizziness, after eating raw persimmon for the first time. He was admitted to the emergency department (ED), where he has been administered intravenous treatment, with resolution of symptoms. A few months later, he developed similar cutaneous symptoms accompanied by nausea, vomiting, abdominal colic and hypotension immediately after the intake of banana. The reaction also subsided, in the ED. He denies involvement of any cofactors, like physical exercise, alcohol consumption or outset of new drugs.

Through allergologic investigation, skin prick tests for aeroallergens were only positive for mite allergen extracts. The prick-prick tests with raw persimmon and banana were positive as well as the serum specific IgE to these fruits' extract. The ImmunoCap ISAC_112i test demonstrated a positive specific IgE against Act d 2 (kiwi thaumatin), which is homologous to banana TLP (Mus a 4). Serum IgE inhibition test with "sponge" of *Diospyros kaki* ImmunoCAP (f301) showed partial inhibition (40%) of IgE to Act d 2. This raises the suspicion that a thaumatin-like protein is at least partially responsible for the referred sensitization.

We informed the patient to avoid persimmon, banana and kiwi, and provided an epinephrine autoinjector for pre-hospital treatment of anaphylaxis in case of an emergency.

This patient is sensitized to *Diospyros kaki* and *Musa acuminata*, having had two reported anaphylaxis after the consumption of persimmon fruit and banana, respectively. An anaphylactic reaction to consumed persimmon, presumably as a result from cross-allergy with banana thaumatin was diagnosed in our patient. Thaumatin has not been previously described as an allergen of persimmon with cross-reactivity with banana, and "in vitro" with Act d 2 (kiwi TLP).

399 | Food anaphylaxis in pediatric population of Ekaterinburg

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Background: The number of patients suffering from food allergy is increasing worldwide and also in Russia. The growth rate certainly depends on the country region, natural landscape, ecology and cuisine features of the area.

Method: To study prevalence of allergic diseases in paediatric population of Ekaterinburg, early in the year 2020, 5000 parents, whose children attend preschool or school educational institutions of the city (2-18 years old), were questioned in the survey. The questionnaire survey was carried out in city educational institutions, and it was voluntary. According to official statistics, as of January 1, 2020, the number of children in Ekaterinburg is 317 thousand. The developed questionnaire was based on the ISAAC questionnaire (1999), translated into Russian.

Results: 2461 completed questionnaires were returned, 1112 (46.3%) of which had negative answers to all questions about allergies, 1288 (53.7%) questionnaires contained positive answers, 61 questionnaires were filled in incorrectly and dropped out of the study. In 2400 questionnaires, parents described symptoms of allergic rhinitis (AR) in children in 20.5%, symptoms of bronchial asthma (BA) in 10.1%, recurrent allergic urticaria (AU) with and without symptoms of angioedema in 6.2%, anaphylaxis (ANA) in 1.08% of cases.

According to questionnaires, 2-17 years old children had symptoms of ANA (boys 62%, girls 38%). 88.5% of cases were caused by food and 11.5% - by medicines (iodine, painkillers and vaccines). In the group of children with ANA, 80.7% had clear atopic diseases: AR-61.5%, AU-57.7%, BA-46.2%, AD-26.9%. In children with food ANA symptoms were caused: in 19.2% of cases by cow milk (2-11 years old), in 11.5% - by chicken egg (4-11 years old) and fruit (8-15 years old), in 7.7% - by fish (5-14 years old), nuts (12-14 years old), wheat (5-8 years old), and in 3.8% - by rice, honey, peas, food additives. The survey didn't reveal children with ANA to shrimps and seafood. The number of emergency calls for ANA children was 1.6 times per each person per year.

Conclusion: According to the questionnaire survey of children's parents living in Ekaterinburg, ANA in preschool and school children

occurs in approximately 1080 children per 100 000 of child population. It is caused by cow milk in 0.3% (~ 291 people per 100 000), by chicken eggs and fruit - in 0.12% (~ 120 people per 100 000), and by wheat, nuts, fish - in 0.08% (~ 80 people per 100 000 of child population) of cases.

475 | Natural tolerance acquisition to peach in a LTP allergic child

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Case Report: Plant non-specific lipid transfer proteins (LTPs) have emerged as a relevant allergen in southern European countries, not only in adulthood but also in children. Natural tolerance acquisition in LTP allergic patients has not been previously described.

The authors report the case of a male infant, followed in our allergy department for cow's milk allergy (CMA) since he was 7 months old, without other relevant medical history. At 21 months-old, he presented facial and abdominal urticaria, as well as lips and eyelids oedema, 15 minutes after eating a peach (with peel). He previously tolerated peach but stopped eating it after this reaction. Peeled apple, pomegranate, grape, peanut and walnut ingestion was continued, without symptoms. Skin prick tests (SPTs)¹ with inhalants were negative. SPTs with food extracts¹ were positive to peach LTP, peach, walnut, almond and cherry, and negative to apple and peanut. Component-resolved diagnosis (ImmunoCap, Thermo-Fisher) confirmed a genuine LTP sensitization: Specific IgE (sIgE) to Pru p 3 was 0.62 uK/L and 0.43 uK/L for Jug r 3. The child maintained peach avoidance and continued tree nut ingestion, since it induced no symptoms. At 32 months-old, food allergens SPT¹ were again performed in order to reassess CMA and peach allergy status. The previously positive SPTs¹ to peach LTP, peach, walnut, almond and cherry were now negative. sIgE to Pru p 3 and to Jug r 3 were <0.1 SPPTs performed with peach peel and pulp were negative. By the age of 4, an oral food challenge was performed and no symptoms occurred (cumulative dose of 154.23 grams - 1 peach). Peach and other *Rosaceae* fruits were reintroduced in the child's diet and no reactions were reported upon re-exposure.

To our knowledge, this is the first report of natural tolerance acquisition in a LTP allergic child. This case reinforces the importance of regularly testing sensitized young children, as it is routinely done in egg and milk allergy. The child avoided only the food which triggered the reaction (peach and related fruits), preserving the regular

ingestion of LTP containing foods, even those with positive SPT but that did not elicit symptoms. This approach may contribute to natural tolerance acquisition, as a physiological way of immunotherapy, and avert unnecessary restriction diets that can be deleterious.

¹ All SPTs were considered positive if wheal diameter \geq 3.0 mm (Roxall-Aristegui, Bilbao, Spain).

477 | Comparative analysis of the number of eosinophils and mast cells in the colon biopsies of children with IBD.

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Background: The similar pathomechanisms of inflammation in food allergy (FA) and inflammatory bowel diseases (IBD), and the difficulties of differential diagnosis make it relevant to study the contribution of mast cells (MC) and eosinophils in children with Crohn's disease (CD) and ulcerative colitis (UC).

The aim of this study: To provide a quantitative characterization of eosinophils and MCs in colon biopsies of children with CD and UC.

Method: 176 children aged from 1 to 17 years were involved in the study: patients with CD ($n = 89$, 51% of girls), children with UC ($n = 87$, 51% of girls).

Colonoscopy and ladder biopsy were performed. Taken biopsies were fixed in 10% neutral formalin. Sections 3-5 μ m thick were stained with hematoxylin and eosin, toluidine blue. Histological preparations were examined using a Nikon ECLIPSE Ni microscope; eosinophils and MCs were counted using the NIS-Elements BR software.

Results: In the group of children with CD, statistically significant differences were found between different parts of the colon using paired comparison (Wilcoxon test). A higher number of eosinophils was detected in patients with comorbid FA.

Conclusion: Eosinophilic infiltration of the lower colon is more common in children with UC than in children with CD. However, there were no differences in the average number of MCs in children with CD and UC in different parts of the intestine. Thus, the contribution of eosinophils and MCs into the inflammatory process in IBD, especially in patients with comorbid FA requires further study.

Results: The average number of eosinophils and MCs in biopsies in various parts of the bowel in CD and UC patients are presented in the table: