

for mental health as it looks to build both resilience and acceptance. To improve health outcomes, GPs and other health professionals have a role to play as they not only explore QoL indices, but also encourage the need for positive thinking.

0219 | Sesame allergic patients can tolerate non-crashed sesame seeds food challenge

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Background: Sesame seed allergy has been recognized as a growing food allergy of global proportions. In Israel sesame was found to be the third most common allergen, preceded only by milk and eggs and second only to milk as a cause of anaphylaxis. Most of the reactions were to Tahini paste or Halva (sesame seed-based dip and sweets) which is added to the diet of most Israeli children in the first year of life as a good source of calories and bio-available iron. Tolerance to sesame develops in only 20%–30% of patients, highlighting the need for oral immunotherapy to sesame. The purpose of our study was to investigate whether sesame allergic patients can tolerate non-crashed sesame seeds food challenge.

Method: Diagnosis of sesame allergy was done based on convincing clinical symptoms together with a positive skin prick test or serum specific IgE or positive oral food challenge. Patients were challenged with 2–4 small pretzel snacks covered with non-crashed sesame seeds (~20 sesame seeds each).

Results: In this pilot study, 31 patients (male-20, female-11) were challenged at an average age of 72 months (range: 19 months–15.5 years). Among our patients 19/31 (61%) had atopic dermatitis, 12/31 (39%) had asthma and 8/31 (26%) had an allergy to other foods (mainly peanuts and tree nuts). Twenty-six out of 31 (84%) passed the oral challenge while 5/31 (16%) failed the challenge with only mild symptoms that responded to oral antihistamines. None required adrenaline.

Conclusion: Most sesame allergic patients can tolerate non-crashed sesame seeds food challenge. Our results may suggest an easier and safer option of oral immunotherapy to sesame allergic patients.

0246 | Food allergy to nuts and fruits in children with hay fever and oral allergy syndrome in the middle urals

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Background: The aim of research is to study the frequency of true sensitization to nuts and fruits in children sensitized to Bet v 1 and having oral allergy syndrome (OAS) and hay fever.

Method: 40 children with pollen allergy and OAS (age 7.52 ± 0.64) were examined by component-resolved diagnostics (ISAC-112) in the Middle Urals. Sensibilization to Bet v 1 were proved by ImmunoCAP. 100% of patients had OAS. Expressed reactions to nuts and fruits were in the form of: angioedema of the oral cavity – 55%, allergic urticarial – 34%, food anaphylaxis – 20% of patients.

Results: The food allergen was identified in each case. Storage proteins were cause of food allergy: Jug r 1 – by 20% of children (1.82 ± 1.14) [0; 42.0], Jug r 2 – 20% (0.5 ± 0.35) [0; 14.0]; Cor a 9 – 10% (1.6 ± 0.13) [0; 5.3], Ses i 1 – 7.5% (1.6 ± 0.13) [0; 5.5]. Sensitization to individual peanut molecules was found in 15% of patients to Ara h 1 (0.79 ± 0.43) [0; 12.0], in 10% – to Ara h 2 (0.73 ± 0.48) [0; 15.0], in 4% – to Ara h 3 (0.35 ± 0.35) [0; 14.0], in 7.5% – to Ara h 6 (0.26 ± 0.16) [0; 5.2]. 8% of children had hypersensitivity to several peanut molecules that clinically manifested as food anaphylaxis. Angioedema in 10% of patients and food anaphylaxis in 7.5% of children were confirmed as reactions to kiwi: rAct d 1 (0.76 ± 0.29) [0; 9.1], rAct d 2 (0.13 ± 0.06) [0; 1.8], rAct d 5 (0.43 ± 0.31) [0; 1.1]. Sensitization to one or more nsLTPs was detected in 10 children with angioedema with or without acute urticaria on nuts and fruits: 10% of patients sensitized to rJug r 3 (0.08 ± 0.05) [0; 1.8], 8% – to rPru p 3 (0.138 ± 0.102); 7.5% – to rAra h 9 (0.63 ± 0.39) [0; 1.3]; [0; 3.7], 5% – to nCor a 8 (0.53 ± 0.42) [0; 1.6].

Conclusion: More than 50% of patients with birch pollen allergy and OAS living in the Middle Urals are co-sensitized to storage proteins or nsLTP of nuts and fruits. Allergochip ISAC-112 assists to determine the food allergen and choose an elimination diet.

0254 | Sesame oral food challenges

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Background: Sesame is the third most common food allergen in Israel, and a major cause of fatal allergic reactions. According to current literature sesame allergy is unlikely to resolve, hence allergen avoidance is the prime and only management recommended. In this study we describe the results of sesame allergy evaluation in a tertiary center in Israel.

Method: Children with a history of an immediate allergic reaction to sesame were included in this study. All children underwent skin prick test (SPT) and a gradual open food challenge (OFC) with sesame (commercial and natural sesame paste) regardless of SPT results. Children who completed the OFC, and ate 4 grams of sesame protein with no-allergic reaction were defined as tolerant. Children with allergic reactions during OFC were defined as OFC failure.

Results: One hundred and four children with a history of sesame allergy, 44(42%) girls and 60(58%) boys, ages 6 months to 17 years,

were evaluated. Following OFC 56(54%) were tolerant and 48(46%) were allergic to sesame. SPT size to natural sesame paste and commercial reagent correlated with the risk of OFC failure ($P < .001$). SPT wheal to natural sesame paste had 90% positive predictive value. Interestingly, Sesame allergy was also associated with an increased risk of concomitant sensitivity to fish allergens ($P = .005$). Notably, 14/48 children who exhibited allergy to natural sesame protein underwent OFC with backed sesame food of which 12/14 (85%) were tolerant to backed sesame.

Conclusion: Open food challenge, although encompass the risk of anaphylaxis, is essential for the diagnosis of sesame allergy as unexpectedly 48% of children with a suggestive history and a positive SPT could tolerate 4 gram of sesame natural protein. SPT size to sesame could predict OFC outcome. Interestingly 85% of sesame allergic children could tolerated backed sesame. Further studies are required for evaluating the role of backed sesame for oral immunotherapy of this protein.

0260 | Rapid desensitization therapy for food allergies

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Background: Food allergies affect up to 8% of the population, of which 20-30% do not respond to any treatment. The existing approach to desensitization, which increases body tolerance using allergens, starts with low doses and then slowly raises doses as it might cause allergic reactions. The course of treatment often takes as long as 2-3 years. Food allergies are mainly caused by glycoproteins in food that are soluble in water or salts. If food for desensitization is processed into desensitizers that are insoluble in water and can be used in high doses, these desensitizers can help accelerate desensitization.

Method: Conduct pyrolysis of allergens in food at 600°C, after which such allergens should remain solid and serve as desensitizers. Request patients to orally administer 5 g of desensitizers and carry out allergen provocation tests and allergen-specific IgE tests and analyze 10 minutes later.

Results: As described above, desensitization of 51 allergens was carried out among 26 patients with allergies, who orally administered desensitizers corresponding to these allergens, and none of the allergen provocation tests conducted 10 minutes later show allergic reactions. In the meantime, the allergen-specific IgE tests indicate that the IgE of 35 allergens is negative, representing a negative conversion ratio of 68.62%. In the 1-year follow-up, no adverse reactions are observed, and even patients exposed to allergens show no allergic reactions. All patients are successfully desensitized.

Conclusion: Based on our experiment, this desensitization method can guarantee minute-level rapid and, more importantly, safer desensitization.

0270 | Risk factors for positive shrimp oral food challenge tests.

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Background: There are few reports on the risk factors focusing on shrimp specific immunoglobulin E (sIgE) level for positive oral food challenge (OFC) tests in pediatric shrimp allergy. This study aimed to clarify the risk factors of a positive OFC test in shrimp allergic patients.

Method: We retrospectively examined the records of patients suspected of or diagnosed with a shrimp allergy who underwent a shrimp OFC test using ≥ 40 g of heated shrimp at Sagamihara National Hospital from January 2006 to March 2019. Shrimp sIgE level, the result of skin prick test (SPT), age, sex, clinical history, and the results of other OFC tests were obtained from the medical records.

Results: A total of 336 (males, 238; females, 98) cases were reviewed. The median age of the patients at the OFC test was 7 years old. In total, there were 72 (21%) positive OFC test cases. Oral mucosal symptoms were most frequently reported (46%). Further, there were 4 (5%) anaphylaxis cases. Among OFC test-positive patients, 71% required no treatment and one patient received intramuscular adrenaline injection. Among OFC test-positive patients, a history of immediate symptoms and allergic rhinitis were more frequent (86% vs 34%, $P < .001$ and 43% vs 20%, $P < .001$, respectively), shrimp sIgE level was significantly higher (10 vs 5 kU/L, $P = .017$), and wheal diameter of shrimp SPT was larger (10 vs 7 mm, $P = .039$). The area under the curve of shrimp sIgE level and wheal diameter of shrimp SPT were 0.63 and 0.66, respectively. The optimal cutoff value for the shrimp sIgE level was 5.5 kU/L, which produced a sensitivity and specificity of 60% and 61%, respectively. The optimal cutoff value of the wheal diameter of shrimp SPT was 9.5 mm, which produced a sensitivity and specificity of 64% and 74%, respectively. No differences were observed in other factors, including the sIgE levels of foods with cross-antigenicity.

Conclusion: A history of immediate reactions, complications of allergic rhinitis, high shrimp sIgE level, and wheal diameter of shrimp SPT were risk factors for a positive OFC test. However, neither the shrimp sIgE level nor the wheal size can effectively predict the results of OFC tests; therefore, OFC tests should be performed to confirm patient's tolerance to shrimp.