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Recurrent anaphylaxis in shrimp and cocktail-tomato allergic patient

Natalia Ukleja-Sokolowska\textsuperscript{1}, Ewa Gawronska-Ukleja\textsuperscript{1}, Magdalena Zbikowska-Gotz\textsuperscript{1}, Zbigniew Bartuzi\textsuperscript{1}, Lukasz Sokolowski\textsuperscript{2}

\textsuperscript{1}Department of Allergology, Clinical Immunology and Internal Diseases, L. Rydygier Collegium Medicum, Bydgoszcz NCU, Poland; \textsuperscript{2}Division of Ergonomics and Exercise Physiology, L. Rydygier Collegium Medicum in Bydgoszcz NCU, Poland

**Background:** Most important tomato allergens are: profilin Lyc e 1 and nsLTP Lyc e 3. López-Matas et al. [2011] analyzed the allergen content of 6 varieties of tomatoes. It was found that there are significant differences between the concentrations of allergens depending on the variety of tomato. Pen m 4 is calcium-binding protein is a minor allergen, sensitizing only 10%-15% of Italian shrimp-allergic patients, but it is clinically relevant and may be the cause of anaphylaxis.

**Report:** Patient, 25, female, in 2013 after consumption of shrimp, experienced swelling of the larynx, shortness of breath and generalized urticaria. Similar episodes occurred in May 2014 and June 2014, also due to shrimps. In March 2015 patient experienced angioedema of lips after consumption of cocktail tomatoes in a salad before physical activity (visit to the gym). She ate cocktail tomatoes before and afterwards without any symptoms.

During diagnosis SPT were positive with allergens of cat, shrimp, hazel, alder, birch and Artemisia vulgaris. We performed prick by prick tests with fresh shrimp (positive 13/23mm), slicing tomato (0/0) and cocktail tomato (4/4). In 5 minutes after prick by prick tests patient experienced angioedema of lips and itchiness and swelling of hands and feet. She was administered steroids with good clinical effect.

Open-food challenge with cocktail tomato was negative. Afterwards exercise provocation test was performed – without any immediate allergy symptoms. Within 4 hours patient experienced severe angioedema of lips, which was treated with systemic steroids.

ImmunoCap ISAC reveled elevated level of IgE specific to shrimps calcium-binding protein nPen m 4 (4,3 ISU-E), birch PR-10 rBet v 1 (1,2 ISU-E), Artemisia defensin Art v 1 (1,2 ISU-E), cat Fel d 1 (20 ISU-E) and Fel d 4 (4,4 ISU-E).

**Clinical Relevance of Report:** Patient was diagnosed with exercise induced allergy to cocktail tomato. ImmunoCap ISAC found elevated level of IgE specific to cat allergens and birch allergens. Patient had anaphylactic reaction due to allergy to shrimps calcium-binding protein nPen m 4, which is a minor allergen.

In case of anaphylaxis this patient has to carry a rescue set, including antihistamines, oral steroids and adrenaline in an auto-injector.

**Statement of consent for presentation and publication:** Patient consented to the publication of this case report.