



Shrimp Allergy: More and More Interesting

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Commentary

In recent years food allergy has elicited growing attention on the media and in the general public. Crustaceans represent one of the most prevalent causes of food allergy worldwide, and in Italian adults they are the second cause of primary food allergy and food-induced anaphylaxis, after plant-derived foods [1,2]. Not many years ago it was generally believed that the only shrimp allergen was tropomyosin, a phylogenetically conserved muscle protein showing a highly homologous sequence in all invertebrates (worms, crustaceans, mollusks, snails, and insects) [3]. However, the complexity of the allergenic profile of shrimp has been increasingly recognized over the last decade, and it now includes no less than 15 allergens some of which are species-specific while others are homologous, and hence cross-reacting, to allergens in house dust mites, other shellfish, and parasites like *Anisakis simplex*. Many of these allergens have not been characterized and sequenced yet. In a recent study, less than 50% of Italian shrimp-allergic patients were found to react to tropomyosin, and most of them were found to produce IgE specific for a variable number of different proteins [4]. Thus, the story of shrimp allergy is becoming more and more challenging but also increasingly stimulating. The physical and chemical features of shrimp allergens may differ, and this can translate into different clinical expressions of allergy. For instance, most allergens are heat- or pepsin-resistant but others are destroyed by heat or by pepsin digestion. As a consequence, some allergic patients may experience only local symptoms (e.g., oral allergy syndrome, asthma following inhalation of aerosols during cooking or industrial processing, or contact urticaria after handling shrimps), or react only following the ingestion of raw shrimp, while others will show systemic reactions following cooked shrimps.

Altogether, there is a lot of material to work on during the next years in order to better characterize this type of food allergy.

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Received Date: 27 Aug 2017

Accepted Date: 24 Oct 2017

Published Date: 26 Oct 2017

Citation:

Asero R. Shrimp Allergy: More and
More Interesting. *Ann Clin Case Rep*.
2017; 2: 1457.

ISSN: 2474-1655

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