

High prevalence of shellfish and house dust mite allergies in Asia-Pacific: probably not just a coincidence

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The development of shellfish allergy usually begins in adulthood and tends to be a life-long problem. The prevalence of shellfish allergy is relatively high in Asian countries compared to the western world and symptoms may develop at the early age.¹ This phenomenon may simply reflect the geographic consumption of shellfish, however, other factors possibly play a role since low prevalence of shellfish allergy was noted in some countries with high seafood consumption rate.² This issue of APJAI features the first population-based study on the prevalence of self-reported food allergy among Chinese children and younger teenagers in Hong Kong.³ This article emphasizes the significance of shellfish allergy as one of the major allergic problems in Asia-Pacific region.

Tropomyosin has been identified as a major allergens in shellfish allergy. Some other allergens, however, are responsible for cross-reactivity between crustaceans and mollusks as well. A group of Malaysian researchers reported that tropomyosin and arginine kinase are the major allergens in *Charybdis feriatus* (red crab) and *Portunus pelagicus* (blue crab) and cross-reactivity of these allergens in patients who allergic to both red and blue crabs was clearly demonstrated.⁴

Since both tropomyosin (the major shrimp allergen) and parvalbumin (the major allergen in fish) are heat-stable proteins and the ubiquity of shellfish and fish in Asian diet is well recognized, the fact that the prevalence of shellfish allergy in Asia in general is higher than those of fish allergy is worth mentioning.⁵ It is noteworthy that the reported prevalence of shellfish allergy is high in tropical/subtropical regions where the allergic sensitization to house dust mite (HDM) species is

also abundant.⁶ An article published in this issue from Guangzhou, subtropical region of China, reports the prevalence of IgE reactivity against house dust mites and storage mites adding up new knowledge regarding geographical distribution of HDM allergy.⁷

As a high degree of homology between tropomyosins in shellfish, cockroaches, and mites is well-documented and a significant correlation between shrimp, cockroach, and dust mite IgE levels in allergic children has been observed,⁸ an epidemiologic study describing the correlation between the prevalence of shellfish allergy and rates of sensitization/allergic reaction to these indoor allergens among Asia-Pacific countries should be encouraged. Some questions remain unanswered; does a positive correlation between prevalence of shellfish and house dust mite allergies exist in any given country? Is high prevalence of shellfish allergy in the region simply the result of repeated exposure or secondary sensitization to mites and/or cockroaches? Whether life-long shellfish allergy is a result of accidental exposure to hidden shellfish allergens in Asian food ingredients or due to a booster effect from cross-react aeroallergens exposed in daily life? How much do eating habit, food processing, and genetic background play a role in shellfish allergy? A set of well-planned studies focusing on the temporal relationship between shellfish and mites/cockroaches sensitization and development of allergic disease in different ethnic groups is required to answer these simple but not-so-easy questions.

Other than the interaction between seafood allergy and airway allergy, this issue also covers the topic of primary immunodeficiency diseases including the review on the prevention of infection in patients with primary immunodeficiency disorders from Greece,⁹ and the identification of p47-phox deficient Chronic Granulomatous Disease in a Malay family.¹⁰ We hope that you find these articles interesting and useful for your clinical practice and research work.

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