

Editorial

Mustard allergy as a new food allergy

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The prevalence of food allergies is on the rise, and the distribution of food allergens is changing with our food consumption behaviour. Allergies in children to exotic fruit, legumes such as lupine, oilseeds (cashews, pecans etc.), and mustard are also making their appearance, or can be expected to show up in the near future.

France is the largest European producer of mustard. It is also the largest European consumer of mustard, ahead of Germany and Great Britain, which explains the increased frequency of mustard allergy in France.

The paper from Morisset et al. (1) confirms the renewed interest in food allergy. However, articles on mustard allergy remain rare, especially in view of the amount of information that has been published on peanut allergy. Mustard is the fourth most important food allergen for children, after eggs, peanuts, and cow milk (2).

Mustard belongs to the Brassicaceae family. It is typically a mixture of *Sinapis alba* (white mustard) and *Brassica juncea* (oriental mustard). The major allergen (Sin a I) of mustard is a thermostable protein that is resistant to digestion by trypsin and degradation by other proteolytic enzymes (3,4). There are some 3200 species and 375 genera of Brassicaceae. The most common include the radish, rutabaga, various types of cabbage (cauliflower, brussels sprouts, kohlrabi, and Chinese cabbage), broccoli, turnip, watercress, horseradish, and rapeseed. However, cross-reactions involving clinical manifestations between mustard and other Brassicaceae family allergens are rare. Cross-reactions with ragweed pollen have been reported (5,6). Mustard allergens have not all been cloned or sequenced, despite the significant impact their identification could have with regard to pollen allergies. Immunological and immunoclinical studies on cross-reactions between mustard and pollen allergies thus need to be undertaken.

Morisset et al. do not report any severe symptoms following mustard ingestion. However, anaphylactic reactions, especially in adults, following mustard ingestion have been reported elsewhere in the literature (7–13).

It is not always easy to diagnose mustard allergy. Irritants such as isothiocyanates and capsaicin, which are present in mustard, seem to be responsible for numerous false positive skin prick tests and probably make labial provocation tests of doubtful value. Morisset et al. have shown that only 23.3% of patients with positive skin prick tests are truly allergic to mustard based on positive oral food challenges. These works confirm the superiority of raw extracts for performing skin prick tests. Their study evaluated three extracts: ground seeds from *B. nigra*, flour from *B. juncea*, and strong, metabisulphite-free mustard seasoning. The skin prick tests using the raw extracts had a statistically superior diagnostic value, but there was no statistically significant difference between the native extracts. Our own study used the Pharmacia Cap SystemTM to calculate 19.8 kU_A/L threshold value for specific IgE antibodies using an ROC curve with an 80% positive predictive value (13). The diagnosis of mustard allergy must be authenticated with a positive oral food challenge. The strong taste of mustard makes double-blind, placebo-controlled food challenge (DBPCFC) unpredictable.

However, the manuscript by the team from Nancy is of interest because it proposes ways to perform DBPCFC. They discuss the use of the DBPCFC in children and adults based on 30 selected cases of positive skin prick tests to mustard. It appears that the vehicle that best asks the taste is a mixture of cold Coca-Cola, despite the large quantities of mustard used – the last dose administered being 900 mg! The authors specify that the preparation procedure used just prior to beginning the test reduces the

formation of isothiocyanates. No severe reactions are reported. None of the patients presented associated food allergies. Cross-reactions to pollens are not discussed.

The best treatment would be to avoid all mustard-containing foods. However, in the real world, mustard is

widely used as a spice, especially in mixtures such as curry, and is also used as a condiment and ingredient to season prepared foods. Lastly, mustard is not among the 11 food allergens covered by the European Parliament's policy on compulsory labelling.

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