

Letter to the editor

Beef allergy in adults and children

In addition to the clinical case of animal protein allergy in an adult described by Fuentes et al. (1), we believe several considerations are to be taken into account to make full use of these laboratory findings in the practical context of (i) allergy diagnosis and (ii) pediatric practice.

The experimental design is novel in that protein sequencing was used towards characterizing bovine myoglobin as a sensitizing protein of beef. In this case, an *in vitro* assay demonstrated that bovine myoglobin is of sufficient antigenicity to function as the sole sensitizing allergen. This design has also been applied to sequence the epitopes of bovine serum albumin (BSA) (2, 3) and casein (4) in a similar clinical context.

That some patients allergic to beef are not sensitized by BSA, however, was not unknown. In a study of beef-allergic children, the two patients not sensitized by BSA were also the only participants who were not allergic to cow's milk and they further suffered from delayed tolerance to beef, thus suggesting that other beef

allergens besides BSA may be implicated in clinical reactivity to beef (5).

In another study, the sera of a group of 12 patients (likely to be adults), bovine IgG was also reported as the major cross-reactive allergen predictive of beef allergy (6).

Caution should be exercised before we ascribe predictive or diagnostic power to *in vitro* studies. The relative roles of cross-reactivity, co-sensitization and co-recognition also limits the scope of inference we may draw for diagnosing clinical allergy from such studies (3, 5). In our experience with beef-allergic children serology also included positive skin reactions that were not confirmed by skin-prick tests (SPT), thus underlining that not all sensitizing allergens are clinically relevant (7).

Challenge-based assessment, the golden rule in clinical diagnosis, may also be able to discriminate between the overlapping and distinguishing features of this interpretation of serology. Moreover, it may very well be that food allergy in childhood

is an altogether different entity from food allergy in adults or adult-onset food allergy.

As regards beef allergy, the studies by Ayuso et al. (6) and Fuentes et al. (1) could be heralding that there may be at least two modalities whereby clinical reactivity to bovine proteins can be acquired depending on the timing of, and/or age at, sensitization.

The suggestion is that *in children* BSA is the major allergen, whereas *in adults* gamma-globulin and now myoglobulin may be more or as important. The natural history of bovine protein allergy proves that children outgrow their clinical symptoms, whereas adults do not and, seen in this light, this would also reflect different sensitization patterns.

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