

■ Crustaceans are known to induce occupational asthma in workers employed in the seafood industry (4). Occupational asthma and immunologic sensitization caused by shrimp has been reported in several instances. Desjardins et al. (5) reported a prevalence of immediate sensitization of 16% in 56 food company workers. Although lobster is a shellfish frequently used in the food industry, occupational asthma caused by lobster is unusual. Indeed, to our knowledge, it has been described in only one instance, by Patel & Cockcroft (1) in a chef who prepared lobster. This subject was also sensitized to some other seafood: haddock, cod, oyster, clam, and scallop. Skin tests to shrimp were not done, but the subject complained also of allergic symptoms after ingestion of shrimp.

Occupational asthma and immunological sensitization caused by both lobster and shrimp can be explained by the fact that our subject was exposed to both kinds of shellfish and/or cross-reactivity between these two kinds. Although this was not examined in the present case, this cross-reactivity has been previously demonstrated by RAST inhibition in other cases (4), and the presence of shared allergic determinants between shrimp and lobster has been clearly described.

Interestingly, our subject was nonatopic and developed occupational asthma to high-molecular-weight agents. She also showed changes in PC₂₀ after the immediate reaction to lobster, but not to shrimp. No explanation of these unusual findings can be proposed.

The prevalence of immunologic sensitization and of occupational rhinoconjunctivitis and asthma caused by lobster remains to be assessed in the primary processing industry as well as among fishmongers.

C. LEMIERE, A. DESJARDINS, S. LEHRER, J.-L.-MALO
Department of Chest Medicine
Hôpital du Sacré-Coeur
5400 West Gouin, Montreal
Canada H4J 1C5
Tel. 514-338-2796
Fax: 514-338-3123

Accepted for publication 13 March 1996

ACKNOWLEDGMENTS

We thank Lori Schubert for reviewing this paper. J. L. Malo is a senior researcher with the Fonds de la Recherche en Santé du Québec and the Université de Montréal School of Medicine, members of the Centre Québécois d'Excellence en Santé Respiratoire. C. Lemièrre is the recipient of a research grant from l'Association Recherche et Partage (Paris, France). Samuel B. Lehrer has funding from the National Fisheries Institute.

REFERENCES

1. Patel PC, Cockcroft DW. Occupational asthma caused by exposure to cooking lobster in the work environment: a case report. *Ann Allergy* 1992;68:360-1.
2. Knudson RJ, Lebowitz MD, Holberg CJ, Burrows B. Changes in the normal maximal expiratory flow-volume curve with growth and aging. *Am Rev Respir Dis* 1983;127:725-34.
3. Cockcroft DW, Killian DN, Mellon JJA, Hargreave FE. Bronchial reactivity to inhaled histamine: a method and clinical survey. *Clin Allergy* 1977;7:235-43.
4. Desjardins A, Malo JL, L'Archevêque J, Cartier A, McCants M, Lehrer SB. Occupational IgE-mediated sensitization and asthma due to clam and shrimp. *J Allergy Clin Immunol* 1995;96:608-17.
5. O'Neil C, Helbling AA, Lehrer SB. Allergic reactions to fish. *Clin Rev Allergy* 1993;11:183-200.

Antibodies to cow's milk proteins in chronic urticaria

Key words: cow's milk protein-reactive antibodies; specificity and isotype distribution; RAST-negative adults; urticaria/angioedema.

ANTIBODIES reactive to cow's milk protein (CMP) have been demonstrated in the serum of non-atopic patients with chronic urticaria (CU) (1). We searched for such serum antibodies in cow's milk-intolerant patients with CU and healthy volunteers. We used the Western-blot procedure to estimate which isotypes were represented most among reactive antibodies in both diseased and healthy persons.

■ The study was performed in patients with recurrent urticaria/angioedema, i.e., >6 weeks' duration, and healthy, randomly selected blood donors. Before undergoing dietary regimens, all patients were examined to exclude known causes of chronic urticaria (2). Those selected filled in the questionnaire to exclude occupational allergy, current therapy including birth-control pills, surgical or other therapeutic implants, reaction to insect bites, or inhalants.

■ The protocol is shown in Fig. 1. Diets were designed according to published schemes (3, 4). An E/P diet (elimination of or provocation with milk and dairy products) was introduced twice. The improvement or worsening of skin eruptions was estimated by a clinical scoring system (3, 5). No medication was allowed during the study. The IgE antibodies reactive to CAS (casein), ALA (α -lactalbumin), and BLG (β -lactoglobulin) were determined in serum by enzyme immunoassay (RAST, Pharmacia Diagnostics, Sweden). Blood samples for the Western-blot analysis were taken on the latest day of the second provocation diet (E/P diet) in the morning.

■ The SDS-PAGE procedure and the Western-blot analysis were performed as follows. After removing

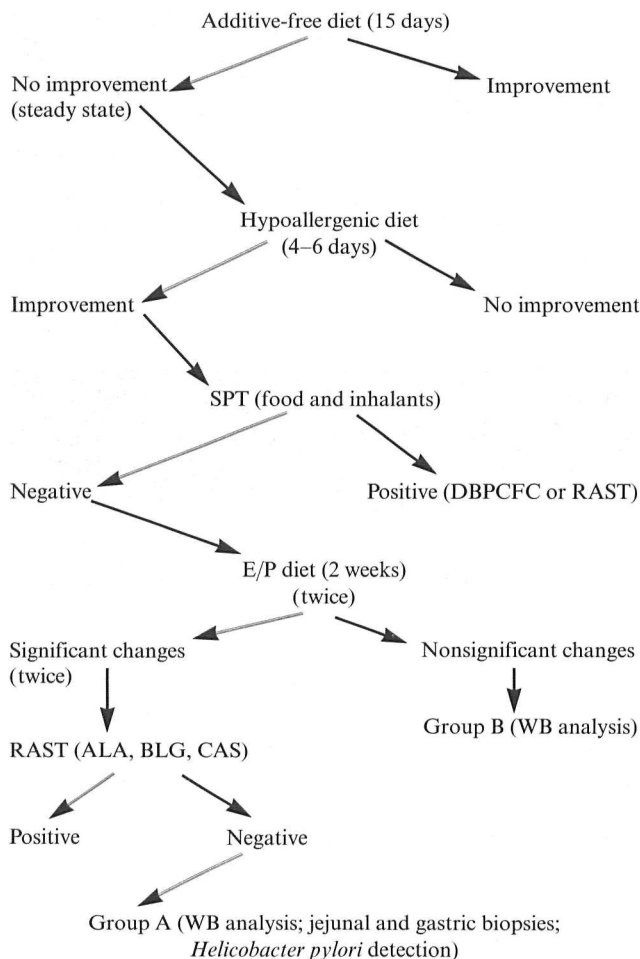


FIGURE 1 Study protocol. Abbreviations: RAST (radioallergosorbent test; IgE antibodies); SPT (skin prick test); DBPCFC (double-blind, placebo-controlled food challenge); WB (Western blot analysis); ALA (α -lactalbumin); BLG (β -lactoglobulin); CAS (casein).

the lipids (3000 g at 4°C, 1 h), casein was precipitated (pH 4.6; HCl) and resolved in PBS (thrice). The supernatant was removed, dialyzed (PBS; O.N.), and concentrated by ultrafiltration. Casein was purified (Sephadex G-200 LKB, Pharmacia) and mixed in equal concentrations with all whey proteins. SDS-PAGE was prepared according to Laemmli's procedure in a Mini-II apparatus (Bio-Rad, USA). Proteins were transferred to a nitrocellulose sheet (Towbin electroblotting procedure). Sheets were blocked (3% gelatin in TTBS). After incubation, human samples were washed (TTBS, thrice) and incubated in rabbit-

IgM and IgG antibodies to casein relate to milk intolerance in chronic urticaria.

antihuman IgG, IgM, or IgA antiserum 1:200 (Behring Werke, Germany) (TTBS/30') and then in goat-antirabbit peroxidase-conjugated IgG 1:2000 (Garg Bio-Rad, USA) (TTBS/1 h). The reaction was developed by 4-chloronaphthol in TBS/peroxidase substrate buffer (Bio-Rad).

■ According to the study protocol, we selected 33 persons as group A (27 female, six male, mean age 34.7 years) and 21 patients as group B (18 female, three male, mean age 37.8 years). Healthy controls were nine women and four men (mean age 35.6 years). In group A, some patients had associated complaints during the period of the milk and other dairy product provocation diet (migraine 2/33, arthralgia 5/33, and abdominal functional disorders 12/33).

■ We registered 28 Western-blot-positive sera in group A (28/33). Anti-ALA and anti-BLG antibodies were detected in six and two of these samples, respectively. Antibodies to casein were detected in 24 patients. In both group B and the healthy controls, no antibodies reactive with ALA or BLG were detected. Only a minority of subjects (8/21; 5/13) had reactive antibodies to casein in serum (Fig. 2).

■ In the present study, we analyzed isotype and distribution of serum antibodies reactive to CMP in nonatopic intolerant persons, a control group of patients with CU, and healthy volunteers. We detected mainly antibodies of IgG and IgM isotype reactive to either casein, ALA, or BLG in the

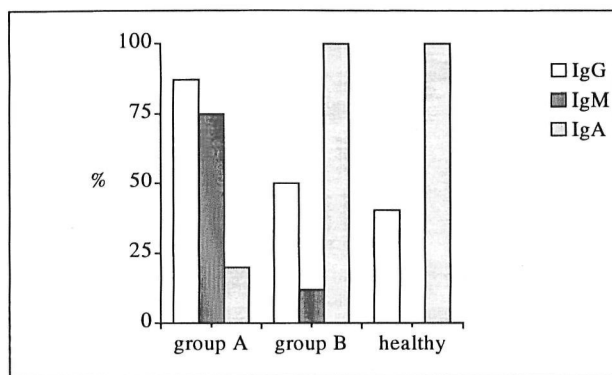


FIGURE 2 Isotype distribution of serum antibodies reactive to casein from group of intolerant persons (A), control group of patients with CU (B), and control group of healthy volunteers. There were 33 persons in group A, 21 in group B, and 13 healthy adults. Number of serum-reactive isotypes is presented as percentage of all anti-casein-positive sera from each group separately: group A (24/33), group B (8/21), and healthy volunteers (5/13).

intolerant group, and mostly IgA antibodies reactive only to casein in the other two groups. Application of the Western-blot assay of balanced CMP provided accuracy and reproducibility in this semiquantitative analysis. Another aspect relates to results. We expected to detect antibodies reactive to CMP in our patients, as such antibodies were reported in healthy subjects and subjects with CU (1, 5). However, we found mainly IgG- and IgM-reactive antibodies instead of the expected IgA and IgG specific response (1, 5). One of the reasons for this could be dietary protocol, i.e., intensive intake of cow's milk or other dairy products over the 15 days before blood sampling. In our pilot study, we noticed that consumption or avoidance of milk and other dairy products for no more than 4 days influenced the appearance of antibodies to CMP in serum from healthy subjects. In this regard, higher mucosal permeability (5) with consecutive unfavorable antigen-driven IgG and/or IgM response in group A could be an acceptable explanation. However, apart from lymphocyte infiltration of the lamina propria in some subjects, no histologic disorders were seen in the jejunal biopsies. A contributing or even underlying factor could be neuropeptides, which can degranulate mast cells and regulate the production and release of cytokines (at intestinal level and in the spleen), supplying a phlogistic type of the immune response. *Helicobacter pylori* (HP) could be a supplementary factor. We detected HP in a high percentage of the gastric biopsies in group A. In conclusion, we assume that we have obtained useful data for future research.

DR. S. PARANOS
Zvezdara University Hospital
Department of Allergy and
Clinical Immunology
Dimitria Tucovica 161,
11000 Belgrade
Yugoslavia
Tel. +381 11 414 322 421
Fax: +381 11 418 962

G. NIKOLIC, BSc
Blood Transfusion Centre
Department of
Immunochemistry and Tissue
Typing
Belgrade
Yugoslavia

Accepted for publication 26 March 1996

REFERENCES

1. Lewis-Jones MS, Barnes RMR, Macfarlane AW, Curly RK, Johnson PM, Finn R. Frequency and isotype distribution of serum antibodies reactive with dietary proteins in adults with chronic urticaria. *Clin Exp Dermatol* 1987;12:419-23.
2. Stafford CT. Urticaria as a sign of systemic vasculitis. *Ann Allergy* 1990;64:264-70.
3. Metcalfe DD, Sampson HA. Workshop on experimental methodology for clinical studies of adverse reactions to foods and food additives. *J Allergy Clin Immunol* 1990;86(3):421-2.
4. Monro J. Food induced migraine. In: Brostoff J, Challacombe SJ, editors. *Food allergy and intolerance*. Baillière Tindall, 1987:651-3.
5. Paganelli R, Fagiolo U, Cancian M, Scala E. Intestinal permeability in patients with chronic urticaria-angioedema with and without arthralgia. *Ann Allergy* 1991;66(2):181-4.

Cetirizine: effective treatment for food (egg) allergy

FOOD ALLERGY has a reported incidence of 5–6% (1) and may be manifested as anaphylaxis, asthma, rhinitis, dermatitis, urticaria, angioedema, or gastrointestinal symptoms (nausea, vomiting, diarrhoea, and abdominal pain). Egg is a commonly implicated food and frequently causes gastrointestinal symptoms (2). Therapeutic methods advocated for food allergies include elimination of the incriminated food, pharmacotherapy, and perhaps immunotherapy.

The antihistamine cetirizine, which has several antiallergic properties, has been recommended in the treatment of rhinitis, urticaria, and eczema (3); however, there are no reports on the role of cetirizine in food allergy (4). A case of egg allergy, in which cetirizine proved effective, is reported here.

■ In September 1994, a 22-year-old woman was seen for complaints of frequent abdominal pain, nausea, vomiting, and diarrhoea for 2 months with no history of similar or other medical ailments.

■ Serum IgE levels were estimated by radio-immunoassay (normal levels < 50 ku/l). Skin prick tests (SPT) with common foods and double-blind, placebo-controlled food challenges (DBPCFC) using Bock et al.'s method (5) were both positive to egg alone.

■ The patient's investigations and treatment are outlined in Table 1. The gastrointestinal manifestations, increased eosinophil counts, elevated IgE levels, positive SPT, and positive DBPCFC were sufficient to clinch a diagnosis of food (egg) allergy. A

*A case of egg allergy
successfully treated with
antihistamine.*

normal gastroduodenal endoscopy and biopsy excluded the possibility of eosinophilic gastritis.

Egg avoidance did result in some relief; however, it was only after cetirizine was introduced that there was a dramatic decrease in symptoms and eosinophil counts. Oral sodium cromoglycate could not be tried due to its nonavailability in India.

Cetirizine is known to inhibit eosinophil migration and has several antiallergic and anti-inflammatory properties (4). This report suggests, at least on the basis of clinical results, that cetirizine

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.