

Diagnosis of latex allergy

IGE-MEDIATED allergy to natural rubber latex (NRL) has a number of far-reaching consequences for patients, regarding both their occupational situation and safety in medical care (1). A correct diagnosis is essential. Demonstration of specific IgE antibodies is a good confirmation of the clinical history of NRL, especially since only a few available skin prick test extracts have been standardized (2). Demonstration of specific IgE antibodies has been widely used in prevalence studies on latex allergy (3, 4). This study aimed to evaluate and compare two commercially available *in vitro* tests for specific IgE antibodies against latex: the Ala-STAT specific IgE assay (DPC) and the Pharmacia CAP System (PCS).

■ Serum samples from 27 patients with latex allergy (a case history and a positive skin prick test and RAST to an extract from *Hevea brasiliensis*) and 38 healthy, nonatopic blood donors were investigated. Specific IgE antibodies were determined either manu-

ally by AlaSTAT Microplate allergen-specific IgE with k82 Specific Allergen Module (Diagnostic Products Corporation, USA) DPC or by AutoCAP Pharmacia CAP System

Concern is expressed about the specificity and sensitivity of some in vitro tests.

(PCS) RAST[®] FEIA with k82 specific latex ImmunoCAP (Pharmacia Upjohn Diagnostics, Sweden), according to the instructions of the manufacturers. The analyses were performed in duplicate, and the results expressed in kU/l (DPC) and in kU_A/l (PCS). In both tests, values ≥ 0.35 KU/l were classified as positive.

■ The correspondences between the IgE-calibrator curves were good. In two out of three DPC assays, there was no significant difference between the response values for the two lowest calibrators (0.35 and 0.70 kU/l). With the DPC test, IgE antibodies to NRL were detected in 24/27 (89%) of sera from NRL-allergic patients. Among the 38 healthy blood donors, positive values (0.38–3.3 kU/l) were found in eight. In a second run, five of these eight sera were negative. The precision of the DPC method was found to vary between 8.6 and 25%. In the PCS, all latex-allergic patients (27/27) were positive, and all healthy blood donors (38/38) negative.

The results from the two tests are shown in Fig. 1. There were no correlations between the two

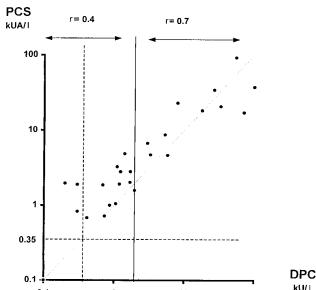


FIGURE 1 Comparison of results obtained with PCS and DPC methods based on sera from 27 NRL-allergic patients. Results are expressed in kU_A/l and kU/l, respectively; values >0.35 are positive.

methods for low values. However, the results in samples with levels >2 kU/l of IgE antibodies to NRL were congruent.

■ Since *in vitro* techniques for IgE antibodies to NRL are routinely used to identify patients at risk of severe allergic reactions, it is fundamental to have an accurate method with good precision also in the low measurement range (5). In addition, low precision for low levels obscures data on prevalences of NRL allergy in different populations. Both tested methods showed good results in detecting moderate to high levels of latex-specific IgE antibodies. However, the Ala-STAT method seems unreliable in distinguishing between low to moderately high concentrations (<2 kU/l) and background values. In contrast, the Pharmacia CAP System gave reliable results for any level above 0.35 kU_A/l. As even low values of IgE antibodies to NRL may cause severe clinical reactions, an *in vitro* test capable of accurately measuring any concentration of IgE antibodies is essential to identify these patients.

Key words: allergy; *in vitro* diagnosis; latex.

M. LUNDBERG*, K. WRANGSJÖ, M. VAN HAGE-HAMSTEN

*Department of Clinical Immunology
Karolinska Hospital
Stockholm
Sweden

Accepted for publication 26 June 1997
Copyright © Munksgaard 1997
ALLERGY 1997;52:1042–1043

REFERENCES

1. Turjanmaa K, Alenius H, Mäkinen-Kiljunen S, Reunala T, Palosuo T. Natural rubber latex allergy. *Allergy* 1996;51:593-602.
2. Turjanmaa K, Palosuo T, Alenius H, et al. Latex allergy diagnosis: *in vivo* and *in vitro* standardization of a natural rubber latex extract. *Allergy* 1997;52:41-50.
3. Ownby D, Ownby H, McCullough J, Shafer W. The prevalence of anti-latex IgE antibodies in 1000 volunteer blood donors. *J Allergy Clin Immunol* 1996;97:1188-92.
4. Wrangsjö K, Osterman K, van Hage-Hamsten M. Glove-related skin symptoms among operating theatre and dental care unit personnel. II. Clinical examination, tests and laboratory findings indicating latex allergy. *Contact Dermatitis* 1994;30:139-43.
5. De Clerk LS, Bridts CH, Stevens WJ. Comparison of latex-specific IgE, skin testing and lymphocyte transformation (LTT) in latex anaphylaxis [Abstract 636]. *J Allergy Clin Immunol* 1997;99:S157.

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.