

Improving latex-allergy diagnosis: the clinical role of Hev b8-specific IgE

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Sometimes it is difficult to distinguish between natural rubber latex (NRL) allergy and asymptomatic sensitization, on account of the presence of carbohydrate cross-reacting determinants or profilin (1).

The role of recombinant molecules in improving latex-allergy diagnosis is under investigation: Hev b2, 4, 5, 6, 13-specific IgE (sIgE) are commonly recognized in sera of health care workers, allergic to NRL; Hev b1, 3, 5, 6-sIgE are usually detected in allergic children with spina bifida (2) and Hev b8 (profilin)-sIgE can be identified in some subjects allergic to pollens and NRL (3). In this last group, the sensitization to latex profilin takes place via pollen or food profilins (3).

We report on seven consecutive patients referred to our allergy unit, on account of serological or skin/serological evidences of NRL sensitization, despite their negative (uncertain, in one case) history of allergic reaction to NRL. All patients suffered from rhinitis and/or asthma and were sensitized to several allergens.

Clinical features of subjects and the tests we carried out, are summarized in Table 1. Provocation procedure, wearing one latex glove (4) (Perry Style 42, Ansell,

Sri Lanka), resulted negative in all patients.

The diagnostic work-up suggested that profilin sensitization, secondary to grass pollen allergy, yielded false positivity from NRL diagnostic tests.

Since the asymptomatic sensitization to NRL seemed strictly associated with rHev b 8-sIgE, we checked for the presence of profilin into two latex surgical gloves used in our hospital (SUR-G Glov, Terang Nusa, Kota Bharu, Malaysia; Perry Style 42, Ansell, Sri Lanka).

For this purpose REAST-inhibition experiments were performed (5). Sera IgE reactivity against profilin [purified from *Phleum pratensis* pollen extract (3)] from allergic (patients 1, 2, 3) and healthy subjects, was first evaluated by REAST assay (5). Data, expressed as optical density (OD) values, were 1.826, 0.247, 1.289 and 0.080 respectively. To demonstrate the presence of profilin into the gloves, REAST-inhibition experiments (5), using pieces of 1 cm² of two considered gloves as inhibitors, were subsequently performed. To demonstrate the presence of latex allergens into the above gloves, REAST against latex extract and corresponding REAST-inhibition experiments were performed. In these cases, a pool of human latex positive sera was used.

None of the two gloves expressed significant inhibitory capacity on IgE reactivity against profilin, thus strongly suggesting that Hev b8 allergen (profilin-like) was not present in either of them. On the other hand, IgE reactivity of positive latex pool sera (2.432 OD) was significantly reduced after pre-contact of serum with samples of the considered gloves (78% and 34%, respectively with SURG-G and Perry Style), demonstrating the presence of latex allergens into them.

It can be hypothesized that allergen-reducing procedures, applied by glove manufacturers to improve latex gloves

quality (4), seem to be capable of degrading the Hev b8 allergen, at least in the two considered gloves.

Our findings support those of Haeberle (6) demonstrating that patients suffering from pollinosis with evidence of NRL sIgE, but no history of NRL allergy, did not develop any clinically relevant problems during anaesthesia, although they were exposed to latex.

Consistent with such results, patient 2 was reinstated to her former position in the hospital, from which she had been removed, as a precaution on account of the first results of an allergological screening test. Patient 5 underwent dental treatment without having to adopt latex-safe measures.

In conclusion, our findings highlight that the outcomes of allergological tests positive for NRL, in subjects with unrelated allergic history, should be considered with caution and the use of recombinant allergens can be useful in improving the specificity of latex allergy diagnosis.

Further studies on latex gloves from different brands should be performed to confirm the reliability of Hev b8-specific IgE detection alone, as a marker of asymptomatic latex sensitization.

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Table 1. Clinical features of the patients and allergy diagnostics results

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7
Age (years)	16	34	23	15	23	11	38
Gender	M	F	F	M	M	M	F
Profession	Student	Nurse	Student	Student	Factory worker	Student	Shop assistant
Latex exposure in the work setting	No	Yes	No	No	No	No	No
Symptoms from latex exposure	No	Uncertain	No	No	No	No	No
OAS to fresh fruit and vegetables	No	Yes	No	No	Yes	No	Yes
SPT latex‡	+	+++	Negative	Negative	Negative	+/-	Negative
SPT grass‡	++++	++++	++++	+++	++++	+++	++++
SPT parietaria‡	Negative	+++	++++	Negative	Negative	Negative	+++
SPT mite‡	+/-	Negative	+++	+	++++	Negative	++++
SPT animal danders‡	+++	+++	Negative	Negative	++++	+	Negative
SPT moulds‡	++	+++	Negative	Negative	++++	Negative	Negative
Latex sIgE† (U/ml)	3.21	3.40	1.02	2.82	0.38	5.35	0.53
rHev b1,2,3,5,6,9,11 sIgE*† (U/ml)	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
rHev b8 (profilin) sIgE*† (U/ml)	34.50	8.01	2.93	7.07	6.15	11.80	0.66
rPhl p1 sIgE*† (U/ml)	41.20	45.80	ND	31.80	86.00	100.00	ND
rPhl p4 sIgE*† (U/ml)	ND	ND	ND	44.30	39.30	100.00	ND
rPhl p5b sIgE*† (U/ml)	ND	<0.35	ND	53.70	31.70	100.00	ND
rPhl p6 sIgE*† (U/ml)	7.81	<0.35	ND	26.90	10.70	100.00	ND
rPhl p7 sIgE*† (U/ml)	<0.35	<0.35	ND	<0.35	<0.35	<0.35	ND
rPhl p11 sIgE*† (U/ml)	<0.35	<0.35	ND	0.77	<0.35	<0.35	ND
rPhl p12 (profilin) sIgE*† (U/ml)	13.90	8.69	ND	4.15	3.39	3.94	ND

OAS, oral allergic syndrome; SPT, skin prick tests; sIgE, specific IgE; ND, not determined.

*Recombinant (r) antigen.

†Immunocap system, Phadia, Uppsala, Sweden.

‡ALK-Abello, Denmark.

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Asthma-related mortality in France, 1980–2005: decline since the last decade

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Key words: asthma; France; mortality; regional disparities; trend.

Since the mid-1980s, a rapid decline in asthma-related mortality has been registered in many European countries. Yet, deaths from asthma still occur in France and this despite the fact that asthma-related mortality is perfectly avoidable. This study investigated in

Metropolitan France, changes and regional disparities in asthma-related mortality between 1980

In France, after having levelled off in 1990–1995, asthma-related mortality kept decreasing until 2005.

and 2005. Annual crude, specific and age- and gender-standardized mortality rates on account of asthma were calculated and asthma-related mortality changes estimated by the annual average rate of change fitted using a log-linear regression model, under the hypothesis of constancy in time. After having levelled off in 1990–1995, asthma-related mortality kept decreasing until 2005, with a significantly more rapid drop in men than in women between 2000 and 2005. The observed decrease between 2000 and 2005 was significant in all age groups > 35 years. Potential explanations for the reduction of asthma-related mortality include better patient care, use of inhaled corticosteroids, therapeutic education and improvement in the recording of deaths.