

Investigative methods for natural rubber latex allergy in the UK

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Allergy to natural rubber latex (NRL) has become an important health issue in recent years, but little is known about how this condition is investigated by physicians in the UK. This postal questionnaire of British dermatology and allergy specialists shows substantial variation in diagnostic practice, most notably with regard to the utilization and choice of starting dose of commercial latex prick test dilutions, reliance on allergen-specific immunoglobulin E measurement, investigation of associated fruit allergy and provision of resuscitation equipment/method of consent when challenge testing. 17% of responding physicians who investigate for NRL allergy do not perform prick test or glove challenge because of the potential risk of anaphylaxis or lack of resuscitation facilities. 87% of allergy clinic specialists report no reduction in the number of patients presenting as new referrals with suspected NRL allergy. These findings suggest a need for robust guidance to achieve more consistent investigative practice by those dealing with this condition.

Key words: allergy investigation; glove challenge; natural rubber latex; prick testing; specific immunoglobulin E. © Blackwell Munksgaard, 2005.

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Since the first report of Type I immunoglobulin E (IgE)-associated allergy to natural rubber latex (NRL) in 1979 (1), this condition has become recognized as an important medical and occupational health issue. Clinical symptoms may include urticaria, angioedema, rhinoconjunctivitis, bronchospasm and, rarely, life-threatening anaphylaxis. Current knowledge has been summarized in a position paper from the British Society for Allergy and Clinical Immunology (BSACI) (2).

British healthcare providers are now expected to have in place robust policies, both to minimize the risk of healthcare staff acquiring NRL allergy and to provide a latex-safe environment for the care of sensitized patients. As dermatology and allergy specialists play a key role in the implementation of these policies, we thought it important to ascertain current investigative practice of NRL allergy within these departments.

Materials and Methods

A questionnaire was designed and sent to ordinary members of the British Association of

Dermatologists (BAD) ($n=683$) and to British allergy clinics ($n=100$).

131/248 (53%) responding dermatology consultants and 71/78 (91%) responding allergy clinic consultants investigate for NRL allergy within their own department. The investigative practice of these 202 specialists is reported in this article.

Results

Table 1 compares the methods used for investigation of NRL allergy in British dermatology and allergy clinics. 93% of dermatologists and 87% of allergy clinicians measure latex-specific IgE. Commercial prick test dilutions are used by 47% of dermatologists and by 86% of allergy clinicians, with choice of starting dose notably variable among dermatologists. Smaller numbers prick test with a homemade solution, 21% in each clinic setting. Glove challenge is utilized by 55% of dermatologists and 61% of allergy clinicians. Prick testing and glove challenge are more likely to form part of the routine diagnostic workup in allergy clinics, whereas they are more

Table 1. Investigation of natural rubber latex allergy in dermatology and allergy clinics

	Dermatology consultants	Allergy/immunology consultants
Number	131	71
Latex-specific IgE	122	62
Prick test commercial dilutions	61	61
Commence with		
1 hep	23	16
10 hep	9	4
100 hep	14	3
Dependent on clinical history	7	29
All 3 together	3	0
Prick test homemade solution	27	15
Glove challenge	72	43
Prick test/glove challenge routine investigation	45	47
Prick test/glove challenge only if suggestive history but negative latex IgE	56	16
Prick test/glove challenge		
Written consent	9	10
IV access	13	10
Adrenaline		
At hand	67	61
In department	31	5
Not available	2	0
Resuscitation equipment		
All tests	83	30
Some tests	8	25
Latex free	36	35
Do not prick test or glove challenge	24	10
Associated fruit allergy		
Accept clinical history	45	10
Allergen-specific IgE	54	5
Prick test fruit	28	43 (42 non-commercial extract)
Prick test latex but not fruit	52	7

IgE, immunoglobulin E; hep = histamine equivalent prick.

often performed in dermatology clinics only when there is a suggestive clinical history but negative latex IgE result.

61% of allergy clinicians investigate suspected fruit allergy with prick testing compared to only 21% of dermatologists, who are much more likely to accept a clinical history (34%) or measure specific IgE level (41%). 40% of dermatologists perform prick testing to latex but not to fruit.

When performing prick testing or glove challenge, 9% of investigators seek written consent and 11% obtain intravascular access. Adrenaline is nearly always at hand or within the department, but resuscitation equipment is known to be latex free by only 35%.

18% of dermatologists and 14% of allergy clinicians do not perform prick testing or glove challenge because of the risk of anaphylaxis and/or lack of resuscitation equipment or trained staff. Further reasons given included lack of departmental agreement about their necessity, not enough information from challenge test to

justify risk or enough information felt available from IgE assay.

Allergy clinicians were asked about the number of patients they investigate for suspected NRL allergy, and 87% stated that this is either unchanged or increasing. Dermatologists were not asked this question.

Discussion

This survey shows that methods of investigation for NRL allergy vary considerably both within and between UK dermatology and allergy clinics, in particular with regard to the utilization and choice of starting dose of commercial latex prick test dilutions, reliance on allergen-specific IgE measurement, investigation of associated fruit allergy, and provision of resuscitation equipment/method of consent when challenge testing.

Prick testing is generally acknowledged as the most reliable method in common use for diagnosing sensitization to NRL (3). This survey has

shown that testing with commercial dilutions is the most commonly employed prick-testing method in the UK, although testing with a homemade solution is used by a substantial minority. Allergy clinicians are much more likely than dermatologists to use prick testing for investigating associated fruit allergy, almost all allergy clinics using non-commercial extracts for this.

Prick testing, as with glove challenge, is known to have the potential to cause anaphylactic reactions (4). In a survey of allergists in the USA, 6% of respondents reported episodes of anaphylaxis in patients undergoing latex allergy testing, most of these from using a homemade solution or while performing a use test (5). 17% of the investigators in this survey indicated that they are not willing to perform prick testing or glove challenge because of this risk or because of lack of equipment or staff, thereby relying for diagnosis on the less-sensitive measurement of latex-specific IgE (6).

For some people, NRL can be a very powerful allergen, and a label of latex allergy carries potentially serious implications for the patient, for their employment and for their care in health settings. It may also lead to a very restricted lifestyle from anxiety and worry about the ubiquitous occurrence of NRL in the environment. As experience in UK allergy clinics suggests there is little if any sign of the need to investigate this condition declining, robust guidelines should be agreed for the diagnosis, and just as importantly the exclusion, of allergy to NRL, with investigation preferably performed by trained physicians.

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References

1. Nutter A F. Contact urticaria to rubber. *Br J Dermatol* 1979; 101: 597–598.
2. Cullinan P, Brown R, Field A et al. Latex allergy. A position paper of the British Society of Allergy and Clinical Immunology. *Clin Exp Allergy* 2003; 33: 1484–1499.
3. Turjanmaa K. Diagnosis of latex allergy. *Allergy* 2001; 56: 810–812.
4. Nicolaou N, Johnston G A. Anaphylaxis following prick testing with natural rubber latex. *Contact Dermatitis* 2002; 47: 251.
5. Farrell A L, Warshaw E M, Zhao Y, Nelson D. Prevalence and methodology of evaluation for latex allergy among allergists in the United States: results of a cross-sectional survey. *Am J Contact Dermat* 2002; 13: 183–189.
6. Hamilton R G. Diagnosis of natural rubber latex allergy. *Methods* 2002; 27: 22–31.

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