

Title: A follow-up study of patients with natural rubber latex allergy



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Natural rubber latex (NRL) allergy is an important occupational health concern, particularly among healthcare professionals (HCPs). Numerous studies have demonstrated a significant decline in latex sensitisation among HCPs since the introduction of low-allergen (often powder-free) latex gloves.^{1, 2} There is limited data available on the long-term outcomes of latex-allergic patients.

The aims of our study were to evaluate the long-term outcomes of latex-allergic patients and to ascertain the proportion of patients whose investigations remain consistent with a diagnosis of latex allergy following a period of latex avoidance.

Patients with a diagnosis of type I hypersensitivity to latex were identified using a hospital database and invited to participate. Diagnosis had been made on the basis of symptoms compatible with latex allergy, a history of exposure to latex, in addition to positive skin prick test to latex extract and, or detection of latex-specific IgE. Included patients completed a questionnaire, underwent serum measurement of latex-specific IgE and skin prick testing to latex extract, positive and negative controls.

Twenty patients were included in the study. (Table 1) 85% were female. Mean age at diagnosis was 31 years (range 25-62). Mean duration since diagnosis at the time of the study was 16 years (range 4-26). Twelve patients (60%) had a history of atopy. In relation to symptoms of allergy at initial presentation, 15 patients (75%) had contact urticaria; 7 (35%) had rhinitis; 7 had respiratory symptoms of wheeze or shortness of breath; 5 (20%) had angioedema; 2 (10%)

had anaphylaxis. 35% (n=7) reported oral symptoms after ingestion of at least one food known to cross-react with latex.

60% were HCPs at the time of diagnosis. Half of patients (n=10) had changed occupation since diagnosis, but only 3 patients reported latex allergy as the reason for change. One further patient reported that they had required a change in their work duties due to their latex allergy. 80% of patients (n=16) felt their symptoms of latex allergy had regressed since diagnosis upon inadvertent exposure to latex.

In relation to compliance with allergen avoidance, 45% of patients (n=9) reported that they “always” avoided latex, with the remainder (n=11) avoiding latex “very often.” Patients performed well at informing HCPs of their latex allergy. 13 of 14 patients examined by a gynaecologist, and all patients who had attended a dentist or a surgeon informed their HCP of their allergy. Thirteen patients (65%) had suffered at least one allergic reaction to latex since diagnosis; in 5 of these patients, at least 1 reaction occurred in the context of a healthcare interaction.

At the time of the study, 70% of patients (n=14) had positive skin prick testing to latex extract (*Hevea brasiliensis*, 500µg/ml), while 30% (n=6) had negative skin prick testing. All patients with negative skin prick testing had no detectable latex-specific IgE. A latex use test was performed in 5 of these 6 patients, using a ProFeel® DHD™ Platinum Powder Free Latex Glove, containing 50 micrograms or less of total water extractable protein per gram of glove, and was negative in all

cases. These results suggest that there may be a proportion of patients with latex allergy who become de-sensitised to NRL following a period of avoidance.

In summary, we report a follow-up study of a small cohort of latex-allergic patients, and demonstrate a proportion of patients whose investigations no longer indicate latex allergy following a period of allergen avoidance. Larger studies are required to verify these findings and to explore their potential clinical significance.

<u>Patient number</u>	<u>Symptoms at initial presentation</u>	<u>Occupation at diagnosis</u>	<u>Allergic reaction since diagnosis (Y/N)</u>	<u>Skin prick test result at time of study</u>
1	Contact urticaria	Nurse	Y	Positive
2	Rhinitis Respiratory symptoms	Dietician	Y	Positive
3	Rhinitis Respiratory symptoms	Nurse	N	Positive
4	Contact urticaria	Nurse	Y	Positive
5	Rhinitis	Nurse	N	Negative
6	Contact urticaria, Angioedema	Farmer	N	Positive
7	Contact urticaria, Respiratory symptoms, Anaphylaxis	Midwife	Y	Positive
8	Contact urticaria, Respiratory symptoms	Phlebotomist	N	Negative
9	Contact urticaria, Rhinitis, Respiratory symptoms	Nurse	Y	Positive
10	Contact urticaria, Rhinitis	Unemployed	Y	Positive
11	Angioedema, Respiratory symptoms	Nurse	Y	Positive
12	Contact urticaria, Angioedema	Laboratory medical scientist	Y	Positive
13	Contact urticaria, Angioedema	Nursing student	Y	Negative
14	Contact urticaria, Angioedema, Respiratory symptoms	Nurse	N	Positive
15	Contact urticaria	Nursing Student	Y	Negative
16	Rhinitis, Anaphylaxis	Administration	N	Negative
17	Contact urticaria	Student	N	Negative
18	Contact urticaria	IT administrator	Y	Positive
19	Contact urticaria	Retailer	Y	Positive
20	Contact urticaria, Rhinitis	Student	Y	Positive

Table 1: Summary of study results

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1. Clayton TH, Wilkinson SM. Contact dermatoses in healthcare workers: reduction in type I latex allergy in a UK centre. Clin Exp Dermatol 2005; 30(3):221-5
2. Tarlo SM, Easty A, Eubanks K, et al. Outcomes of a natural rubber latex control program in an Ontario teaching hospital. J Allergy Clin Immunol 2011; 108(4):628-33