

Skin test responses to latex in an allergy and asthma clinic

Denis Hadjiliadis, MD, Khirron Khan, RN, and Susan M. Tarlo, MB, BS
Toronto, Ontario, Canada

Latex allergy has been well described in high-risk groups, such as health care workers. Although most patients with latex sensitivity are atopic, only one report of skin testing with a glove eluate in a North American allergy clinic population¹ and only one report assessing serum IgE antibodies in such a population² have been published. Glove eluates can vary widely in their latex allergen content, and assessment of serum IgE antibodies is less sensitive than skin prick testing. Therefore we undertook to assess in an allergy and asthma practice, the prevalence of positive skin test responses to a commercially available ammoniated raw latex solution (Bencard, Mississauga, Ontario, Canada), which has recently been shown to have a sensitivity of approximately 90% and a specificity of almost 100% for latex allergy.³

METHODS

In a hospital-based allergy and asthma adult outpatient practice in Toronto between February 1992 and January 1994, 224 consecutive newly referred patients (excluding 18 referred for assessment of suspected latex-related symptoms) underwent routine allergy skin prick testing for latex sensitivity.

Skin prick tests (SPTs) were performed with a group of 13 common aeroallergens and with raw ammoniated latex. All were commercially available extracts from Bencard. A negative control solution (diluent) and a positive control (0.1% histamine) were also used in all patients. Immediately before testing, patients were questioned about symptoms related to latex products, and the latex solution was significantly diluted in sterile water when appropriate (up to 1:1000) for the initial test, increasing by 10-fold concentrations if results were negative, up to the undiluted solution. Epinephrine and resuscitation equipment were available in all cases. Short-acting antihistamines were discontinued for at

Abbreviation used

SPT: Skin prick test

least 4 days before testing, and astemizole was discontinued for at least 6 weeks.

SPT responses were read at 10 minutes after application. The mean wheal diameter greater than that of the negative control response was graded as 1+ (1 to 2 mm), 2+ (3 to 5 mm), 3+ (6 to 9 mm) and 4+ (10 mm or greater). For this study, a response of 2+ or greater was considered positive. Atopy was defined as the presence of one or more positive (2+ or greater) SPT responses to the common aeroallergen extracts.

RESULTS

Among the 224 total patients tested, 65% were atopic; the mean age was 42 years, and 46% of the patients were male. Thirty percent had asthma, and 11% were health care workers. No adverse reactions to the SPTs, including the latex test, were noted. Ten patients had a positive SPT response to latex (prevalence, 4.5%). Another 11 patients had a borderline (1+) SPT response to latex. If these responses were considered positive, the clinic prevalence would be 9%. Although none of the 10 patients with definitely positive SPT responses were referred because of latex allergy (Table I), one patient had contact urticaria and asthma related to latex glove exposure as a hospital housekeeper. Six others described localized mild contact urticaria or dermatitis with latex glove use, but they had been able to limit such exposure. Only three patients had no symptoms related to latex contact, including a pathology laboratory technician who had worn latex gloves for 35 years.

All 10 patients with a positive SPT response were atopic; and among the atopic group, the prevalence of latex sensitivity was 10 of 146 (7.0%). All of the patients with positive SPT responses described some previous exposure to latex products through operations and/or use at work; six were exposed to latex in a hospital setting. Com-

From The Asthma Centre of The Toronto Hospital, Western Division, Toronto, Ontario, Canada.

Reprint requests: Susan M. Tarlo, MB, BS, The Toronto Hospital, Western Division, EC4-008, 399 Bathurst St., Toronto, Ontario, M5T 2S8, Canada.

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TABLE I. Characteristics of patients with a positive SPT response to latex

Age (yr)	Sex	Occupation	Atopy	SPT response to latex	Reason for referral	Exposure to latex, symptoms
48	F	Hospital housekeeper	Yes	4+	Asthma	Glove use, CU, OA
62	F	Former microbiology lab worker	Yes	3+	Food allergy	Former glove use, CD, food allergy, eczema, and asthma
28	F	Medical resident	Yes	3+	Anaphylaxis caused by foods, including banana	Glove use, CU
39	F	Graphic design artist	Yes	4+	Food allergy	Glove use, CU
29	M	Steel cutter	Yes	2+	Asthma aggravated at work	Glove use, mild CD
62	M	Pathology lab technician	Yes	2+	Urticaria caused by oranges	35 yr of glove use, no symptoms
25	M	Metal machine shop production	Yes	2+	Occupational aggravation of asthma	Former glove use, local itching and erythema
31	M	Water bottling plant worker	Yes	2+	Occupational aggravation of asthma	Former glove use for 1 yr, no symptoms
28	M	Hospital lab research assistant	Yes	2+	OA caused by lab rabbits	Gloves worn 3 to 4 yr, no symptoms
39	F	Former nurse	Yes	2+	Seasonal rhinitis and asthma	Former glove use, CD

CU, Contact urticaria; OA, occupational asthma; CD, contact dermatitis.

pared with the patients with negative SPT responses to latex, they had a significantly greater prevalence of atopy ($p < 0.01$) and were more likely to be involved in health care work ($p < 0.001$).

DISCUSSION

The results show that a significant proportion of patients in this hospital-based allergy and asthma practice had positive SPT responses to latex, although they were not referred because of symptoms self-attributed to latex. Among the atopic patients, the prevalence was 7.0%, which is only slightly lower than that reported in high-risk groups, such as operating room staff and latex glove manufacturers.

The overall prevalence of 4.5% found in this clinic is very close to the prevalence of 4.2% in an allergy practice in Germany as determined by skin testing with a glove eluate and natural latex extract.⁴ In contrast, the prevalence in another North American allergy practice in which SPTs with a glove eluate were performed was only 1%.¹ In a study of blood donors, serum anti-latex IgE was 6.5%.⁵ The lower response rate with glove eluate

may reflect a lower allergen content in the particular type of glove used.

The SPT is safe, sensitive, and very specific. A positive response in patients who have even mild contact urticaria after exposure to latex may have significant health implications. We therefore consider it to be a useful addition to a routine battery of skin tests in allergy practice.

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