

Type I Latex Allergy: A Follow-Up Study

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■ Abstract

Background: There are several studies that deal with the evolution of patients with occupational rhinitis/asthma as a result of immunoglobulin (Ig) E-mediated allergy to latex. However, none have focused on the course of this illness in non-occupational settings.

Objective: To ascertain patient compliance in individuals diagnosed with latex allergy with respect to following avoidance measures, as well as to determine the frequency and type of symptoms that emerged as a result of exposure to latex when receiving healthcare (surgery, gynecology, dentistry), as well as other sources of exposure.

Methods: This is a retrospective study of patients diagnosed with allergy to latex in our department over 11 years. Of the 24 patients, we were able to contact 23 (96%). Twenty were female. Mean age at diagnosis was 36 years (10-67). Mean time of follow-up was 5 years (0.1-11). At the time of diagnosis, patients were informed of the need to avoid contact with latex, with special emphasis given to surgical, gynecological, and dental exposures.

Results: Regarding latex exposures in healthcare settings, 5 patients underwent surgery. Four notified of their diagnosis, hence avoiding contact. The patient who failed to inform of his allergy developed laryngeal angioedema. Sixteen patients were exposed to latex during gynecological examinations: Of these, 13 avoided contact with latex gloves and three tolerated them. Twenty patients were exposed to latex during visits to the dentist. Of these, 19 avoided latex and one tolerated it. A further 7 patients (30%) presented allergic syndromes caused by other sources of exposure. These included 4 episodes of contact-induced angioedema due to gloves and balloons and 4 episodes of bronchospasm as a result of being present in atmospheres with high latex contents – hospitals and rooms with balloons. Finally, 4 patients (17%) manifested allergic episodes induced by latex-related foods.

Conclusions: The vast majority of the patients diagnosed with latex allergy informed of their diagnosis when seeking medical care during which they would be exposed. However, 30% of the patients presented some kind of allergic episode due to another type of exposure and 17% presented allergies to related foods.

Key Words: Latex. IgE-mediated allergy. Follow-up.

■ Resumen

Antecedentes: La evolución de los pacientes con rinitis y asma ocupacional, producida por alergia IgE-mediada a látex, ha sido objeto de estudio en diversas publicaciones. Sin embargo, no hay estudios que valoren la evolución de los pacientes con patología IgE-mediada a látex fuera del ámbito ocupacional.

Objetivos: Conocer el seguimiento de las medidas de evitación a látex en pacientes diagnosticados de alergia al mismo. Asimismo conocer la frecuencia y tipo de síntomas sufridos como resultado de la exposición a látex en diversas situaciones, y fundamentalmente en el momento en que reciben atención sanitaria con un mayor riesgo de contacto (cirugía, exploración ginecológica, odontología).

Métodos: Estudio retrospectivo de los pacientes diagnosticados de alergia a látex, a lo largo de once años, en la Unidad de Alergia. De los 24 pacientes, se pudo contactar con 23 (96%). 20 de ellos eran mujeres. La media de edad en el momento del diagnóstico era de 36 años (10-67). La media del tiempo de seguimiento fue de 5 años (0.1-11). Al ser diagnosticados, se les informó de la necesidad de evitar el contacto con látex, insistiendo en los casos de tener que someterse a cirugía, exploraciones ginecológicas u odontológicas.

Resultados: Exposición a látex: A) Al recibir atención sanitaria: 1) Cirugía: 5 pacientes fueron sometidos a cirugía; cuatro de ellos avisaron de su diagnóstico, y se evitó el contacto. El paciente que no avisó de su alergia desarrolló un angioedema laríngeo. 2) Exploración ginecológica: de 16 pacientes expuestos, 13 evitaban contacto con guantes de látex. Tres lo toleraban. 3) Exploración odontológica: de los 20 pacientes expuestos, 19 evitaban el látex. Uno lo toleraba. B) Otras fuentes de exposición: 7 pacientes (30%) presentaron síntomas de alergia a látex: 4 episodios de angioedema de contacto –guantes, globos- y 4 episodios de broncoespasmo al estar en ambientes con alto contenido en látex –hospitales, habitaciones con globos-. C) Alimentos: 4 pacientes (17%) manifestaron cuadros alérgicos por alimentos relacionados con el látex.

Conclusiones: La gran mayoría de los pacientes diagnosticados de alergia a látex, avisan de su patología cuando van a recibir atención sanitaria en la que irían a tener exposición al mismo. Sin embargo, un 30% de los pacientes presentaron algún cuadro alérgico debido a otro tipo de exposición, y un 17% tuvo episodios alérgicos por alimentos relacionados con látex, en una media de 5 años de seguimiento tras el diagnóstico.

Palabras clave: Alergia IgE-mediada. Látex. Seguimiento.

Introduction

Immunoglobulin (Ig) E-mediated latex allergy has become a serious problem. The apparent epidemic of the disease dates back to the early 1980s. Sensitization occurs through contact with the skin, mucosa, and wound, or by inhalation of airborne allergens released from powdered latex gloves. There are two high-risk groups: health-care workers and patients with urogenital abnormalities.

Patients with latex allergy are advised to avoid contact insofar as possible, particularly in health-care settings. The risk of allergic reactions is particularly high in three specific situations in this field: surgery, dental practice, and exposure to latex gloves in gynecological examinations.

Follow-up of patients allergic to latex has been carried out in the healthcare sector, particularly in cases of occupational asthma [1-3].

The aim of this study was to describe the clinical outcome of latex-allergic patients in relation to compliance with advice to avoid contact, as well as to determine the frequency, cause, and symptomatology of allergic episodes due to contact with latex outside the occupational setting. A final objective was to record the appearance of allergic reactions to latex cross-reactive foods during the follow-up.

Methods

Patients were recruited from the Allergology Department. During the period 1993-2003, 24 subjects were diagnosed with latex allergy on the basis of suggestive symptoms and the detection of specific IgE, by skin prick test (ALK-Abelló, Madrid, Spain) or CAP system (Pharmacia, Upsalla, Sweden). The diagnosis of food allergy was made based on clinical history (urticaria, oral allergy syndrome, anaphylaxis) and the prick-by-prick test with the offending food and/or a positive CAP test.

Patient characteristics are presented in Table 1. The group included 20 females and 4 males. Mean age was 36 years (range 10-67). Eighteen subjects were healthcare professionals.

Twenty-two patients (92%) had contact urticaria; eleven had rhinitis when exposed to latex (46%), six had asthma (25%), and three had anaphylaxis (12%). Most subjects had presented problems with latex over the past several years (mean duration of symptoms: range 0.5-14 years). Twenty-two patients had a positive skin prick test to latex. In two cases a prick test could not be performed and CAP test results to latex were positive. As regards cross-reaction with food allergies, six patients were allergic to kiwis (25%), five to chestnuts (21%), five to bananas (21%), and one to avocados (4%).

Table 1. Patient Characteristics*.

Patient	Age	Sex	Symptoms	Years†	Prick test	Food allergy
1	38	F	CU	14	+	K
2	22	F	CU, R	0.5	+	K, Ch
3	25	F	CU	0.5	+	-
4	18	F	CU	6	+	-
5	49	F	CU	2	+	-
6	47	F	CU, R	7	+	-
7	10	M	CU, A	9	+	K
8	67	M	An	11	+	K, Ch
9	45	F	CU	10	+	-
10	42	F	CU, R	8	+	Ch, B, Av
11	48	F	CU, R, A	6	+	-
12	58	F	CU	?	+	Ch, B
13	21	F	CU	5	+	B
14	28	F	CU, An	10	ND	-
15	38	F	CU, R	6	+	-
16	34	F	CU, An, R, A	4	+	K, B
17	35	M	CU, R	6	+	-
18	42	F	R	2	+	-
19	36	F	CU, R	1	+	-
20	50	F	CU, A	10	+	-
21	25	F	CU	1	+	-
22	41	F	CU	2	ND	-
23	32	F	CU, R, A	4	+	K, Ch, B
24	34	F	CU, R	12	+	-

* CU indicates contact urticaria; R, rhinitis; A, asthma; An, anaphylaxis; K, kiwi; Ch, chestnut; B, banana; Av, avocado; ND, no data.

† Time since onset of symptoms.

A prick test was considered positive if the wheal size had a mean diameter 3 mm larger than the wheal of the negative control. A CAP test to latex was performed on patient 14 (3.4 kU/L), and patient 22 (3 kU/L). A positive CAP result was defined as a value > 0.35 kU/L.

Table 2. Questionnaire.

1. Follow-up period (years).
2. Have you undergone surgery? If so, did you warn your surgeon/anesthetist of your latex allergy?
3. If you have been examined by a gynecologist, did you inform him/her of your disease? Were latex gloves avoided?
4. When you went to a dentist, did you tell him/her that you are allergic to latex? Were latex gloves avoided?
5. Have you eaten kiwi, chestnut, banana, or avocado? If so, did you have any symptoms?
6. Have you suffered from an allergic reaction due to latex?

At diagnosis, all subjects received oral and written instructions on preventive measures to avoid latex goods, especially in the healthcare environment (surgery, dentistry, and gynecology). Outside the healthcare setting, they were advised again both orally and in writing to avoid the most common latex goods such as gloves and balloons. Healthcare workers were advised to avoid exposure to latex in occupational settings and to use gloves made of alternative materials. In a few cases a change of department was necessary.

Patients were monitored throughout the course of their illness. No attempt was made to reevaluate latex sensitization.

In 2004, subjects were enrolled for a follow-up evaluation. Between January and April a questionnaire (Table 2) was given to all patients except for one who had died from causes unrelated to her latex allergy (Patient n° 12).

Results

The mean follow-up of patients was 5 years (range 0.1-11).

Patient compliance and outcome were analyzed in three specific healthcare settings with special risk of exposure to latex: surgery, gynecological examinations and visits to the dentist. Five patients had undergone surgery. Four informed the surgeon of their allergy and latex was avoided. The one who failed to report the allergy suffered intraoperative angioedema of the upper airway. In gynecological settings, 13 of the sixteen patients who had routine gynecological examinations avoided latex gloves. Another three tolerated them. Finally, of the twenty subjects who were exposed during visits to the dentist, nineteen avoided latex. One patient tolerated contact with latex gloves on lips and in the mouth.

With regard to allergic reactions in non-healthcare settings, 6 patients (26%) suffered allergic episodes. There were four events of contact angioedema due to balloons or gloves, and three asthma attacks resulted from inhalation of latex proteins while visiting hospital wards or being in rooms with balloons.

Four patients (17%) had allergic reactions to foods (chestnuts, avocados, tomatoes, and red peppers). In each case it was the first allergic episode with these foods. There was one anaphylactic reaction. Half of these patients had suffered from allergic episodes to latex-related foods prior to diagnosis.

Discussion

Contact with latex is currently commonplace in many different situations. Because latex is so ubiquitous, patients

diagnosed with latex allergy have a high risk of developing clinical symptoms. In some cases, exposure goes unnoticed.

For some patients, the possibility of a fatal or near-fatal reaction in some of the allergic episodes to latex represents a permanent and significant threat.

With all of this in mind, the natural course of IgE-mediated latex allergy is cause for great concern in patients. It is important to note that the present study does not refer to latex allergy in the occupational setting, as in the studies by several authors [1-4]. The focus in this follow-up study was specifically on latex exposure in non-occupational situations, particularly in the healthcare environment. Surgery, dentistry, and gynecology are the three healthcare settings in which latex-sensitive individuals are most likely to present problems. In this respect, I have been unable to find other articles with the same objective in the literature.

The sex distribution in the current article is worthy of note: Eighty-three percent of the patients were female. Several occupational follow-up studies have shown similar results [2-5].

Most subjects in this report (75%) were healthcare workers. This underscores the well-known fact that healthcare professionals represent a high risk population. It is also indicative of the fact that they have easier access to medical departments in hospitals. Latex immunotherapy was not considered in any patients, as a good clinical response was obtained from avoiding latex in the work setting, and it was easy for some patients to change the specific type of work they performed on the few occasions this was considered.

At diagnosis, I avoided giving patients a comprehensive list of latex goods. They were instructed on measures to avoid latex materials, particularly in surgery, dentistry, and gynecology. Outside the healthcare setting, they were advised to avoid the most common latex goods such as gloves and balloons. Long lists of latex materials were avoided because they were deemed to be of no use in clinical practice and in order to prevent excessive concern in the patients over the threat of latex contact in their daily lives.

Patient compliance was very high in terms of reporting their latex allergy when undergoing surgery or when consulting a gynecologist or dentist. Approximately 90% of the patients notified their physicians of their diagnosis, hence avoiding latex contact. Interestingly, in the small group of patients who did not inform of their diagnosis, all tolerated the contact with latex, except for one who suffered an intraoperative laryngeal angioedema.

Nonetheless, 26% of the patients had an allergic reaction caused by exposure to latex outside of the healthcare setting.

Half of these were mild episodes of angioedema due to contact with balloons or gloves. The other half were attacks of bronchospasm due to inhalation of latex allergens when coming into a room with balloons or when visiting people in hospitals. This last point underlines the importance of reducing levels of airborne latex allergens in hospitals. It has been shown to be necessary not only for preventive and treatment purposes among healthcare workers, but also to avoid allergic reactions in patients who are admitted or merely visiting hospitals.

At diagnosis, nine patients (37%) were allergic to the four main latex cross-reactive foods (kiwis, chestnuts, bananas, and avocados). It is estimated that almost half of latex-sensitized patients present an associated food allergy [6]. During the follow-up period, none of the nine patients had been exposed to foods involved in previous allergic reactions. Throughout follow-up, 17% of the patients suffered an allergic episode to foods. In each case the episodes were caused by new foods. Half were due to foods which are usually related to latex allergy. In the other half, tomato, which is less frequently associated, was involved in one case, and red pepper, seldom described in this field, was responsible in the other case. Only one of these reactions was severe (anaphylaxis).

Although recall bias and symptom underestimation are possible due to the retrospective design of the study, most patients were monitored frequently throughout the course of their illness and not only at the time the questionnaire was answered. Hence, the disadvantages of the study design are diminished.

In summary, the follow-up of a group of latex-allergic patients showed that individual awareness of the danger of exposure in the healthcare setting is high and they report their diagnosis so as to avoid contact. It is clearly essential that patients report their diagnosis when they are going to have a high degree of latex contact, as is the case with surgery. However, allergic reactions to latex frequently occur in other situations, probably suggesting that patients are less vigilant about avoiding latex exposure outside the healthcare setting. It is particularly worthy of note that patients may suffer symptoms while visiting hospitals. As for latex-related food allergies, the study showed that patients were able to avoid those foods which had been responsible for previous reactions.

Acknowledgments

I thank M^a Carmen Mínguez for her collaboration in the present study.

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■ *Manuscript submitted September 27, 2006; accepted November 23, 2006.*

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