



## Latex allergy

Constance H Katelaris



**L**atex allergy (LA) is an IgE-mediated reaction to latex proteins. It is a relatively new phenomenon, first described convincingly in 1979 and increasingly recognised in subsequent years.<sup>1</sup> Much has been achieved from years of research into the problem, including:

- an understanding of the causes and mechanism of sensitisation;
- implementation of effective public health measures to reduce the incidence of sensitisation;
- identification of the major allergens of natural rubber latex; and
- delineation of cross-reactive allergens.

**Who is at risk?** LA is primarily an occupational disease, with health care workers and other highly exposed workers at greatest risk of becoming sensitised. Other at-risk groups include children with spina bifida and people who have had multiple surgical procedures.<sup>1</sup>

Clinical signs of LA occur in less than 1% of the general population.<sup>2</sup> Screening sera from blood donors shows that about 7% of samples contain latex-specific IgE antibodies,<sup>2</sup> but this observation can be explained by cross-reactivity between latex and certain plant food and pollen allergens.

**Risk factors.** Atopy is a risk factor for developing LA: a hospital worker who is atopic has a 17% greater chance of developing LA than a non-atopic worker. Australian and other studies have demonstrated that pre-existing hand dermatitis is also a major risk factor for occupational sensitisation. But the greatest risk factor for developing LA is high exposure to powdered latex gloves.

**Routes of sensitisation and clinical features.** Exposure may occur by cutaneous contact, in which case urticaria is the most common clinical manifestation. Sensitisation via the respiratory route occurs when there is airborne allergen in the environment, most commonly caused by airborne powder particles carrying latex allergen. This exposure may produce systemic reactions, but more often produces symptoms of acute rhinoconjunctivitis. Occupational asthma secondary to LA results from inhalation of airborne latex protein-bearing particles. This explains why cases of asthma caused by LA are almost only seen in people with occupational exposure. Contact with latex proteins via the mucosal route, such as occurs during surgical or dental procedures, is most likely to result in systemic allergic reactions such as bronchospasm, hypotension and shock.

Rubber glove use may also lead to problems with hand dermatitis, which may be due to chronic irritation or may be secondary to delayed type hypersensitivity reactions to preservative agents in the rubber. Both types of dermatitis are more common than LA.

**Diagnosis.** Diagnosis of LA depends on a high level of suspicion in the correct clinical setting. Confirmation is sought by performing skin prick tests and/or in-vitro assays for specific IgE. However, there is still no uniformly satisfactory diagnostic test reagent available. Several manufacturers have produced extracts for skin testing and in-vitro reagents, but these lack the high degree of efficiency desirable for a diagnostic test.

### Fact or fiction — true or false?

People with latex allergy must avoid all rubber products (T/F)

False. The greatest risk to a person with latex allergy is contact with “dipped” rubber products (eg, gloves, condoms, balloons). Some hard or black rubber products may not pose a risk. Patients should seek specialist advice on which products to avoid. ◆

The major allergens of latex have been identified, and many are now cloned and sequenced. Hopefully this will lead to the development of improved diagnostic assays and new immunotherapy vaccines in the future.<sup>1</sup>

Clinically important cross-reactivity exists between latex and various plant-derived foods, including nuts, kiwifruit, avocado, banana, potato and tomato. This is due to structural and biological similarities between

the various protein allergens.

**Management.** Keeping sensitised individuals safe from allergic reactions on exposure to latex proteins depends on making a correct diagnosis, notifying relevant medical and dental personnel of the allergy, and being prepared to treat an acute reaction. People with LA should wear a MedicAlert bracelet (Australia MedicAlert Foundation, Adelaide, SA) and, if necessary, carry an adrenaline auto-injector. Education about the possibility of cross-reacting allergens and advice about alternative, safe, non-latex products (including polyurethane condoms) are important.

Small studies of immunotherapy for LA have shown encouraging results, but further work needs to be done before this strategy can be recommended.<sup>1</sup>

**Workplace measures.** With the correct measures in place, there is no reason why a health care worker sensitised to LA cannot work in health care facilities. Sensitised individuals should wear non-latex gloves. If others working in the facility continue to use latex gloves, these should be powder-free with a low protein content.

Universal adoption in the workplace of low-protein, non-powdered gloves and avoidance of latex gloves in non-clinical areas (eg, for kitchen and cleaning personnel) can dramatically reduce exposure and risk of sensitisation.<sup>3</sup> Workers should be educated about the early manifestations of LA and the need for early consultation with an appropriate specialist if LA is suspected. Good hand-care education is essential in workplaces where there is frequent washing and gloving. Evidence is emerging that continuing avoidance may reduce sensitisation to LA, at least in some individuals.

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1 Charous BL, Blanco C, Tarlo S, et al. Natural rubber latex after 12 years: recommendations and perspectives. *J Allergy Clin Immunol* 2002; 109: 31-34.

2 Saxon A, Ownby D, Huard T, et al. Prevalence of IgE to natural rubber latex in unselected blood donors and performance characteristics of AlaSTAT testing. *Ann Allergy Asthma Immunol* 2000; 84: 199-206.

3 Tarlo S, Easty A, Eubanks K, et al. Outcomes of a natural rubber latex control program in an Ontario teaching hospital. *J Allergy Clin Immunol* 2001; 108: 628-633. □