

## Latex Allergy and Occupational Asthma (7/04)

Latex allergy and occupational allergy in health care workers. Amr S, Bollinger ME. Environ Health Perspect 2004;112:378–381.



The prevalence of natural rubber latex (NRL) allergy has been estimated to be 5-18% in health-care personnel (HCP) and latex exposure has been one of the leading causes of occupational asthma in the last several years. Two cases of nurses who developed sensitivity to NRL, both with dermatologic symptoms and respiratory symptoms that included asthma are presented. The patients' allergies to NRL were confirmed on the basis of clinical history, a positive skin test to latex, and the presence of latex-specific immunoglobulin E (IgE) serology by radioallergosorbent test (RAST). Both patients worked in the same community hospital for approximately 20 years. Following the diagnosis of allergy to latex, both

patients avoided direct skin contact with latex, but they continued to work in the same respective environments, where powdered latex gloves and other potentially sensitizing chemicals were used. Instead of improving, the clinical condition of the patients worsened and they remained symptomatic, even after they were removed from their workplace. Their airways reacted to low levels of a variety of sensitizers and irritants in the environment. Both nurses were referred for vocational rehabilitation.

**DIS Comment: Latex allergy (type I hypersensitivity to latex proteins) can be a serious systemic allergic reaction, usually beginning within minutes of exposure but sometimes occurring hours later and producing varied symptoms. More common reactions include runny nose, sneezing, itchy eyes, scratchy throat, hives, and itchy burning skin sensations. More severe symptoms include asthma marked by difficult breathing, coughing spells, and wheezing; cardiovascular and gastrointestinal ailments; and in rare cases, anaphylaxis and death.<sup>1,2</sup> The American Dental Association (ADA) began investigating the prevalence of type I latex hypersensitivity among dental health-care personnel (DHCP) at the ADA annual meeting in 1994. In 1994 and 1995, approximately 2,000 dentists, hygienists, and assistants volunteered for skin-prick testing. Data demonstrated that 6.2% of those tested were positive for type I latex hypersensitivity.<sup>3</sup> Data from the subsequent 5 years of this ongoing cross-sectional study indicated a decline in prevalence from 8.5% to 4.3%.<sup>4</sup> This downward trend is similar to that reported by other studies and might be related to use of latex gloves with lower allergen content.<sup>5-7</sup>**

**NRL proteins responsible for latex allergy are attached to glove powder. When powdered latex gloves are worn, more latex protein reaches the skin. In addition, when powdered latex gloves are donned or removed, latex protein/powder particles become aerosolized and can be inhaled, contacting mucous membranes.<sup>8</sup> As a result, allergic patients and DHCP can experience cutaneous, respiratory, and conjunctival symptoms related to latex protein exposure. DHCP can become sensitized to latex protein with repeated exposure.<sup>9-13</sup> Work areas where only powder-free, low-allergen latex gloves are used demonstrate low or undetectable amounts of latex allergy-causing proteins<sup>14-16</sup> and fewer symptoms among HCP related to natural rubber latex allergy. Because of the role of glove powder in exposure to latex protein, the National Institute for Occupational Safety and Health (NIOSH) recommends that if latex gloves are chosen, HCP should be provided with reduced protein, powder-free gloves.<sup>1</sup> Nonlatex (e.g., nitrile or vinyl) powder-free and low-protein gloves are also available.<sup>17,18</sup> Although rare, potentially life-threatening anaphylactic reactions to latex can occur; dental practices should be appropriately equipped and have procedures in place to respond to such emergencies.**

**DHCP should be familiar with the signs and symptoms of latex sensitivity.<sup>1,17,19,20</sup> A physician should evaluate DHCP exhibiting symptoms of latex allergy, because further exposure could result in a serious allergic reaction. A diagnosis is made through medical history, physical examination, and diagnostic tests. Procedures should be in place for minimizing latex-related**

health problems among DHCP and patients while protecting them from infectious materials. These procedures should include 1) reducing exposures to latex-containing materials by using appropriate work practices, 2) training and educating DHCP, 3) monitoring symptoms, and 4) substituting nonlatex products where appropriate.<sup>1</sup>

## References

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