

Committee report

Task Force on Allergic Reactions to Latex

Reports of severe, immediate-type allergic reactions after latex exposure have only appeared in the past 10 years. Many important questions about latex allergy cannot be answered from present knowledge. The following document attempts to suggest a reasonable approach to recognizing, testing, and providing care for latex-sensitive persons on the basis of current limited knowledge.

Latex* has been shown to cause immediate and delayed hypersensitivity reactions. In recent years, immediate hypersensitivity reactions, including systemic anaphylaxis, have been reported with increasing frequency. Exposure to latex can occur in both medical and nonmedical environments. The most severe reactions reported have occurred in health care settings.^{1, 2}

Although anyone may become sensitized to latex, three groups appear to be at higher risk than the general population. These include: children with meningomyelocele (spina bifida) or urogenital abnormalities^{3, 4}; workers with industrial exposure to latex⁵; and health care workers.⁶ Persons who have undergone repeated surgery for any reason are also believed to have increased risk of latex allergy, but surveys of this group have not been done. As with some other allergic conditions, cutaneous exposure leads to less severe reactions than mucosal or parenteral exposure.

The likelihood that a significant subpopulation of patients is at risk for a life-threatening allergic reaction to antigens in latex should be of grave concern to all physicians. There is as yet no standard screening procedure for evaluating latex allergy. Nonetheless, the Task Force on Allergic Reactions to Latex believes that the following protocol should be considered for all patients in whom latex exposure is anticipated.

*"Latex" has several meanings, including natural rubber, the sap used as the raw material for natural rubber, and water-soluble acrylic-based paints (which contain no natural rubber). In this report, "latex" will be used to designate "natural rubber."

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PROTOCOL

I. Patients in high risk groups should be identified.

Comment. High-risk populations include: patients with spina bifida and urogenital abnormalities; doctors, nurses, dentists, and others who wear latex gloves regularly; and workers employed in the manufacture of rubber products.

II. All patients, regardless of risk group status, should be questioned about a history of latex allergy.

Comment. A history suggestive of reactivity to latex includes swelling or itching of lips from blowing up balloons; swelling or itching of lips or mouth after dental examinations; swelling or itching of hands after contact with rubber gloves; local swelling and itching after vaginal or rectal examinations; swelling and itching after the use of condoms or diaphragms; or local swelling or itching from contact with other rubber products. Other historical information that may suggest increased risk of latex allergy includes hand eczema; previous, unexplained anaphylaxis; oral itching after eating bananas, chestnuts, or avocados; and multiple surgical procedures in infancy.

III. All high-risk patients should be offered testing for latex allergy.

Comment. At present, there is no standard test for latex allergy. Skin testing with a latex extract or glove extract may constitute the best available rapid and accurate diagnostic procedure.^{5, 7-11} However, anaphylaxis has occurred during epicutaneous skin testing of patients with spina bifida, as well as in patients with a history of latex-induced anaphylaxis.^{5, 12} Appropriate care should be exercised in testing these patients. In vitro testing methods offer promise, especially in settings in which skin testing is not routinely performed or for those patients in whom skin tests are contraindicated.^{2, 5, 13} Unfortunately, in vitro tests may not be sensitive enough to detect all persons who may be at risk from latex contact. There is at this time no consensus on the best antigen to be used for in vitro or in vivo tests.

IV. Procedures on all patients with spina bifida, regardless of history, should be performed in an environment free of latex.

Comment. Current studies indicate that the incidence of reactions in patients with spina bifida who have negative histories and skin test results is small. However, the risk of sensitization in patients with spina

bifida was as high as 34% in one series,⁴ suggesting that exposure should be minimized. Other high-risk patients, among whom the incidence of latex allergy appears to be lower, may not warrant such precautions, provided that there is no history of latex allergic reactions. However, the possibility of allergy to latex should be discussed with these patients, and the possibility of using a latex-free environment should be considered if surgery or other procedures are required.

V. Procedures on all patients with positive history, regardless of risk group status, should be performed in an environment free of latex.

Comment. A positive history includes any immediate hypersensitivity reaction associated with latex exposure. In addition, patients with eczema associated with latex glove use should be considered to have a positive history. Among health care workers, latex glove eczema may be a precursor to type I reactions. Because there is uncertainty about whether complete antigen avoidance can be achieved, pretreatment with antihistamines and corticosteroids may be advisable. However, these regimens have been devised and tested to prevent radio-contrast media reactions and not antigen-induced mast cell activation. Pretreatment is not a replacement for antigen avoidance. All procedures on patients with positive histories should be performed in a setting in which anaphylaxis can be treated.

VI. An environment free of latex is one in which no latex gloves are used by any personnel. In addition, there should be no latex accessories (catheters, adhesives, tourniquets, anesthesia equipment) that come into direct contact with the patient.

Comment. Some investigations have suggested that antigen exposure may occur through airborne particles¹⁴ and through intravenous fluids.¹⁵ Thus for surgery on patients with prior anaphylaxis or a documented history of aerosol-induced reactions, extreme avoidance measures should be taken. No personnel should wear latex gloves in the room. If available, intravenous solutions and tubing without latex injection ports should be used. If the only tubing available has latex ports, injections should be given through a stopcock system. Medication stored under latex closures should not be used if a substitute is available in a nonlatex-covered storage vial. Personnel must wash any retained latex off their hands and change scrub attire if they have contact with latex products. Latex products should not be stored in the operating room.

Internal components of an anesthesia machine or high-pressure gas tubing may be lined with latex. Therefore it may be impossible to make an operating room suite 100% latex-free. A list of safe products to use should be prepared through contact with manufacturers who certify in writing that the product is latex-free.

VII. Low-risk patients with negative histories are extremely unlikely to react to latex. At this time, routine testing is not recommended for persons with negative histories.

VIII. Patients identified as latex allergic by either history or testing should be advised to obtain a Medic Alert bracelet* and self-injectable epinephrine. Medical records should be appropriately labeled.

In addition, the Committee makes the following recommendations.

1. Medical and recreational devices should be labeled and certified as to natural rubber content.
2. Manufacturers of natural rubber products, as well as growers and natural rubber producers, are encouraged to work closely with investigators to identify key antigen(s) and adopt strategies to decrease and if possible eliminate the antigenic components of their products.
3. All health care facilities and providers should be prepared and willing to offer latex-free procedures according to the level of service provided.

SUMMARY

In spite of increasing awareness of latex allergy in the medical and lay communities, many of our colleagues are still not sufficiently knowledgeable about this condition. In these cases, the allergist-immunologist should serve not only as a physician consultant but also as a patient advocate. Letters, phone calls, and/or personal appearances before school boards, employers, patient care committees, infection control committees, medical groups, and industrial representatives may be necessary to protect patients with this condition.

The transmission of bloodborne diseases is one of the most pressing public health concerns of our time. Latex gloves and condoms have been essential parts of a worldwide strategy to address this issue. Current Food and Drug Administration regulations impose the same water leak standards on all medical gloves, regardless of manufacturing material or method.¹⁶ However, there are, at this time, no latex-free condoms that prevent the transmission of sexually transmitted disease. In our research efforts we must cooperate with our

*Medic Alert Foundation International, Turlock, Calif.

colleagues in infection control and industry to provide effective and nonantigenic barriers to disease transmission.

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