American Latex Allergy Association

Diagnosis of Latex Allergy

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Michelle L. Altrich PhD

Clinical Laboratory Director, Viracor-IBT Laboratories, Lee?s Summit, MO

Background

Products containing natural rubber are found in both medical products: gloves, surgical tubing, masks etc. and everyday products: balloons, sports equipment, etc. Natural rubber products are made from latex from the *Hevea brasiliensis* tree. The crude latex, usually collected in ammoniated solution to prevent microbial growth, contains an array of cellular proteins, lipids, and amino acids. These are the allergens that sensitize and pose a risk for health care workers, rubber industry workers, spina bifida patients and others who have had multiple surgeries.

Although latex allergy prevalence is less than 1% in the general population, its prevalence in health care workers and spina bifida patients remains higher.[1-4] While both health care workers and spina bifida patients have increased incidence of latex sensitization, the reasons behind the increased risk differ between these groups.[5]

The first case of latex allergy dates back to the 1920s.[4] Latex sensitization has decreased in recent years, but has not been eliminated. A recent study by Kelly and associates has demonstrated that reducing powdered latex gloves in the health care setting decreased latex sensitization.[6] *In vitro* IgE tests and skin prick tests can aid in the diagnosis of latex allergy.

Laboratory Testing

In vitro IgE tests include both the Phadia ImmunoCAP for latex which contains Natural rubber from *Hevea brasiliensis*, without ammonia treatment,[7] Hycor?s **HYTEC 288 Plus** [1] system, and other laboratory developed tests such as the Viracor-IBT Latex Radioimmunoassay (RIA) Panel. The Latex RIA Panel IgE tests relies on the following three latex antigen preparations to aid in the identification of patients sensitive to natural rubber

products:

1. Ammoniated Latex (AL). Proteins were isolated from Malaysian *Hevea brasiliensis* latex collected in ammonia, the form usually used to manufacture dipped products.

2. Non-Ammoniated Latex (NAL) or Buffered Latex. To preserve the antigenic integrity of all proteins, latex was collected in a neutral pH buffer using the method developed by the FDA to prepare reference extracts.

3. Glove Latex (GL). An aqueous extract prepared from a commercial latex exam glove.

In the latex RIA assay the allergens (NAL, AL, or GL) are independently coupled to microtiter wells. Serum is added and latex-specific IgE bind to the coated allergens. Unbound IgE is washed away and bound IgE is detected with a radio-labeled anti-human IgE. Excess radio-labeled antibody is washed away and bound antibody is measured using a gamma counter. Latex-specific IgE is quantified by comparing the signal in the patient sample to a calibration curve.

In an unselected subset of patients with positive Latex RIA panel test results, 45 percent were positive to just NAL , 8 percent to only AL, and 5 percent to only GL. Twenty percent were positive against all three allergens; with the remaining patients positive to two of the three allergens (internal data).

Test Interpretation

As with any allergy test (skin test or in vitro), positive test results are sometimes observed in patients with no clear history of an adverse reaction. In addition, patients with clinical disease may not always test positive with one of the latex allergy tests.[3,8] Some studies suggest that evaluating the patient?s total IgE along with latex specific IgE can aid in the evaluation of latex specific IgE. Specifically, patients with a positive history but latex IgE negative who have a total IgE of less than 100 IU/mL are more at risk for a reaction and should have follow-up skin prick tests done.[3]

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Documents

Diagnosis of Latex Allergy.M.Altrich.10.2012.pdf[3]

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