Detection of Immunoglobulins Specific for Common Substances: Sneezes and Itches

"Allergy" means "changed reactivity." In recent years, "allergy" has become synonymous with Type I hypersensitivity (IgE-mediated allergy). Because allergic diseases often begin in childhood, CMH has a very active Immunology Laboratory. Development of allergic disease is associated with an allergic constitution called atopy. Atopy is due to heredity and environmental factors and reflects an increased production of allergen-specific IgE antibodies. Symptoms of allergy vary in complexity, severity, and organ manifestation as a function of age and exposure and can include eczema, rhinitis, conjunctivitis, bronchoconstriction, vomiting, diarrhea, and in rare cases, anaphylaxis. Symptoms seen on exposure can be as simple as itchy eyes or as complicated as asthma and urticaria. Chronic reactions can involve skin (eczema), nose (rhinitis) or lungs (asthma).

The presence of specific IgE in an individual can be determined by in vitro and in vivo methods. Allergy specialists perform skin prick testing by placing a specific material extracted from a known source on the skin and slightly breaking the skin surface with a needle. Specific IgE can also be determined in the laboratory via enzyme immunoassay. We use the Pharmacia CAP System™ or UniCAP® for IgE determinations. This has been shown to correspond well with clinical diagnoses made by specialists with a sensitivity of 94% and specificity of 87%. Experience has shown that the precision of in vitro determinations for specific IgE antibodies may correspond better with clinical diagnosis by an allergy specialist than with traditional skin tests. The in vitro and in vivo tests are therefore regarded as complementary tests in the management of the allergic individual.

There is currently a very large menu of specific antigens available for IgE testing. These include 27 weeds, 39 grasses, 27 molds, 26 mites and insects, 49 animals, and 182 foods. We do not stock all of them, but we do keep those commonly ordered by CMH physicians, including dog, cat, dust mite, ragweed, oak, penicillin, milk, and egg. As physicians gain experience with specific IgE determinations, the clinical usefulness and the demand for this type of testing will increase, and we may alter our menu.
News from Microbiology and Virology

Macrolide-Resistant Group A Streptococcus

The April 18 issue of “The New England Journal of Medicine,” reported an outbreak in Pittsburg of pharyngeal group A streptococcus resistant to erythromycin, frequently prescribed to patients allergic to penicillin. The Microbiology Laboratory did a survey of 45 group A streptococcus isolates in late April and May and found no resistance to erythromycin. There was one isolate that was intermediate in susceptibility. The Lab will continue to monitor this situation periodically and will let you know if significant resistance is observed. For now, the Microbiology Laboratory will not test pharyngeal group A strep for sensitivities. If a Rapid Strep assay is positive, there will be no culture follow-up. Negative Rapid Strep assays will be confirmed in culture. If a clinician wants susceptibility testing, it is important to call the lab ahead of time so the specimen will not be discarded.

C. Difficile Toxin Testing

C. difficile, associated with pseudomembranous, antibiotic-associated colitis, and diarrhea, produces two toxins, A and B. Toxin A is clearly pathogenic. Toxin B produces toxicity of cells in culture but its role in vivo has been controversial. However, recent data indicates that Toxin A negative organisms can be pathogenic and Toxin B is the assumed pathogenic mechanism. Generally, both toxins are produced together. In the past, CMH used a test, which screened only for Toxin A. However, there was some concern that a few strains produce only toxin B, and the Microbiology Lab was unable to detect Toxin B. The Microbiology Lab recently looked at a test that tests for both Toxin A and B but does not discriminate between them. The new test certainly detects Toxin A as well as the old test. However, we were unable to validate testing for Toxin B because neither our lab nor the company could locate strains that only made Toxin B. We will continue to try to obtain some of these strains to validate the assay. In the meantime, please remember that there is not any or very limited value in testing formed stools, repeat testing of patients within 7 days, testing of asymptomatic patients for carriage, and testing to assess cure.

And So We Grow

In fiscal year 2002 the Microbiology Laboratory performed 82,790 tests. This is an increase of 18% from the previous year. The five-year cumulative increase has been 71%. In the Virology Laboratory, there has been a five-year cumulative increase of 87% in PCR testing alone!

2002 Publications


