

Advancements and Dilemmas in the Management of Allergy



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KEYWORDS

- Allergy • Allergic rhinitis • Prevention • Allergy testing • Sublingual immunotherapy • Desensitization

KEY POINTS

- Prevention of peanut allergy has been demonstrated through intentional oral exposure to peanut protein to promote tolerance.
- The diagnosis of inhalant allergy has not changed substantially, but continued research into component (or molecular) immunoglobulin E testing and research on local allergy may improve the accuracy of allergy testing in the future.
- Efficacious immunotherapy has expanded to include sublingual drops, sublingual tablets, and subcutaneous immunotherapy.
- With a wider variety of immunotherapy options, clinical decisions on allergen selection, such as the efficacy of sublingual tablets in polyallergic patients, have become more relevant.
- More humanized immunoglobulins targeting specific receptors and mediators of allergic inflammation (biologics) are now available, providing new options for patients with severe asthma and atopic conditions.

INTRODUCTION

The options for diagnosing and managing allergic disease have broadened over the last several years, creating new considerations for clinical allergists. This article provides a cursory synopsis of issues that have arisen in the literature and how clinical practitioners might alter their assessment and management of allergic patients.

PREVENTION

The prevalence of allergic rhinitis and other atopic conditions (specifically food allergies) has increased in the United States and other developed countries.¹ The

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reasons for this are not clear, and several theories have been offered including fewer childhood infections,^{2,3} lower vitamin D levels,⁴ changes in diets,⁵ and exposures to a greater array of chemicals.⁶ Studies that have tried to prevent inhalant allergic disease through decreased exposure to allergen sources such as dust mites or animal dander have often failed to show benefit or had conflicting results.^{7,8}

The LEAP study advanced understanding by successfully preventing the development of peanut allergy in high-risk infants by intentional oral exposure to peanut proteins.⁹ The paradigm shift of prevention through exposure to allergen rather than avoidance of allergen may lead to other successful prevention strategies that are certain to be investigated. The prevention of allergic rhinitis or allergic asthma has not been robustly demonstrated at this time.

DIAGNOSIS

The false-positive rate of sIgE testing (whether in sera or by skin testing) has been problematically high in the general population.¹ Fifty-four percent of the US population was skin prick test (SPT) positive per a Centers for Disease Control and Prevention survey.¹⁰ As such, the clinical assessment of allergic rhinitis is central for making the correct diagnosis. Although the symptoms caused by intermittent and seasonal rhinitis, including itching, sneezing, rhinorrhea, and nasal congestion provide an identifiable pattern, the dominance of nasal congestion in perennial allergies has a broader differential diagnosis, including nonallergic rhinitis, mixed rhinitis, anatomic contributions, and chronic rhino-sinusitis. Clinically, selecting allergens for testing and knowing which positive tests are clinically relevant is challenging. Although major advances in the diagnosis of inhalant allergic disease have not gained wide-spread clinical use, there are some new technologies on the horizon.

Component or molecular diagnosis of allergy refers to delineating the IgE reactivity by the protein the allergen binds rather than the source material alone.^{11,12} For example, component results for the dust mite *Dermatophagoides pteronyssinus* could be provided as Der p1 and Der p2. Potentially, component testing would better identify which allergens were more clinically important and identify cross-reactivity across different allergic sources.¹¹ However, the relationship between clinical allergic symptoms and component testing results may be complicated and require more research and population-specific data to be interpretable. Complex test results may lead to either computer-assisted interpretation of component testing or isolating a few clinical scenarios where certain component tests are clinically meaningful.

Local IgE in allergic rhinitis refers to presence of allergen-specific IgE in nasal secretions or tissues that can be detected when skin or sera-specific IgE testing is negative.^{13–15} Standardized methods for collection and testing have not yet been established. If a standard method is agreed upon, identifying the clinical significance will remain a research goal. Adding to the confusion, nasal polyps also stain positive for polyclonal IgE; however, the relevance to specific allergic disease remains unclear, as the available literature shows that nasal polyposis and allergic rhinitis are not closely correlated.¹⁶

MANAGEMENT OF ALLERGIC DISEASE

For inhalant allergy, management of disease is classically discussed in terms of avoidance (or reduction of exposure through environmental control), pharmacotherapy, and immunotherapy.¹ Management with biologics, which refers to using humanized antibodies targeted against elements of the allergic inflammatory network, is also in use clinically.¹⁷

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