Can the burden of disease due to food allergy be prevented?

“What is food to one, to another is rank poison”
—Titus Lucretius Cato (98–55 BC)

From time immemorial, there have been early descriptions of harmful reactions seen after the ingestion of food that substantiate our continued interest and study of food allergy (FA) today. At no time has the potential for prevention and management of the condition been greater than in recent years. Despite these advances, there continue to be significant psychosocial and financial issues that contribute to the burden of illness associated with the condition. This issue leads off with a review article by Patel et al. who succinctly outlined the psychosocial and financial burden of illness attributable to FA. In children, this burden of illness is further compounded by comorbidities, e.g., atopic dermatitis, which can negatively impact quality of life. Patel et al. suggested implementing a multidisciplinary approach to help families cope with the emotional, social, and financial burden associated with FA.

Peanut allergy is one of the most prevalent food allergies and is responsible for a substantial burden of disease. In this issue, Greenhawt provided a timely article that highlighted the new NIAID sponsored guidelines on the topic of preventing peanut allergy. This guideline introduces a new paradigm in food allergy prevention based on the Learning Early About Peanut Allergy study, which showed that early peanut introduction (between 4 and 11 months of life) was associated with a significant absolute and relative risk reduction in the development of peanut allergy compared with delayed introduction. Adherence to these new clinical practice guidelines holds great promise of reducing both the prevalence of peanut allergy and its associated psychosocial and financial burden of illness; however, one of the major challenges for the implementation of guidelines, in general, is nonadherence. Because of the importance of this article and its clinically useful implications, it was chosen for this issue’s “For the Patient” section. This segment, found in the final pages of the print version of this issue and also available online, consists of a one-page, article synopsis, written in a readily comprehensible fashion to help patients better understand the content of the full article.

Another area in which nonadherence plays a significant role is the implementation of guidelines associated with allergy immunotherapy (AIT). In this issue, Karam et al. provided further insight regarding nonadherence with AIT labeling guidelines by performing an online survey of AIT administrators and physicians. Despite >90% of AIT administrators from 10 university health services agreeing that labels that contain all recommended practice parameter guidelines’ components would decrease error and increase workflow, efficiency, patient safety, and the comfort level of administrators, only 28.6% of AIT extract vial labels at university health services were in accordance with practice parameter guidelines. Despite >91% of surveyed physicians having familiarity with the guidelines, only 64% implemented practice parameter adherent AIT extracts labels. The authors stressed the importance of compliance with these recommended standards by allergists in both allergy and nonallergy office settings to provide the best clinical outcomes and ensure excellent and efficient care.

Whereas nonadherence with guidelines is one inherent limitation of their value, another is that, despite their comprehensive nature, these guidelines cannot possibly address every clinical scenario that is encountered in the real world, particularly with more complex patients. It is in this context that physicians must “walk alone” by using their best clinical judgment. In an attempt to reveal how physicians face clinical challenges specific to their practice of venom immunotherapy (VIT) administration, Calabria et al. reported on the American Academy of Allergy, Asthma and Immunology’s membership experience with VIT in patients with chronic medical conditions, pregnant women, and young children. They reported that many allergists were comfortable using VIT in young children and continuing VIT, but not starting in pregnant women. VIT was commonly used in patients with hypertension, coronary artery disease, arrhythmias, cancer in remission, and stable autoimmune disease. Major problems associated with VIT were most frequently reported not only in patients with mastocytosis and elevated tryptase, but also in those with cancer still under treatment.

Continuing with the themes of guidelines and issues associated with the more complex patient, two articles in this issue provided insight with regard to the diagnosis of the infamous masquerader of asthma, α-1-
antitrypsin deficiency (AATD), the diagnosis of which is often delayed. In a review of AATD oriented to the allergist, Henao and Craig7 point out that, despite being one of the most common autosomal genetic disorders and despite recently established screening guidelines, the disease remains highly underrecognized, with <10% of individuals suspected with AATD diagnostically identified. This review served to remind physicians that all patients with chronic obstructive pulmonary disease and patients with asthma and fixed obstruction should be tested to exclude the diagnosis of AATD. With regard to diagnostic testing, a review article in this issue by Kueppers and Sanders9 summarized the advances in laboratory techniques used to test for AATD. Screening programs that incorporate next-generation sequencing, which enables rapid and accurate sequencing of large quantities of DNA fragments in a single reaction, are the most comprehensive methods available for an accurate diagnosis of AATD. Once diagnosed, replacement therapy of the deficient protein is associated with preservation of lung tissue.

In turning from masqueraders of asthma to true asthma, this issue includes three articles that relate to this important domain of the allergist/immunologist. When assessing a random sample of a population-based birth cohort of children born between 2002 and 2006 in Olmsted County, Minnesota, Voge et al.10 determined that late preterm infant birth was not independently associated with a risk of asthma and other atopic conditions. In a prospective open-label observation study of 40 adult patients with asthma who were treated with inhaled corticosteroids and 40 healthy controls, Gupta et al.10 demonstrated that serum CD28, a marker of inflammation, was raised in bronchial asthma and was reduced by inhaled corticosteroid therapy. In a 12-week, randomized, double-blind, three-period, four-treatment, incomplete block crossover trial of Miller et al.11 reported that a novel chemoattractant receptor–homologous molecule expressed on TH2 cells (CRTH2) receptor inhibitor administered for 4 weeks, together with fluticasone propionate did not provide clinical improvement in patients with asthma. The authors were not able to explain this therapeutic response failure, but indicated that insufficient doses of the CRTH2 receptor inhibitor may have contributed to this lack of response.

In shifting to the topic of cutaneous allergic diseases, this issue includes two articles that concern this important domain of the allergist/immunologist. There is little information regarding the etiology and natural course of chronic spontaneous urticaria (CSU) in childhood.12 In this issue, Yilmaz et al.13 presented their investigation of the etiology, prognosis, and factors associated with the prognosis of CSU in children. They reported that the etiology of CSU in children was mostly idiopathic, the natural course of CSU was favorable, and nearly half of the patients recovered after 5 years of disease duration. A high urticaria activity score, of 7, at admission was associated with the persistence of symptoms.

Continuing the cutaneous disease theme, Weller et al.14 reported on the health-related quality-of-life changes in patients with hereditary angioedema due to CI-inhibitor deficiency who received subcutaneous CI-inhibitor with recombinant hyaluronidase (rHuPH20) for attack prophylaxis in a randomized, double-blind, dose-ranging, crossover study. The authors reported that patients experienced improved AE-QOL scores observed after ≤16 weeks of subcutaneous CI-inhibitor-rHuPH20 prophylaxis.

Finally, it is difficult to comprehend allergic disease without discussing the important inductive interaction between the immune system and the environment that leads to the inflammatory state that underlies the pathogenesis of the condition. In this regard, Jara et al.15 presented the results of their research, which was directed to better characterize the relationship between indoor and outdoor levels of mold spore environmental exposure. The authors reported that, in most circumstances, the outdoor airborne spore community was reflected in the indoor airborne spore community.

In summary, the collection of articles found within the pages of this issue provides further insight into important allergic, cutaneous, and respiratory disorders that afflict patients the allergist/immunologist serve. They highlight how both the beneficial and adverse effects of therapy continue to challenge the allergist/immunologist in decision-making and therapy. In keeping with the overall mission of the Proceedings, which is to distribute timely information regarding advancements in the knowledge and practice of allergy, asthma, and immunology to clinicians entrusted with the care of patients, it is our hope that the articles found within this issue will help foster enhanced patient management and outcomes. On behalf of the editorial board, we hope you enjoy the diversity of literature offered in this issue of the Proceedings.

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