

Food allergy: Science of uncertainty and art of probability

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“Medicine is a science of uncertainty and an art of probability.”

Sir William Osler

Although it is unlikely that Osler was specifically thinking of food allergy when he famously made this statement, perhaps nowhere is this quote better exemplified than in the field of food allergy (FA). In this issue, Greiwe¹ echoes Osler’s sentiment in writing, “Correctly diagnosing a patient with an IgE-mediated food allergy remains a nuanced process fraught with potential for error and confusion.” To provide more accurate information, Greiwe suggests that allergists need to provide their patients thoughtful, up-to-date, evidence-based guidance, relying less heavily on skin and serum specific IgE testing and more on a thorough medical history and clarification with oral food challenges (OFCs). He goes on to outline why it is essential that allergists become familiar with the merits and limitations of current testing modalities and engage more fully in the performance of OFCs. While OFCs can improve quality of life, clarify the necessity of dietary restrictions, and alleviate fear and anxiety, much work remains to determine how information regarding diagnostic test results can be best combined with clinical history to more precisely identify optimal candidates for OFCs.

Although it has been estimated that between 2,000 and 20,000 different agents are added to the foods that we consume, and it is well established that food additives have the potential to provoke adverse effects in certain individuals, the probability of occurrence of an adverse reaction to a food additive is quite low. Examples of food additives include preservatives,

stabilizers, conditioners, thickening agents, sweetening agents, food coloring, flavoring agents, antioxidants. In this issue, Babbal et al² summarize current knowledge about adverse effects to common food additives, focusing primarily on the most commonly associated reactions. Most importantly, the authors also review the process of evaluating and diagnosing food additive allergy in a clinic setting.

Two original investigations in this issue serve to characterize unique pathophysiologic features of food allergy. In an effort to characterize food-specific antibody responses, and compare responses to different foods in food allergic patients, Padem N et al³ present novel findings that suggest IgE production is dysregulated in patients with peanut allergy and that the mechanisms driving more persistent forms of food allergy (such as peanut allergy) may be distinct from more transient forms of food allergy (such as egg allergy). In an effort to characterize peanut-triggered acute FPIES in a pediatric population, Freeman et al⁴ hypothesized that increases in the incidence of peanut-triggered FPIES coincided with implementation of guidelines for early peanut introduction. These guidelines, published in 2017 by the National Institute of Allergy and Infectious Diseases, were based on the results of the landmark, Learning Early About Peanut (LEAP) trial which demonstrated a preventative benefit to the early introduction of peanuts with regard to decreasing the frequency of peanut allergy development among children at high risk for this allergy.^{5,6} To evaluate their hypothesis, Freeman et al⁴ conducted a retrospective chart review of pediatric patients who presented to Phoenix Children’s Hospital during a six-year period (January 2013 to September 2019). The authors identified 33 cases of acute FPIES, five of which were peanut-triggered. All five cases were identified in the last 2 years (2018 to 2019) which correlated with the time period subsequent to the 2017 publication of the peanut allergy prevention guidelines. No peanut-triggered reactions were documented in the preceding 4-year period (2013 to 2017). The authors conclude that peanut may be an emerging trigger of acute FPIES, coinciding with earlier introduction of peanut in the infant diet following implementation of the new addendum guidelines for the prevention of peanut allergy.

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Continuing with the theme of FPIES, Yakaboski E. et al⁷ present a case of a soy formula-fed, 3-week-old infant with profound dehydration, cerebral venous sinus thrombosis, and intracranial hemorrhage. The diagnosis of FPIES was not recognized until weeks into the hospital course. This report aims to highlight how severity of presentation can further impede timely diagnosis in chronic FPIES; once again confirming Osler’s wisdom and illustrating that food allergy is a science of uncertainty and art of probability.

On behalf of the Editorial Board, and in keeping with the overall mission of the *Journal of Food Allergy*, it is our hope that the collection of articles found within these pages will impart to scientists, researchers, health care professionals, patients and caregivers clinically useful insights with regard to the prevention, diagnosis and treatment of food hypersensitivity disorders.

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