



Guest Editorials

Novel application of the controlled allergen challenge facility model



In recent years, the use of controlled allergen challenge facilities (CACFs) (also referred to as exposure units or challenge chambers) has contributed to our understanding of the pathophysiology of allergic rhinitis (AR) and the pharmacologic properties, efficacy, and onset of action of new therapies.^{1,2} Most of the published literature from these facilities has been clinical trial study results of various treatments, including antihistamines, leukotriene modifiers, corticosteroids, and immunotherapy.^{1–3} A handful of publications highlight various features relevant to the nature of AR and its pathophysiology.^{4–10} In this month's issue of the *Annals*, Suzuki et al¹¹ report results from an original use of a CACF: to describe the characteristics of a relatively underrecognized condition, allergic laryngitis.

The authors investigated 25 participants with known cypress pollen-induced AR in the environmental challenge chamber (ECC) of Chiba University in Japan, which has been described previously.¹² Study participants underwent two 3-hour pollen challenges in the ECC vs a sham exposure (ie, no pollen) during consecutive days, initially under normal circumstances (which confirmed pollen-induced AR symptoms in the ECC) and then again with a nasal blockage device to prevent nasal AR symptoms. Laryngeal symptoms, including itching (a sensation that causes the desire to scratch) and tingling (a feeling of pain, such as a prickling or stinging sensation), were rated on a 4-point Likert scale, and the number of coughing and throat-clearing episodes were recorded. The total laryngeal symptom score (TLSS) was the primary outcome measure. The traditional total nasal symptom score was also recorded, and serum, nasal fluid, and gargle fluid specimens were collected.

The use of the sham exposure proved a critical protocol inclusion because many participants experienced a degree of increase in TLSS even with sham exposure while wearing a nasal plug, but the TLSSs induced during actual pollen exposure were significantly greater. The number of coughing and throat-clearing episodes also increased during pollen exposure. The final set of experiments compared the laryngeal symptoms with and without the nasal plug. Under normal breathing without the use of a nasal plug, 64% of participants reported some laryngeal symptoms after pollen exposure; TLSS scores tended to be higher when the nasal plug was present, becoming significant at time points of 150 and 180 minutes of pollen exposure. Their observations confirmed that allergic laryngitis symptoms can indeed be induced in response to relevant allergen exposure, even in the absence of accompanying AR

symptoms. Of note, serum eosinophilic cationic protein levels were significantly increased with pollen but not sham exposure; however, no significant differences could be found in cytokine levels from the gargle analysis or acoustic analysis of the larynx.

Allergic laryngitis is not a clinical condition that has been studied to any great extent, and the use of a controlled allergen challenge model was a unique method to gain these interesting insights. The present study highlights another novel way in which CACFs can be used to contribute to our understanding of allergic upper airway disorders and underscores their importance in the field of clinical investigation. The CACF literature can only be expected to continue to expand moving forward, and allergists should be aware of the full spectrum of clinical questions that can be addressed with this tried and tested model of AR.¹

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Disclosures: Dr Ellis is the Principal Investigator of the Environmental Exposure Unit (EEU) in Kingston, ON, Canada, which is a Controlled Allergen Challenge Facility (CACF).

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Summer camps and food allergy

What do we not know?



In this issue of *Annals of Allergy, Asthma, and Immunology*, Redmond et al¹ report the results of their evaluation of food allergy prevalence and preparedness at a single overnight camp. Redmond et al performed a retrospective review of the enrollment database maintained at a single, not-for-profit camp designed for children with chronic and complicated medical diseases. From the database, they attempted to define the number of attendees with self-reported food allergies and assess the availability of epinephrine autoinjectors and written food allergy action plans for these children. Finally, they conducted a 1-hour educational session regarding food allergies for camp personnel who agreed to participate. All camp personnel who agreed to participate were asked to complete identical surveys before and 30 days after the training session.

Within this camp, the authors found that 15.3% of the campers reported at least 1 food allergy and that only 32% of them supplied the camp with an epinephrine autoinjector. Even among children reporting a peanut or tree nut allergy, only 74% supplied an epinephrine autoinjector, and the number was even lower (51%) for those reporting an allergy to milk, egg, wheat, soy, fish, or shellfish. Perhaps more interesting was that not a single camper provided a written food allergy treatment plan to the camp administrators or staff. Regarding the training sessions, the authors reported that the camp personnel who participated in the postsurvey had higher knowledge and comfort levels measured 30 days after the education session was performed compared with before the training session.

This small, initial examination of food allergy in a camp setting clearly has several limitations that the authors adequately point out. First, the examined camp is for children with chronic diseases. Thus, camp personnel may have more interest and baseline knowledge in caring for any child with a medical condition, including food allergies. Second, the self-reported nature of food allergy overinflated the prevalence of food allergy among the campers, with many reporting allergies to foods such as grapefruit and food dyes. Thus, the low number of campers providing an epinephrine autoinjector and/or an action plan may be an artifact (although one could argue that the number of campers with nut allergy who provided epinephrine or an action plan was still low, thus lending credence to an actual problem). Third, the surveys were not validated instruments. Fourth, there was likely a response bias because only 56% of the personnel completed the postsurvey at the 1-month period.

Therefore, although readers must take these data with a grain of salt, the premise and results obtained clearly point to a large knowledge gap among our pediatric patients with food allergies. Currently, there is great effort to improve food allergy awareness

and treatment in settings where children spend most of their time, specifically schools. This effort is highlighted by the Centers for Disease Control and Prevention's Voluntary Guidelines for Managing Food Allergies in Schools and Early Care and Education Centers.² In addition, nearly every state now has legislation in place to require or at least allow for stock epinephrine to be in place in schools.³ However, this legislation does not necessarily extend to other child care settings, such as daycares or overnight summer camps.

Interestingly, to date, no report, to my knowledge, has examined the incidence of food allergy reactions at summer camps. To assume that they do not happen is likely an inaccurate assumption. In fact, the article by Redmond et al¹ states that the examined camp did not have a single event that required epinephrine the year before the study but administered epinephrine to a camper who developed acute-onset generalized urticaria and difficulty breathing while eating lunch during the year that the study took place. Thus, perhaps the lack of data on reactions at camps is also a reflection of lack of knowledge of camp staff to recognize these occurrences.

It is evident from this pilot study that there is a need to define the extent of the problem and to make sure there are precautions in place to prevent a bad outcome. There are a few available suggestions on how to prepare patients and camps.^{4,5} For example, the Food Allergy Research and Education website provide well-thought-out guidelines for families, campers, and camps and a list of food allergy–friendly camps.⁵ This material is helpful, but there are few true data to drive these guidelines.

I will be the first to admit a failure in my care of pediatric patients with food allergies regarding preparedness for situations such as summer camps. Unless a parent specifically comes in before the summer to address this issue, it is not one that pops into my head during a routine follow-up for food allergy during the year, especially during a busy clinic day. Our discussions of cross-contamination, action plans, epinephrine autoinjector use, avoidance strategies at restaurants, and so on can easily fill a clinic visit by themselves. Perhaps though there is a need to add overnight camps to our regular discussion topics during these visits. By not knowing the nature and extent of the problem though, it is difficult to know how to address the problem. Perhaps this small foray into the issue of food allergy and summer camps will stimulate further evaluation to better inform us and guide us in this regard.

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