

Food challenges, the risks and benefits

There have been reports of a 3-year-old boy who died during a baked milk challenge in the United States. A real tragedy for all, particularly his family. The American Academy of Allergy, Asthma & Immunology, the American College of Allergy, Asthma & Immunology and the Canadian Society of Allergy and Clinical Immunology have rapidly released a statement.¹ While we do not know the full details surrounding this case, perhaps it is time to look at the balance between the risks and benefits for food challenges. Although this is the first reported fatality associated with a food challenge, all experienced allergists will be aware that severe reactions can occur with these procedures.² The likelihood of severe reactions depends on the indication for challenge. The risk is low where the question is: has a patient outgrown their food allergy? But it is high when it is a so called demonstration challenge—when a challenge is occasionally undertaken to convince an uncertain patient that they have a food allergy when they have not had a reaction for many years but have diagnostic results to suggest clinical allergy. There is a surprising lack of safety data reported from routine food challenges, but research studies would suggest that they are safe, albeit there is a possibility of severe reactions.³

Before anyone is tempted to say that food challenges are unsafe and should not be undertaken, it is important to look at the benefits of a food challenge. At present, we are not able to make an accurate diagnosis of food allergy—half of patients listed for a diagnostic food challenge being found to be tolerant.⁴ The costs of avoiding the triggering food(s) and the psychological burden associated with food allergy to the patient and family are profound.⁵ Having a negative food challenge is associated with a marked improvement in quality of life,⁶ but, interestingly, quality of life also improves after a positive challenge. We also have to consider what would happen if food challenges were not undertaken in allergy centres; we already know that patients may test themselves at home (especially when they are not convinced they have a food allergy); what might be the consequences of a severe allergic reaction in the community?

This tragic event demands that we all examine how we are undertaking food challenges in our units.⁷ We need to ensure that the right patients are invited for challenge so that the benefits outweigh the risks; that patients are fit at the time of challenge (asthma controlled, no exposure to cofactors); that we have all the correct emergency equipment in place; and that the challenge is undertaken by trained and competent clinical staff with rapid access to intensive

care support. Finally, we need to ensure that our patients understand the full risks, even the remote possibility of a fatal reaction and benefits of a food challenge—this should be a good example of shared decision-making where a discussion with the patient (and family) leads to the right decision—to challenge or not to challenge.

Continuing with severe allergic reactions, in the journal this month, Tanno and colleagues argue that we should be using a public health prevention concepts to improve the management of anaphylaxis.⁸ They highlight that the profile of anaphylaxis is still not high despite all the efforts of the allergy community in recent years. So they argue that if we push for anaphylaxis to be seen in a public health dimension, with the emphasis being to protect individuals, more progress may be made (Figure 1).

Wang and colleagues have examined the human b-defensins (HBDs) in individuals with asthma and related molecules in a mouse model.⁹ HBDs were elevated in asthma. This links them into another important pathway resulting in airway inflammation and tissue remodelling in asthma. The authors suggest that they would represent a potential target for future asthma therapies (Figure 2).

Lastly, Brinkman and colleagues have looked at whether exhaled volatile organic compounds (VOCs) can discriminate between clinically stable and unstable asthma.¹⁰ This is an important question as clinical assessments currently fail to predict the magnitude of airway inflammation. Patients with mild-to-persistent asthma had their inhaled corticosteroids withdrawn. Breath profiles were very good at classifying patients into controlled or not controlled with correlations also seen with sputum eosinophils. Next step, how might this approach improve the management of asthma in clinical practice?

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Caption to cover illustration: Exhaled breath profiles in the monitoring of loss of control and clinical recovery asthma (Image courtesy of P. Brinkman et al.).

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GLOBAL AVAILABILITY OF AUTO-INJECTABLE ADRENALINE

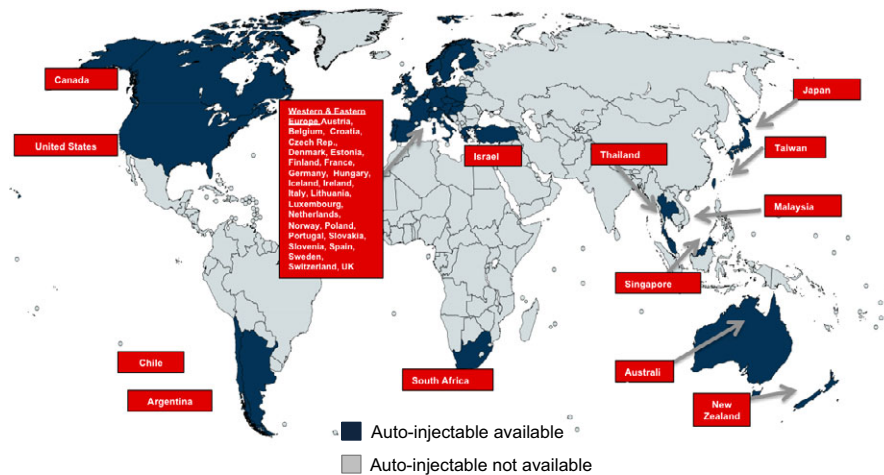


FIGURE 1 Global availability of adrenaline auto-injectors [see Figure 1 in Tanno et al. (pp. 1108-1114)] [Colour figure can be viewed at wileyonlinelibrary.com]

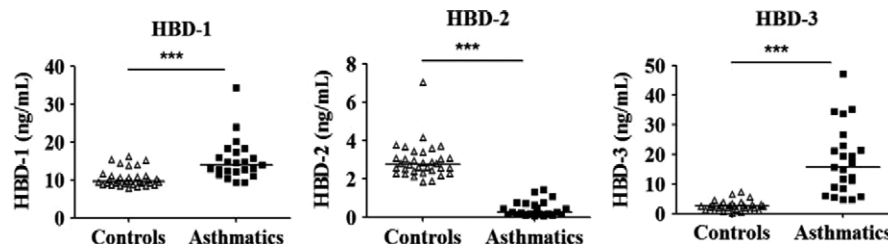


FIGURE 2 Raised plasma level of HBD-1 and HBD-3 in individuals with asthma [see Figure 1 in Wang et al. (pp. 1138-1149)]

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