

Fatal anaphylaxis to food allergens: Learning from tragedies

Two tragedies have received considerable coverage in the press in recent weeks. They highlight the continuing issues with the labelling of allergens in foods for consumers with food allergy.

Natasha Ednan-Laperouse died from anaphylaxis on a British Airways flight in July 2016, aged 15 years. On the plane, she ate a baguette purchased from Pret a Manger. The baguette contained sesame seeds baked inside the bread which were not identified on the label or visible on the crust. This first tragedy occurred because of the absence of allergen labelling on the baguette. As the item was baked in the store, the current European legislation means that stores do not need to list allergen information on the food label. Natasha did not realize this was the case and so did not check whether or not it contained sesame.

The London coroner, Dr Séan Cummings, highlighted that it was surprising that a large commercial organization was utilizing part of the labelling legislation to avoid labelling their products when this was designed to be used by small food outlets. In response to the coroner's conclusions, the Pret a Manger chief executive, Clive Schlee, announced that "full ingredient labelling will be introduced to all products that are freshly made in its shop kitchens. The labels will list all ingredients, including allergens." Hopefully, other large food retailers will follow Pret a Manger's lead. Consumers with food

allergies need this information to protect themselves. In a large commercial food organization with multiple stores and staff with different levels of experience, it is not sufficient for consumers to rely on all store staff knowing exactly which allergens are in which of the many products that are sold.

The second tragedy occurred when Celia Marsh ate a flatbread containing yoghurt that was purchased from Pret a Manger. Celia had a cow's milk allergy, and the meal was advertised as dairy-free. She had an anaphylactic reaction and died in December 2017, aged 42 years. This second tragedy occurred due to a contaminated ingredient in the supply chain. The yoghurt used to make the meal was guaranteed to be dairy-free; however, it was found to contain dairy protein. This second case emphasizes how our food products are produced using ingredients from multiple sources, often from producers from across Europe. The whole food industry needs to maintain very strict controls on allergen labelling to ensure that final products are correctly labelled.

Another aspect raised by the tragedies that has received less attention is the design of adrenaline autoinjectors. Questions have been raised about these. It is currently difficult to provide definitive answers due to the lack of data in this area. The different manufacturers are currently undertaking studies looking at the distribution of

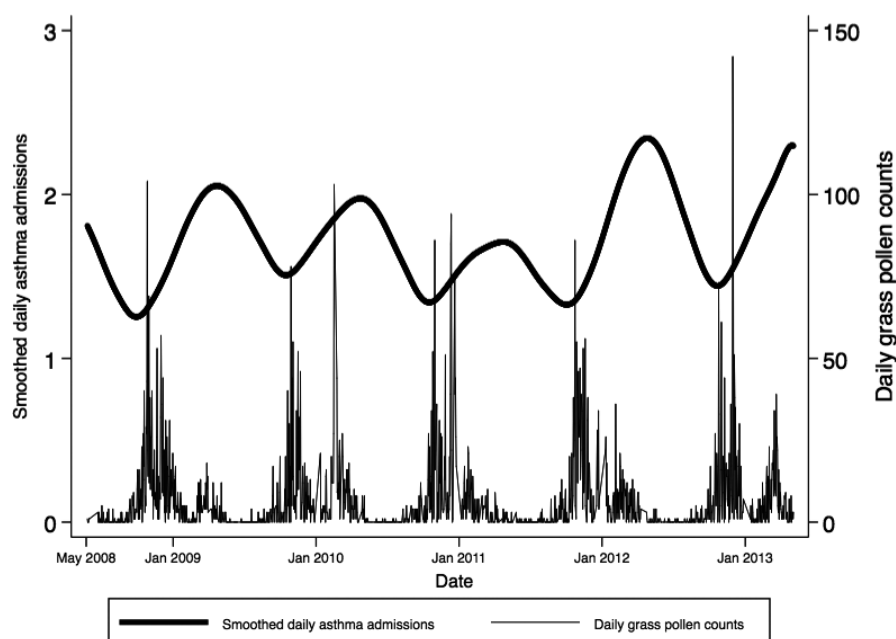


FIGURE 1 Relationship between daily grass pollen counts and asthma admissions. Daily smoothed asthma admissions counts and daily grass pollen count during the study period. [see Figure 1 in S. K. Shrestha et al. (pp. 1421–1428)]

Caption to cover illustration: The cover image is based on the Original Article *Monocytes are involved in the balance between regulatory T cells and Th17 cells in severe drug eruptions* by Yukiko Ushigome et al, <https://doi.org/10.1111/cea.13252>.

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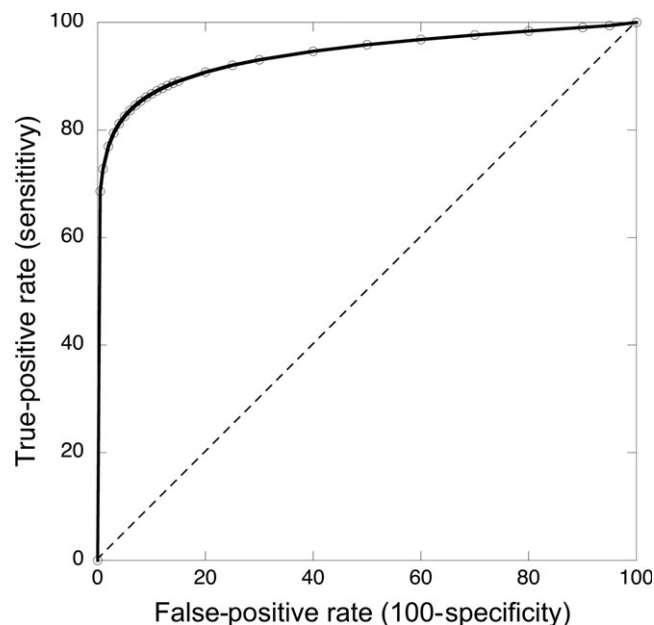


FIGURE 2 Receiver operating curve for the stimulated plasma kallikrein activity assay. [(see Figure 4 in M. L. Lara-Marquez et al. et al. (pp. 1429–1438)]

adrenaline after autoinjector use in vivo in range of subjects. These studies should enable us to provide better guidance on the appropriate needle length and dose for different individuals at risk of anaphylaxis.

In this month's issue of the Journal, Shrestha et al. have looked at the relationship between airborne levels of pollen on childhood and adolescent asthma hospitalizations in Sydney, Australia.¹ They looked at the impact of pollen exposure on individual days as well as the preceding 3 days. Nearly three thousand children were hospitalized due to asthma in Sydney. The odds of an asthma admission increased with increasing levels of grass pollen (Figure 1), weed pollen other than *Plantago* species and unclassified pollens. Boys were at higher risk. Importantly, there was a considerable lag between rising pollen levels and increasing admissions. Given that pollen is too large to penetrate the lower airway intact, it takes many weeks for pollen exposure to generate critical levels of lower airway inflammation. This is very different from upper airway hay fever symptoms that start when pollen levels start to rise. An exception is when pollen grains are fragmented as in thunder storm asthma.²

Lara-Marquez et al. have looked for reliable biomarkers for hereditary angioedema with normal levels of C1-inhibitor protein (HAE-nl-C1INH) and idiopathic non-histaminergic angioedema (INHA).³ In 154 consecutive patients, clinical assessment and response to therapy (blinded to laboratory assay results) were used as the gold standard diagnosis. Stimulated plasma kallikrein activity was significantly increased in both HAE-nl-C1INH and INHA. In this population, this biomarker had a high sensitivity and specificity for these diagnoses (Figure 2). If confirmed, this may prove to be useful in the diagnostic work up of angioedema.

Bakolis et al. have looked at the relationship between dietary patterns and adult respiratory health in adults across Europe.⁴ Over three thousand individuals aged 15–77 years were involved in the study. They used an internationally validated, food frequency questionnaire to assess diet. Two dietary patterns were seen. The first was characterized by animal proteins and carbohydrates. The second was characterized by fruit and vegetables. Only the first was associated with asthma, atopy and lung function, in each case in a deleterious way. For the asthma outcome, there was surprisingly little heterogeneity by country for animal proteins and carbohydrate. This was not the case for fruit and vegetables; these were associated with significantly less asthma in Poland but more in Belgium. There are a few potential responses for this; the impact of hidden confounding or perhaps the differing dietary habits across Europe are not adequately summarized by this principal component analytical approach.

I hope that you all enjoyed the recent BSACI annual meeting. It was a fitting send off for Telford. The meeting abstracts can be found in this issue. Next year it is welcome to Harrogate! Finally I would like to add my congratulations to Dr Claudia Gore on being awarded the 2018 William Frankland Award. She was an immensely popular recipient.

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