

Severe wheeze, aspergillus and a new approach for anaphylaxis

In this issue of the Journal, Deliu *et al* look at the longitudinal trajectories of medical record confirmed severe exacerbations of wheeze from infancy into childhood.¹ They used a data-driven methodology to derive exacerbation trajectories in the Manchester Asthma and Allergy Study cohort.² Amongst the 160 participants with at least one severe exacerbation, they found two clusters: "Infrequent exacerbations" (93.7%) and "Early-onset frequent exacerbations" (6.3%) (Figure 1). Limited breastfeeding was associated with the more severe phenotype. Furthermore, participants in the more severe group were more likely to have lower lung function and asthma during adolescence.

Many patients with cystic fibrosis have allergy sensitization to *Aspergillus fumigatus*. Eickmeier *et al* have looked to see whether

such sensitization is associated with TH-2 inflammation leading to an asthma-like disease pattern.³ They assessed 35 children and young adults with cystic fibrosis and 20 healthy controls with lung function, exhaled nitric oxide, induced sputum bronchial allergen provocation testing (if sensitized to *A fumigatus*). Sensitization did not have any impact on parameters in the cystic fibrosis patients. However, eight of 13 sensitized cystic fibrosis patients developed significant bronchospasm and raised eNO the next day with TH-2-mediated inflammation within the sputum sample (Figure 1). So *A fumigatus* sensitization may be associated with IgE/TH-2 airway inflammation (Figure 2).

Finally, Tacquard *et al* have looked at a novel approach to treating severe anaphylaxis in an animal model.⁴ ABT-491, a platelet activating factor (PAF)-receptor antagonist, was given with or without adrenaline. Although the PAF-receptor antagonist was not as effective as adrenaline, it had an additive effect with adrenaline therapy (Figure 3). This approach might be a useful for anaphylaxis resistant to adrenaline therapy.^{5,6}

Lastly, we are still welcoming submissions for the 2020 special issue on novel interventional strategies in allergy and asthma.⁷ They can be original research papers, brief research reports or reviews on any interventional strategies in allergy and asthma. Examples would include immunological, pharmacological, psychological, behavioural

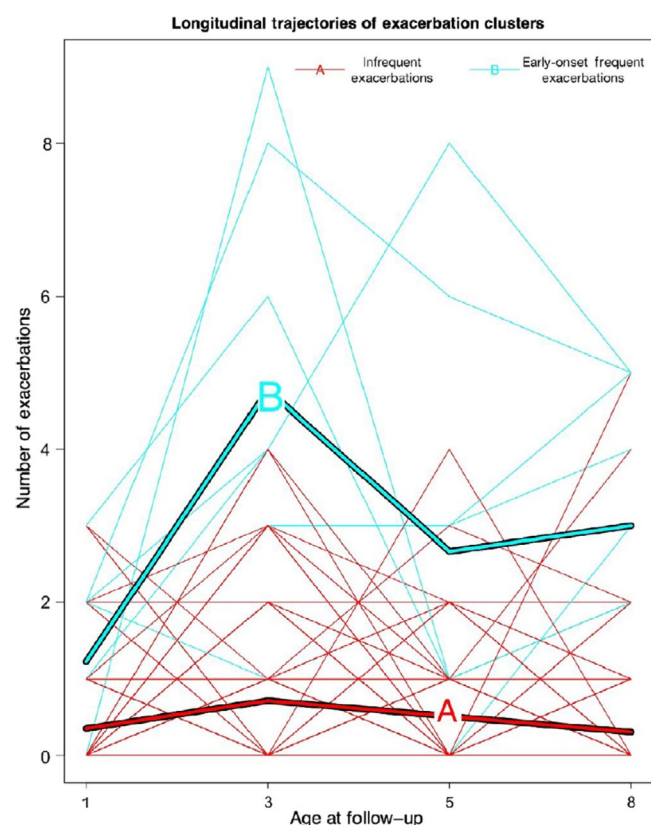


FIGURE 1 Longitudinal trajectories of exacerbations. Cluster (A) Infrequent severe wheeze exacerbations (93.7%). Cluster (B) Early-onset frequent severe wheeze exacerbations (6.3%). For more details, see Figure 1, Deliu *et al* (pages 314 to 323)

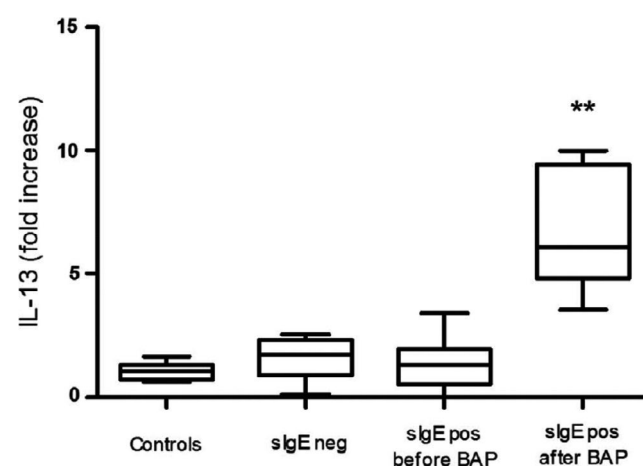


FIGURE 2 Changes in sputum IL-13 mRNA expression healthy control subjects and subjects with cystic fibrosis. Individuals with cystic fibrosis were divided by sensitization to *A fumigatus*. Results are also presented for before and after bronchial allergen provocation (BAP). Significant differences between the groups are shown. ** $P < .01$. For more details, see Figure 1, Eickmeier *et al* (pages 324 to 332)

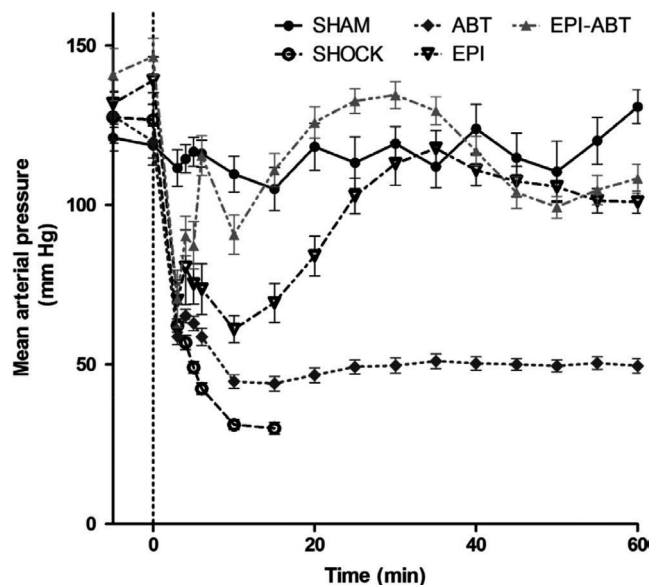


FIGURE 3 Time course of mean arterial pressure in anaphylaxis model. SHAM (vehicle only, no shock), SHOCK (shock, no treatment), ABT (treatment with ABT-491), EPI (treatment with adrenaline) and EPI-ABT (treatment with both adrenaline and ABT-491) groups. Results are mean $\pm$ standard error mean. For more details, see Figure 1, Tacquard et al (pages 382 to 389)

or public health interventions. Deadline for submission is 30 June 2020.

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