

Clinical & Experimental Allergy

Vocal cord dysfunction, food allergy and a RCT

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Vocal cord dysfunction represents a challenge in patients with asthma. The resulting laryngeal extrathoracic obstruction gives rise to wheeze like sound that, despite being inspiratory, is often confused with poorly controlled asthma. In this issue of the Journal, Low et al. [1] assess whether vocal cord dysfunction is seen in all patients with asthma or just those with abnormal lung function. Patients with asthma from general practice and a severe asthma clinic were fully assessed; a dynamic 320-slice computerized tomography of the larynx was used to assess vocal cord movement. Paradoxical vocal cord movement was seen in 42/155 (27%) participants. Although patients with FEV₁ less than 80% predicted were more likely to have paradoxical vocal cord movement [25/68 (36.8%) versus 17/87 (19.5%); $P = 0.016$], a significant number of asthma patients with normal lung function had vocal cord dysfunction (Fig. 1). Although a high Nijmegen questionnaire score



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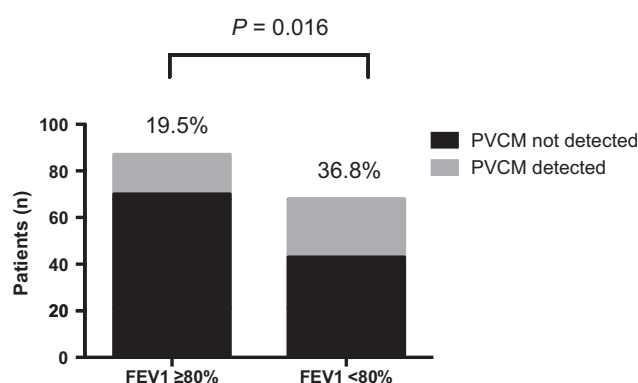


Fig. 1. Relationship between poor lung function and paradoxical vocal cord movement. [see figure 1 in K. Low et al. (pp. 200–207)].

was predictive of paradoxical vocal cord movement (odds ratio 6.5, $P = 0.04$), it only identified two-thirds of cases. It would have been interesting to see whether Fowler's vocal cord dysfunction questionnaire might have been more useful in identifying cases [2]. So identifying vocal cord dysfunction in patients with asthma remains a challenge.

Although peanut allergy is relatively frequent, we know little about its genetic basis. Martino et al. have undertaken a genomewide association study (GWAS) comparing 73 infants with open challenge proven allergy versus 148 non-allergic infants, all from the Australian HealthNuts Study. They generated a second large cohort from other Melbourne paediatric allergy studies to replicate their results using the same diagnostic criteria. They identified 21 independent single-nucleotide polymorphisms (SNPs) associations (Fig. 2) but were unable to replicate any. However, their HLA-DRB1 association



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Caption to cover illustration: Calpain inhibitor calpeptin attenuates airway smooth muscle remodelling in a mouse model of chronic asthma. [see figure 2 in S.-S. Rao et al. (pp. 176–189)].

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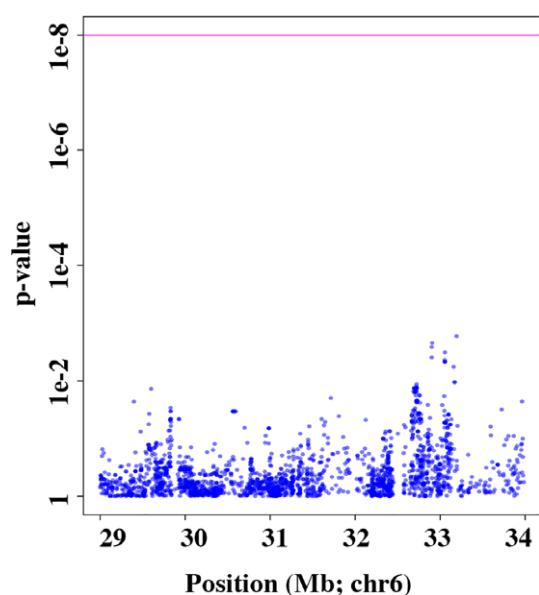


Fig. 2. Association between SNPs and peanut allergy. [see supplementary figure 2 in D. J. Martino et al. (pp. 217–223)].

reproduced previously reported finding suggesting that this may be important in the pathogenesis of peanut allergy. Does this and the other described HLA associations explain the familial association seen in peanut allergy? [3].

Hirsch et al. [4] have looked for an associated between the use of antibiotics in each life and the subsequent development of food and other allergies. They used routine data from a large integrated United States health system. Food and other allergies were identified from International Classification of Diseases 9th edition (ICD-9) codes. Five age- and sex-matched controls were identified for each case of allergy. In total, there were 484 milk allergy cases, 598 non-milk food allergy cases and 3652 other allergy cases. Infants with at least three antibiotic prescriptions were at greater risk of milk allergy (odds ratio 1.78; 95% confidence interval 1.28–2.48), non-milk food allergy (1.65; 1.27–2.14) and other allergies (3.07; 2.72–3.46) compared to ones with no

antibiotic prescriptions. These interesting results need to be substantiated in a cohort with more stringent diagnostic criteria for food allergy. Interestingly, there are data showing an association between low gut microbiota richness and subsequent food sensitization [5]. It is tempting to speculate that antibiotic therapy might represent a potential remedial risk factor if, for example, a concurrent pre-/probiotic intervention was able to reverse this process.

I would like to highlight a randomized controlled trial (RCT) recently published in *New England Journal of Medicine* [6]. Bisgaard et al. randomized 736 pregnant women to receive 2.4 g of n-3 long-chain polyunsaturated fatty acid (LCPUFA) or placebo per day during the third trimester. Over the 3- to 5-year double-blind, follow-up period, the risk of persistent wheeze or asthma in the intervention group was 16.9% compared to 23.7% in the control group (hazard ratio 0.69, 95% confidence interval 0.49–0.97, $P = 0.35$). The intervention had a larger impact on infants of mothers with the lowest serum LCPUFA levels during pregnancy (number needed to treat to present one case of persistent wheeze or asthma was 5.6 in the lowest third compared to 14.6 in the entire cohort). There were no reported adverse events related to the intervention. With a larger dose of LCPUFA and a longer follow-up period, Bisgaard et al. have demonstrated that this relatively simple intervention has a clinically important preventative impact on the development of persistent wheeze and asthma. If confirmed in other studies and safety is confirmed, there is a strong argument to include such an intervention as a public health preventative strategy. Lastly, congratulations to Guy's & St. Thomas' Hospitals NHS Foundation Trust / King's College London who have been included as a World Allergy Organisation Centre of Excellence.



Annemarie Hirsch

References

- Low K, Ruane L, Uddin N *et al.* Abnormal vocal cord movement in patients with and without airway obstruction and asthma symptoms. *Clin Exp Allergy* 2017; **47**:200–7.
- Fowler SJ, Thurston A, Chesworth B *et al.* The VCDQ – a Questionnaire for symptom monitoring in vocal cord dysfunction. *Clin Exp Allergy* 2015; **45**:1406–11.
- Berlin MC. Pathogenesis of IgE-mediated food allergy. *Clin Exp Allergy* 2015; **45**:1483–96.
- Martino DJ, Ashley S, Koplin J, *et al.* Genome-wide association study of peanut allergy reproduces association with amino acid polymorphisms in HLA-DRB1. *Clin Exp Allergy* 2017; **47**:217–23.
- Azad MB, Konya T, Guttman DS *et al.* Kozyskyj and the CHILD Study Investigators. Infant gut microbiota and food sensitization: associations in the first year of life. *Clin Exp Allergy* 2015; **45**:632–43.
- Bisgaard H, Stokholm J, Chawes BL *et al.* Fish oil-derived fatty acids in pregnancy and wheeze and asthma in offspring. *N Engl J Med* 2016; **375**:2530–9.
- Hirsch A, Pollak J, Glass T *et al.* Early-life antibiotic use and subsequent diagnosis of food allergy and allergic disease. *Clin Exp Allergy* 2017; **47**:236–44.