and FP. Wrote the first draft of the manuscript: SCR. Wrote the paper: SCR, FP, CG, SB, SMS, PDS and members of AREST CF.

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REFERENCES

1. Dodge JA, Lewis PA, Stanton M, *et al.* Cystic fibrosis mortality and survival in the UK: 1947–2003. *Eur Respir J* 2007;**29**:522–6.
2. Walters S, Mehta A. Epidemiology of cystic fibrosis. In: Hodson ME, Geddes DM, Bush A, eds. *Cystic Fibrosis*. 3rd edn. London: Hodder Arnold, 2007:21–45.
3. Armstrong DS, Hook SM, Jansen KM, *et al.* Lower airway inflammation in infants with cystic fibrosis detected by newborn screening. *Pediatr Pulmonol* 2005;**40**:500–10.
4. Stick SM, Brennan S, Murray C, *et al.* Bronchiectasis is common in infants and preschool children diagnosed with CF following newborn screening. *J Peds* 2009;**155**:623–8.
5. Linnane BM, Hall GL, Nolan G, *et al.* Lung function in infants with cystic fibrosis diagnosed by newborn screening. *Am J Respir Crit Care Med* 2008;**178**:1238–44.
6. Sly PD, Brennan S, Gangell C, *et al.* Lung disease at diagnosis in infants with cystic fibrosis detected by newborn screening. *Am J Respir Crit Care Med* 2009;**180**:146–52.
7. Massie J, Clements B. Diagnosis of cystic fibrosis after newborn screening: the Australasian experience—twenty years and five million babies later: a consensus statement from the Australasian Paediatric Respiratory Group. *Pediatr Pulmonol* 2005;**39**:440–6.
8. Cole TJ, Freeman JV, Preece MA. British 1990 growth reference centiles for weight, height, body mass index and head circumference fitted by maximum penalized likelihood. *Stat Med* 1998;**17**:407–29.
9. Brennan S, Hall GL, Horak F, *et al.* Correlation of forced oscillation technique in preschool children with cystic fibrosis with pulmonary inflammation. *Thorax* 2005;**60**:159–63.
10. Mocatta TJ, Pilbrow AP, Cameron VA, *et al.* Plasma concentrations of myeloperoxidase predict mortality after myocardial infarction. *J Am Coll Cardiol* 2007;**49**:1993–2000.
11. Wiedemann B, Paul KD, Stern M, *et al.* Evaluation of body mass index percentiles for assessment of malnutrition in children with cystic fibrosis. *Eur J Clin Nutr* 2007;**61**:759–68.
12. Lai HJ. Classification of nutritional status in cystic fibrosis. *Curr Opin Pulm Med* 2006;**12**:422–7.
13. Corey M, McLaughlin FJ, Williams M, *et al.* A comparison of survival, growth, and pulmonary function in patients with cystic fibrosis in Boston and Toronto. *J Clin Epidemiol* 1988;**41**:583–91.
14. McPhail GL, Acton JD, Fenchel MC, *et al.* Improvements in lung function outcomes in children with cystic fibrosis are associated with better nutrition, fewer chronic pseudomonas aeruginosa infections, and dornase alfa use. *J Pediatr* 2008;**153**:752–7.
15. Lai HJ, Shoff SM, Farrell PM. Recovery of birth weight z score within 2 years of diagnosis is positively associated with pulmonary status at 6 years of age in children with cystic fibrosis. *Pediatrics* 2009;**123**:714–22.
16. Douglas TA, Brennan S, Gard S, *et al.* Acquisition and eradication of *P. aeruginosa* in young children with cystic fibrosis. *Eur Respir J* 2009;**33**:305–11.
17. Armstrong DS, Grimwood K, Carlin JB, *et al.* Lower airway inflammation in infants and young children with cystic fibrosis. *Am J Respir Crit Care Med* 1997;**156**:1197–204.
18. UK Cystic Fibrosis Trust Antibiotic Group. *Antibiotic Treatment for Cystic Fibrosis*. 3rd edn. Kent: UK Cystic Fibrosis Trust, May 2009.
19. Smyth A, Walters S. Prophylactic antibiotics for cystic fibrosis. *Cochrane Database Syst Rev* 2003;(3):CD001912.
20. Khan TZ, Wagener JS, Bost T, *et al.* Early pulmonary inflammation in infants with cystic fibrosis. *Am J Respir Crit Care Med* 1995;**151**:1075–82.

Journal club

Genetic variants and risk of lung cancer in never smokers

This four-stage study systematically investigated common genetic variations associated with the risk of developing lung cancer in never smokers. Stage 1 involved a genome-wide association study at the Mayo Clinic. A total of 331 918 single nucleotide polymorphisms (SNPs) in 377 case–control matched pairs were analysed. The 44 most significant SNPs that might alter the risk of lung cancer in never smokers were selected. The MD Anderson Cancer Center and Harvard School of Public Health (n=735 and 335, respectively) tested these 44 most significant SNPs. The SNP rs2352028 (at 13q31.3) was the one most associated with lung cancer in never smokers. This finding was repeated in a replication cohort.

For all four studies the combined p value for the association between rs2352028 and lung cancer in never smokers was 5.94×10^{-6} (OR 1.46, 95% CI 1.26 to 1.70). 10% of lung cancer cases in never smokers could be attributed to genetic variation of SNP rs2352028. A gene expression profile analysis confirmed that the expression of the gene GPC5 was associated with genotypes of SNPs, with lower expression in high-risk alleles.

This study suggests that genetic variants affecting the expression of the GPC5 gene are responsible for increasing the risk of lung cancer in never smokers. However, it was concluded that the sample sizes used did not allow for enough power, and there was inconsistent adjustment for confounders such as second-hand smoke exposure across the different centres. GPC5 gene alterations have previously been shown to influence lung cancer development and merit further study.

► Li Y, Sheu CC, Ye Y, *et al.* Genetic variants and risk of lung cancer in never smokers: a genome-wide association study. *Lancet Oncol* 2010;**11**:321–30.

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