BFF, RS and PSMcN conceived the project. All authors contributed to the final version of the manuscript.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

1. Glezen WP. The changing epidemiology of respiratory syncytial virus and influenza: impetus for new control measures. *Pediatr Infect Dis J* 2004;**23**(11 Suppl):S202–6.
2. La Montagne JR. RSV pneumonia, a community-acquired infection in adults. *Lancet* 1997;**349**:149–50.
3. Falsey AR, Walsh EE. Respiratory syncytial virus infection in adults. *Clin Microbiol Rev* 2000;**13**:371–84.
4. Han LL, Alexander JP, Anderson LJ. Respiratory syncytial virus pneumonia among the elderly: an assessment of disease burden. *J Infect Dis* 1999;**179**:25–30.
5. Nair H, Nokes DJ, Gessner BD, et al. Global burden of acute lower respiratory infections due to respiratory syncytial virus in young children: a systematic review and meta-analysis. *Lancet* 2010;**375**:1545–55.
6. Meierhoff TJ, Fleming D, Smith A, et al. Surveillance recommendations based on an exploratory analysis of respiratory syncytial virus reports derived from the European Influenza Surveillance System. *BMC Infect Dis* 2006;**6**:128.
7. Smyth RL, Openshaw PJ. Bronchiolitis. *Lancet* 2006;**368**:312–22.
8. Abarca K, Jung E, Fernandez P, et al. Safety, tolerability, pharmacokinetics, and immunogenicity of motavizumab, a humanized, enhanced-potency monoclonal antibody for the prevention of respiratory syncytial virus infection in at-risk children. *Pediatr Infect Dis J* 2009;**28**:267–72.
9. Smart KA, Paes BA, Lanctot KL. Changing costs and the impact on RSV prophylaxis. *J Med Econ* 2010;**13**:705–8.
10. McNamara PS, Flanagan BF, Selby AM, et al. Pro- and anti-inflammatory responses in respiratory syncytial virus bronchiolitis. *Eur Respir J* 2004;**23**:106–12.
11. McNamara PS, Flanagan BF, Hart CA, et al. Production of chemokines in the lungs of infants with severe respiratory syncytial virus bronchiolitis. *J Infect Dis* 2005;**191**:1225–32.
12. Dodd J, Riffault S, Kodituwakku JS, et al. Pulmonary V gamma 4+ gamma delta T cells have proinflammatory and antiviral effects in viral lung disease. *J Immunol* 2009;**182**:1174–81.
13. Dodd JS, Lum E, Goulding J, et al. IL-9 regulates pathology during primary and memory responses to respiratory syncytial virus infection. *J Immunol* 2009;**183**:7006–13.
14. Tregoning JS, Pribul PK, Pennycook AM, et al. The chemokine MIP1alpha/CCL3 determines pathology in primary RSV infection by regulating the balance of T cell populations in the murine lung. *PLoS One* 2010;**5**:e9381.
15. Mellow TE, Murphy PC, Carson JL, et al. The effect of respiratory syncytial virus on chemokine release by differentiated airway epithelium. *Exp Lung Res* 2004;**30**:43–57.
16. Miller AL, Bowlin TL, Lukacs NW. Respiratory syncytial virus-induced chemokine production: linking viral replication to chemokine production in vitro and in vivo. *J Infect Dis* 2004;**189**:1419–30.
17. Kicic A, Sutanto EN, Stevens PT, et al. Intrinsic biochemical and functional differences in bronchial epithelial cells of children with asthma. *Am J Respir Crit Care Med* 2006;**174**:1110–18.
18. Villenave R, O'Donoghue D, Thavagnanam S, et al. Differential cytopathogenesis of respiratory syncytial virus prototypic and clinical isolates in primary pediatric bronchial epithelial cells. *Viral J* 2011;**8**:43.
19. Noah TL, Becker S. Respiratory syncytial virus-induced cytokine production by a human bronchial epithelial cell line. *Am J Physiol* 1993;**265**:L472–8.
20. Okabayashi T, Yokota S, Yoto Y, et al. Fosfomycin suppresses chemokine induction in airway epithelial cells infected with respiratory syncytial virus. *Clin Vaccine Immunol* 2009;**16**:859–65.
21. McNamara PS, Kicic A, Sutanto EN, et al. Comparison of techniques for obtaining lower airway epithelial cells from children. *Eur Respir J* 2008;**32**:763–8.
22. McNamara PS, Ritson P, Selby A, et al. Bronchoalveolar lavage cellularity in infants with severe respiratory syncytial virus bronchiolitis. *Arch Dis Child* 2003;**88**:922–6.
23. Cannon MJ. Microplaque immunoperoxidase detection of infectious respiratory syncytial virus in the lungs of infected mice. *J Virol Methods* 1987;**16**:293–301.
24. He JQ, Sandford AJ, Wang IM, et al. Selection of housekeeping genes for real-time PCR in atopic human bronchial epithelial cells. *Eur Respir J* 2008;**32**:755–62.
25. Fiedler MA, Wernke-Dollries K, Stark JM. Respiratory syncytial virus increases IL-8 gene expression and protein release in A549 cells. *Am J Physiol* 1995;**269**:L865–72.
26. Uchida N, Ohyama K, Bessho T, et al. Lactate dehydrogenase leakage as a marker for apoptotic cell degradation induced by influenza virus infection in human fetal membrane cells. *Intervirology* 2009;**52**:164–73.
27. Donnelly LE. Airway epithelial cells (Primary vs cell lines). In: Rogers DF, Donnelly LE, eds. *Human Airway Inflammation: Sampling Techniques and Analytical Protocols*. 56 edn. Totowa, New Jersey, USA: Humana Press, 2001:127–36.
28. Tayyari F, Marchant D, Duan W, et al. Identification and Validation of a Novel Cellular Receptor for Respiratory Syncytial Virus. *7th International Respiratory Syncytial Virus Symposium Handbook*. 2010.
29. Laham FR, Trott AA, Bennett BL, et al. LDH concentration in nasal-wash fluid as a biochemical predictor of bronchiolitis severity. *Pediatrics* 2010;**125**:e225–33.
30. Zhu YM, Webster SJ, Flower D, et al. Interleukin-8/CXCL8 is a growth factor for human lung cancer cells. *Br J Cancer* 2004;**91**:1970–6.
31. Wark PA, Grissell T, Davies B, et al. Diversity in the bronchial epithelial cell response to infection with different rhinovirus strains. *Respirology* 2009;**14**:180–6.

Journal club

Lung volumes in interstitial lung disease in smokers

There is increasing awareness that smoking causes emphysematous changes and increased lung density in the form of interstitial lung abnormalities demonstrated on high-resolution CT (HRCT). This study investigates the prevalence and effect of these radiological changes on spirometry in patients with and without chronic obstructive pulmonary disease (COPD).

A total of 2416 HRCT scans of smokers between the ages of 45 and 80 years with a greater than 10-year pack history were evaluated. The presence of interstitial lung disease was defined as non-dependent changes affecting more than 5% of any lung zone.

Interstitial changes were present in 194 (8%) of the scans evaluated. These patients were shown to be older and have an increased BMI and greater amount of exposure to tobacco. Patients with interstitial lung disease were less likely to have COPD and had a decreased percentage of emphysema and total lung capacity. The patients with defined COPD and interstitial lung changes were more likely to have decreased emphysematous changes and total lung capacity compared with patients having only interstitial lung disease.

There was an inverse association between interstitial lung abnormalities and the severity of COPD. The authors suggest that this could result in erroneous underestimation of emphysema and that HRCT could be a valuable diagnostic test in smokers who unexpectedly have normal spirometry when compared with their other symptoms.

► Washko G, Hunningshake G, Fernandez I, et al. Lung volumes and emphysema in smokers with interstitial lung abnormalities. *N Engl J Med* 2011;**364**:897–906.

Archie Macnair

Correspondence to Dr Archie Macnair, FY2, Acute Medical Unit, Watford General Hospital, Vicarage Road, WD18 0HB UK; archie_macnair@hotmail.com

Published Online First 10 May 2011

Thorax 2012;**67**:48. doi:10.1136/thoraxjnl-2011-200359