

20. **Mauch H**, Lütticken R, Gatermann S, eds. *MiQ 7 und 8. Infektionen der tiefen Atemwege. Teil I und II. Qualitätsstandards in der mikrobiologisch-infektiologischen Diagnostik. [Infection of the Deep Airways. Part I and II. Quality Standards in the Microbiological Diagnosis of Infectious Diseases]*. Jena: Gustav-Fischer Verlag, 1999.
21. **Kothe H**, Bauer T, Marre R, *et al*; Competence Network for Community-Acquired Pneumonia study group. Outcome of community-acquired pneumonia: influence of age, residence status and antimicrobial treatment. *Eur Respir J* 2008;**32**:139–46.
22. **El Solh AA**, Pietrantonio C, Bhat A, *et al*. Indicators of potentially drug-resistant bacteria in severe nursing home-acquired pneumonia. *Clin Infect Dis* 2004;**39**:474–80.
23. **Rello J**, Ausina V, Ricart M, *et al*. Nosocomial pneumonia in critically ill comatose patients: need for a differential therapeutic approach. *Eur Respir J* 1992;**5**:1249–53.
24. **Ewig S**, Torres A, El-Ebiary M, *et al*. Bacterial colonization patterns in mechanically ventilated patients with traumatic and medical head injury. Incidence, risk factors, and association with ventilator-associated pneumonia. *Am J Respir Crit Care Med* 1999;**159**:188–98.
25. **Guertler C**, Wirz B, Christ-Crain M, *et al*. Inflammatory responses predict long-term mortality risk in community-acquired pneumonia. *Eur Respir J* 2011;**37**:1439–46.
26. **Garcia-Vidal C**, Viasus D, Roset A, *et al*. Low incidence of multidrug-resistant organisms in patients with healthcare-associated pneumonia requiring hospitalization. *Clin Microbiol Infect* 2011;**17**:1659–65.
27. **Chalmers JD**, Taylor JK, Singanayagam A, *et al*. Epidemiology, antibiotic therapy, and clinical outcomes in health care-associated pneumonia: a UK cohort study. *Clin Infect Dis* 2011;**53**:107–13.
28. **Marrie TJ**, Blanchard W. A comparison of nursing home-acquired pneumonia patients with patients with community-acquired pneumonia and nursing home patients without pneumonia. *J Am Geriatr Soc* 1997;**45**:50–5.
29. **El Solh AA**, Alhajjhasan A, Ramadan FH, *et al*. A comparative study of community- and nursing home-acquired empyema thoracis. *J Am Geriatr Soc* 2007;**55**:1847–52.
30. **El Solh AA**, Akinnusi ME, Alfarah Z, *et al*. Effect of antibiotic guidelines on outcomes of hospitalized patients with nursing home-acquired pneumonia. *J Am Geriatr Soc* 2009;**57**:1030–5.
31. **Attridge RT**, Frei CR, Restrepo MI, *et al*. Guideline-concordant therapy and outcomes in healthcare-associated pneumonia. *Eur Respir J* 2011;**38**:878–87.
32. **Carratalá J**, Mykietiuk A, Fernández-Sabé N, *et al*. Health care-associated pneumonia requiring hospital admission: epidemiology, antibiotic therapy, and clinical outcomes. *Arch Intern Med* 2007;**167**:1393–9.

Journal club

Improved survival in cystic fibrosis patients with severely impaired lung function

A forced expiratory volume in one second (FEV₁) less than 30% predicted has been accepted as the threshold at which 50% of patients with cystic fibrosis (CF) survive 2 years or less. However, this estimate, made in the early 1990s, does not take into account recent developments in treatment. This cohort study aimed to re-evaluate the survival of CF patients with severely impaired lung function.

Two hundred and seventy-six CF patients whose FEV₁ was first observed to be less than 30% predicted between 1990 and 2003 were included in the cohort. The patients were followed up in 2-year subcohorts until 2007 and their survival was assessed. The authors showed an important improvement in the average survival of CF patients with severely impaired lung function. Median survival for patients who entered the cohort most recently (2002–2003) was 5.3 years, more than four times that for those who entered the study in the early 1990s, when median survival was 1.2 years. The authors observed a clear stepwise improvement in survival from 1994 to 1997. This was concurrent with the introduction of nebulised recombinant human DNase. A steady improvement in nutritional status also occurred in the time period studied, and an increased risk of death was associated with a body mass index below 19 kg/m².

The survival of patients with CF and an FEV₁ less than 30% predicted has improved markedly over the last two decades, with a median predicted survival of 5.3 years.

► **George PM**, Banya W, Pareek N, *et al*. Improved survival at low lung function in cystic fibrosis: cohort study from 1990 to 2007. *BMJ* 2011;**342**:1008.

Vishal Narwani

Correspondence to Vishal Narwani, Medical student, Royal Free Hospital, Pond Street, London NW3 2QG, UK; vishal.narwani.10@ucl.ac.uk

Published Online First 4 May 2011

Thorax 2012;**67**:138. doi:10.1136/thoraxjnl-2011-200357