

Thorax Journal Summary Page

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Intrapleural minocycline; an effective treatment for primary spontaneous pneumothorax?

Current initial treatment for primary spontaneous pneumothorax (PTx) has a substantial rate of recurrence. In this study [Lancet 2013; 381: 1277-82], investigators randomly assigned patients with a first episode of PTx to receive minocycline pleurodesis or simple aspiration and drainage. At 1 year, 29.2% patients in the minocycline group had a recurrence of PTx, compared to 49.1% of the control group, suggesting minocycline pleurodesis should be standard therapy for PTx.

Identification of a Novel Avian-Origin Influenza A (H7N9) Virus causing severe and fatal respiratory disease in humans.

In March 2013 a novel reassortant avian-origin influenza A (H7N9) virus (usually only found in poultry) was isolated from three patients presenting with fever, cough and dyspnoea in China [N Engl J Med 2013; doi: 10.1056/NEJMoa1304459]. Two of the patients had a history of recent exposure to poultry. All three patients died with acute respiratory distress syndrome and multiorgan failure. Further research is urgently required into the source, mode of transmission and prevention and treatment of this infection.

Utility of right ventricular function during exercise as a predictor of negative outcome in lung transplant candidates.

Right ventricular (RV) dysfunction has a poor prognosis in patients with chronic cardiopulmonary disease. Here the influence of RV function at rest and during exercise on mortality in patients awaiting lung transplantation was explored [BMJ Open 2013; 3:e002108.doi:10.1136/bmjopen-2012-002108]. The inability to increase RV ejection fraction during exercise is a sign of latent dysfunction and the authors found RV ejection fraction during exercise was an independent predictor of death. This assessment could be useful in aiding prioritisation of patients listed for lung transplantation.

Person-to person transmission of *M abscessus* in a UK cystic fibrosis centre

M abscessus accounts for a large and increasing proportion of cystic fibrosis-related non-tuberculous mycobacterial (NTM) disease. It is associated with a more rapid rate of decline in lung function and requires prolonged multidrug treatment. The authors conducted whole genome sequencing and antimicrobial susceptibility testing and found that 11 patients shared 1 genetically identical (or near identical) strain of *M abscessus* subspecies *massiliense*, differing by less than ten base pairs. This is less diversity than is normally found within isolates taken from a single individual, strongly indicating between-patient transmission [Lancet 2013; doi: 10.1016/S0140-6736(13)60632-7].

Macolides and bronchiectasis

Long term maintenance azithromycin is beneficial in cystic fibrosis (CF). This randomised trial [JAMA.2013; 309:1251-1259] studied efficacy of azithromycin in adults with non-CF bronchiectasis. The median number of pulmonary exacerbations

in the azithromycin group was significantly lower than in the placebo group. Significant improvements were also seen in lung function, symptoms and quality of life. A macrolide resistance rate of 88% was noted in the azithromycin treated patients, compared with 26% in the treatment group.

In the BLESS trial [JAMA 2013; 309):1260-1267.], patients with bronchiectasis were randomly assigned to receive erythromycin or placebo. Compared with placebo, the number of pulmonary exacerbations was significantly lower for patients receiving erythromycin. This decrease was associated with an increased rate in macrolide resistance among oropharyngeal streptococci.

Clarithromycin may be associated with increased cardiovascular events when used for acute exacerbations of COPD or community acquired pneumonia.

Clarithromycin is the most frequently used macrolide in the UK. In this study [BMJ 2013;346:f1235doi:10.1136/bmj.f1235] Data from two large prospective cohort studies of patients admitted to hospital with an acute exacerbation of COPD (AECOPD) or community acquired pneumonia (CAP) were analysed to test the hypothesis that clarithromycin is associated with excess cardiovascular events and mortality. A significant association was found between clarithromycin use in AECOPD and increased risk of cardiovascular events, with an increase in cardiovascular mortality, but not all cause mortality. Patients admitted with CAP treated with clarithromycin only had an increased risk of cardiovascular events.

Amitriptyline linked with an increase in lung function in patients with cystic fibrosis

Studies in mice and humans with cystic fibrosis (CF) have shown an accumulation of ceramide in bronchial, tracheal and intestinal cells. Amitriptyline, a functional acid sphingomyelinase inhibitor, normalises ceramide concentrations in CF mice with an associated improvement in mucociliary clearance, chronic inflammation and rate of infection with *P aeruginosa*. In this study CF patients [Cell Physiol Biochem 2013;31:505-512] were treated with amitriptyline or placebo. FEV₁ increased in the amitriptyline group, with a decrease in ceramide levels in nasal epithelial cells. Treatment was well tolerated with no major side effects.

Active cellular inflammation continues in idiopathic pulmonary fibrosis even in end stage disease

Patients with confirmed IPF on surgical lung biopsy in early disease, subsequently received lung transplantation after progression to end stage disease [J Inflamm Res 2013;6:63-70]. Median time from surgical lung biopsy to lung transplantation was 24 months. Fibrosis and honeycomb change were greater in the lungs removed during transplantation compared with surgical lung biopsy. There were more lymphocyte aggregates in the explant samples compared to biopsy, suggesting that active cellular inflammation continues in IPF in severe end stage disease.

Vitamin D levels linked to pulmonary function

A large cross-sectional study demonstrated a significant positive correlation between serum vitamin D levels and pulmonary function, with a greater effect seen in patients with a history of tuberculosis (TB). Patients with the highest serum levels of 25-hydroxyvitamin D (25-OHD) had significantly higher FEV₁ and FVC compared to patients who had the lowest levels of 25-OHD. The absolute difference in FEV₁

between the top and bottom quartiles in 25-OHD level in the patients with a history of pulmonary TB was four times greater than that seen in the overall population [JCEM 2013;98:1703-1710].