JOURNAL CLUB SUMMARIES

What's hot that the other lot got

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NON-MALIGNANT PLEURAL EFFUSION

This UK prospective study (Walker *et al. Chest* 2017;151:1099–105) assessed the mortality risk and associated prognostic factors for patients with non-malignant pleural effusions (NMPE). A total of 782 patients were included, of whom 356 (46%) were diagnosed with NMPE. Effusions secondary to organ dysfunction were reported by the authors to have an 'extremely high' 1 year mortality. Pleural effusions secondary to cardiac, renal and hepatic failure had a reported 1 year mortality of 50%, 46% and 25%, respectively. The presence of bilateral effusions (HR 3.55; 95% CI 2.22 to 5.68) or a transudative effusion (HR 2.78; 95% CI 1.81 to 4.28) was found to be associated with a worse prognosis, with an increased 1 year mortality rate of 57% and 43%, respectively. NMPE is common and can cause significant morbidity and mortality. The authors conclude that clinicians should be aware of the poor prognostic features in NMPE and guide management accordingly.

MEPOLIZUMAB AND REFRACTORY EOSINOPHILIC GRANULOMATOSIS WITH POLYANGIITIS

In this phase 3, randomised, placebo controlled, double blind, multicentre study (Wechsler *et al. N Engl J Med* 2017;376:1921–32), mepolizumab, an anti-interleukin 5 monoclonal antibody, was shown to increase remission rates as well as reducing exacerbations in patients with refractory eosinophilic granulomatosis with polyangiitis (EGPA) when used as add-on therapy. Patients received monthly subcutaneous injections of either mepolizumab (300 mg) or placebo over a 1 year period in addition to continuation of existing corticosteroid treatment. Remission was achieved in 28% of patients for >24 weeks in the mepolizumab cohort versus 3% in

the placebo group (OR 5.91; 95% CI 2.68 to 13.03). A higher proportion of mepolizumab treated patients were also reported to be in remission at week 36 and week 48 compared with placebo (32% vs 3%; OR 16.74; 95% CI 3.61 to 77.56). More patients receiving mepolizumab used average daily doses of corticosteroid <4 mg during weeks 48–52 versus placebo (44% vs 7%; OR 0.2; 95% CI 0.09 to 0.41). Although mepolizumab appears effective in the management of refractory EGPA, it was also noted that remission was not achieved in 47% of patients receiving the treatment.

ACUTE PULMONARY EMBOLISM AND EXERCISE LIMITATION

Persisting shortness of breath and reduced exercise tolerance can be common complaints in some patients who have had successfully treated pulmonary embolism (PE). The frequency and predictors of exercise limitation after PE was investigated in this multicentre Canadian study (Kahn *et al. Chest* 2017;151:1058–68). Patients who had major comorbidities or a previous history of PE were excluded. The primary outcome was per cent predicted peak oxygen uptake (VO₂ peak) <80% at 1 year cardiopulmonary exercise testing (CPET). Along with CPET at 1, 6 and 12 months, patients also underwent physiological tests, including pulmonary function test (PFTs), echocardiogram, 6 min walk distance (6MWD) and repeat imaging. Although mean peak oxygen uptake increased significantly between 1 and 12 months on CPET, 46.5% of patients still had per cent predicted VO₂ peak <80% at 1 year. Low peak VO₂ was associated with significantly lower scores in quality of life measurements and significantly reduced 6MWD at 1 year. There was no significant difference demonstrated in PFTs, echocardiogram measurements or clot burden in patients with or without demonstrated exercise limitation on CPET. Predictors of primary outcome included male sex, increased body mass index, smoking

history, reduced per cent predicted VO₂ peak at 1 month and reduced 6MWD at 1 month. Given the findings of the study, the authors conclude that deconditioning occurring after PE may be the cause of the exercise limitation.

DOMICILIARY NON-INVASIVE VENTILATION AND COPD

The use of domiciliary non-invasive ventilation (NIV) in conjunction with home oxygen therapy was demonstrated to prolong the time to readmission or death in patients with chronic obstructive pulmonary disease (COPD) who had persistent hypercapnia (2–4 weeks post resolution of respiratory acidosis) after an acute exacerbation in this phase 3, multicentre, UK randomised control trial (Murphy *et al. JAMA* 2017 317:2177–86). Patients were randomised to home oxygen plus NIV or home oxygen only. Mean inspiratory positive airway pressure of 24 cm H₂O, mean expiratory positive airway pressure of 4 cm H₂O and a backup rate of 14 breaths/min were used for the NIV settings. Median time to readmission or death was 4.3 months in the cohort that had NIV in addition to home oxygen versus 1.4 months for the group that had oxygen alone (adjusted HR 0.49; 95% CI 0.31 to 0.77). In the group receiving home oxygen plus NIV, the 12 month risk of readmission or death was 63.4% compared with 80.4% in the group with home oxygen only, with an absolute risk reduction of 17%.

SOCIOECONOMIC STATUS AND ASTHMA OUTCOMES

Asthma outcomes were reported to be worse in low income groups (defined as a household income <\$50 000/year), regardless of inhaled corticosteroid dose, treatment adherence, baseline asthma control, race, body mass index, second-hand smoke exposure or perceived stress, by the authors of this study (Cardet *et al. J Allergy Clin Immunol.* doi:10.1016/j.jaci.2017.04.036) Using data collected from a randomised controlled trial, the study found that patients with a lower income had a significantly higher rate of treatment failure (RR 1.6; 95% CI 1.1 to 2.3) and exacerbations (RR 1.9; 95% CI 1.1 to 3.3), even after adjusting for multiple cofounders. Although income was reported as an independent risk factor for worse asthma outcome, the study did not show a cause and effect relationship between income and asthma treatment failure.

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