JOURNAL CLUB SUMMARIES

What's hot that the other lot got

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EXERCISE CAPACITY IN COPD

Skeletal muscle bulk improves exercise capacity in COPD patients, and exercises to increase muscle mass are part of pulmonary rehabilitation. This randomised, double-blind, placebo-controlled trial in the *Lancet* (doi:10.1016/S2213-2600(15)00503-2) looked at the effect of neuromuscular electrical stimulation (NMES) to the quadriceps on exercise capacity in patients with severe COPD ($FEV_1 < 50\%$, MRC score ≥ 4). Fifty-two patients were assigned to receive either active or placebo NMES over 6 weeks. Change in 6 min walk test distance (the primary end point) was greater in the active group than the placebo group, with a mean change of 35.7 m (95% CI 10.5 to 60.9) ($p=0.005$). Patients receiving the NMES also reported greater ease in carrying out activities of daily living. Unfortunately, the effect waned 6 weeks after the intervention was stopped. The findings of this study could prove beneficial in the management of patients unable to undergo conventional pulmonary rehabilitation, as NMES can be carried out in the home environment, independently, and is well tolerated. However, the practicalities of recurrent neuromuscular stimulation would have to be overcome to maintain the effect.

CRYOBIOPSY IN ILD

Transbronchial lung cryobiopsy (TBLC) is an emerging diagnostic technique whereby a biopsy probe is inserted into the bronchus, rapidly cooled and then withdrawn with the tissue sample stuck to the probe. This seems to give bigger pieces of biopsied tissue for analysis with better preservation of tissue architecture and less crush artefact compared with transbronchial lung biopsy (TBLB), but is the diagnostic yield any better? This study by Ramaswamy *et al* (doi:10.1097/LBR.0000000000000246) compared TBLB and TBLC with flexible bronchoscopy in the diagnosis of diffuse parenchymal lung disease. Both techniques were used in the same 56

patients and diagnostic yields were compared. Specimens were larger from the cryobiopsy technique (range 0.4–2.6 cm vs 0.1–0.4 cm in the TBLB specimens). The two techniques provided the same diagnosis in 26 patients (46%). A diagnosis was reached for an additional 11 patients when TBLC was added to TBLB. Only two patients required the more invasive video-assisted thoracoscopic surgery (VATS) to establish a diagnosis. TBLC could therefore prove useful in patients unable to undergo VATS or open lung biopsy.

ATLS GUIDANCE: WATCH THIS (INTERCOSTAL) SPACE!

This neat study in *Injury* (doi:10.1016/j.injury.2015.11.045) challenges the ATLS guidance that decompression of tension pneumothorax should be performed in the 2nd intercostal space, mid-clavicular line (2nd ICS-MCL). A meta-analysis was performed of 15 studies looking at the mean chest wall thickness (CWT) and 13 looking at the effectiveness of needle thoracostomy (NT) in the 2nd ICS-MCL compared with two alternative sites (4th/5th ICS mid-axillary line (4/5th ICS-MAL) and 4th/5th ICS anterior axillary line (4/5th ICS-AAL)). Mean CWT was lowest in the 4/5th ICS-AAL (mean 34.33 mm compared with 39.85 mm MAL and 42.79 mm MCL) but not significantly different from the other two sites ($p=0.08$). Failure of NT was lowest in the 4/5th ICS-AAL (mean 13% compared with 31% for MAL and 38% for MCL; $p=0.01$), suggesting that this site should be considered the site of choice for emergency decompression. It was recognised, however, that the 2nd ICS-MCL is more readily accessible in emergency situations, such as on a spinal board, so may remain first choice for the time being.

PULMONARY REHABILITATION FOR SARCOIDOSIS?

Pulmonary rehabilitation is widely used for COPD and increasingly used for other diseases such as idiopathic pulmonary fibrosis. This prospective, randomised, controlled, double-blind study (doi:10.4187/respcare.04312) looked at the effect of inspiratory muscle training on multiple end

points in patients with sarcoidosis including pulmonary function tests, diffusing capacity, exercise capacity, dyspnoea perception, respiratory muscle strength, fatigue and quality of life. Fifteen patients with sarcoidosis in the treatment arm received inspiratory muscle training, while 15 control subjects received sham therapy for 6 weeks. At the end of treatment there was significant improvement in functional ($p<0.001$) and maximal exercise capacity ($p=0.038$), respiratory muscle strength (P_{Imax} ($p<0.001$) and P_{E_{max}} ($p=0.001$)), severe fatigue ($p=0.002$), and dyspnoea perception ($p=0.02$) in the treatment group compared with controls. There were no significant improvements in pulmonary function and diffusing capacity, fatigue or quality of life between the two groups.

SEVERE SEPSIS IN CAP

Severe sepsis may be present in a third of patients presenting to hospital with community-acquired pneumonia (CAP). This Spanish paper (doi:10.1371/journal.pone.0145929) aimed to identify which risk factors are associated with severe sepsis in CAP. The prospective multicentre cohort study across 13 Spanish hospitals looked at 4070 CAP patients, of whom 1529 (37.6%) presented with markers of severe sepsis. Perhaps unsurprisingly, factors independently associated with severe sepsis (and therefore poorer outcome with significantly higher mortality) were found to be age > 65 years (OR 1.34, 95% CI 1.15 to 1.55), renal disease (OR 1.57; 95% CI 1.21 to 2.03), COPD (OR 1.75; 95% CI 1.50 to 2.04), and alcohol misuse (OR 1.31; 95% CI 1.07 to 1.61). Previous antibiotic treatment was considered protective (OR 0.62; 95% CI 0.52 to 0.73).

COCHRANE NEWSFLASH

Santos FN, de Castria TB, Cruz MRS, *et al*. Chemotherapy for advanced non-small-cell lung cancer in the elderly population. *Cochrane Database Syst Rev* 2015(10): CD010463. doi:10.1002/14651858.CD010463.pub2.

A recently published Cochrane review has investigated the role of chemotherapy in people aged over 70 with advanced non-small-cell lung cancer. It looked at trials comparing different chemotherapy regimens and did not include those with a 'supportive care only' comparator. In those with no significant comorbidities, increased survival with platinum combination therapy needs to be balanced against a higher risk of major adverse events when compared with non-platinum therapy. For people who are not suitable

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for platinum-based treatment, low-quality evidence suggests that non-platinum combination and single-agent therapy regimens have similar effects on survival. The comparability of their adverse event profiles is unclear. Further evidence on quality of life gathered from additional studies is needed to help inform decision making.

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