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Abstracts' Service

Comparisons of Health Status Scores with MRC Grades in COPD: Implications for the GOLD 2011 Classification

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The 2011 Global Initiative for Chronic Obstructive Lung Disease (GOLD) strategy document recommends assessment of chronic obstructive pulmonary disease (COPD) using symptoms and future exacerbation risk, employing two score cut-points: COPD Assessment Test (CAT) score ³10 or modified Medical Research Council dyspnoea scale (mMRC) grade ³2. To explore the equivalence of these two symptom cut-points, the relationship between the CAT and the mMRC and St George's Respiratory Questionnaire (SGRQ), the Short-form Health Survey and the Functional Assessment of Chronic Illness Therapy Fatigue scores were retrospectively analysed using a primary care dataset.

Data from 1817 patients (mean±SD forced expiratory volume in 1 s 1.6±0.6 L) showed a significant association between mMRC grades and all health status scores (ANOVA p<0.0001). mMRC grade 1 was associated with significant levels of health status impairment (SGRQ 39.4±15.5 and CAT 15.7±7.0); even patients with mMRC grade 0 had modestly elevated scores (SGRQ 28.5±15.1 and CAT 11.7±6.8). An mMRC grading ³2 categorised 57.2% patients with low symptom (groups A and C) versus 17.2% with the CAT. Using the mMRC cut-point (³1) resulted in similar GOLD group categorisations as the CAT (18.9%).

The mMRC showed a clear relationship with health status scores; even low mMRC grades were associated with health status impairment. Cut-points of mMRC grade ³1 and CAT score ³10 were approximately equivalent in determining low-symptom patients. The GOLD assessment framework may require refinement.

A Randomized Controlled Trial of Balance Training During Pulmonary Rehabilitation for Individuals With COPD

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Background. Deficits in balance are increasingly recognized among the important secondary impairments in COPD. The purpose of this study was to investigate the effect of a balance-training program on measures of balance and physical function in patients with COPD enrolled in pulmonary rehabilitation (PR).

Methods. Patients were assigned randomly to an intervention or control group. The intervention group underwent balance training three times a week for 6 weeks concurrently with PR. The control group received only the 6-week PR program. Clinical balance measures included the Berg Balance Scale (BBS), the Balance Evaluation Systems Test (BESTest), and the Activities-Specific Balance Confidence (ABC) scale. The physical function subscale of the 36-Item Short Form Health Survey (PF-10) and the 30-s chair-stand test were used to measure self-reported physical function and lower-extremity muscle strength, respectively.

Results. Thirty-nine patients with COPD (mean FEV1, 37.5% ± 15.6% predicted) were enrolled in the study. Mean compliance with the balance-training program was 82.5%, and no adverse events were reported. Compared with control subjects, scores on the BBS (P <. 01), BESTest (P < .01), PF-10 (P = .01), and 30-s chair-stand (P = .02) were significantly improved in the intervention group. No significant between-group differences were found in change scores on the ABC scale (P = .2).

Conclusions. Our results support the feasibility and effectiveness of balance training as part of PR for improving balance performance, muscle strength, and self-reported physical function in patients with moderate to severe COPD.

Trial registry. ClinicalTrials.gov; No.: NCT01424098; URL: www.clinicaltrials.gov

Quality Gaps and Comparative Effectiveness in Lung Cancer Staging: The Impact of Test Sequencing on Outcomes

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Background. Evidence-based guidelines recommend mediastinal sampling as the first invasive test in patients with suspected lung cancer and mediastinal adenopathy. The goal of this study was to assess practice patterns and outcomes of diagnostic strategies in this patient population.

Methods. We conducted a retrospective analysis of all patients in 2009 who had mediastinal adenopathy without distant metastatic disease to determine whether guideline-consistent care was delivered. Guideline-consistent care was defined as mediastinal lymph node sampling being performed as part of the first invasive procedure.

Results. One hundred thirty-seven patients were included. Guideline-consistent care was provided in 30 cases (22%). Patients receiving guideline-consistent care had fewer invasive tests than patients with guideline-inconsistent care (1.3 ± 0.5 tests / patient vs 2.3 ± 0.5 tests / patient, respectively; P < .0001) and fewer complications (0 of 30, 0% vs 18 of 108, 17%; P = .01). Most of the complications (16 of 18) were related to CT image-guided needle biopsy. Endobronchial ultrasound-guided trans-bronchial needle aspiration (EBUS-TBNA) was sufficient to guide treatment decisions without any other invasive tests in 88 patients (64%). Although not all the complications and costs due to CT image-guided biopsies could have been avoided, roughly two-thirds could have been eliminated by just changing the testing sequence.

Conclusion. Quality gaps in lung cancer staging in patients with mediastinal adenopathy are common and lead to unnecessary testing and increased complications. In patients with suspected lung cancer without distant metastatic disease with mediastinal adenopathy, EBUS-TBNA should be the first test.

Inhaled Corticosteroids and the Risk of Pneumonia in People With Asthma: A Case-Control Study

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Background. In clinical trials, the use of inhaled corticosteroids is associated with an increased risk of pneumonia in people with COPD, but whether the same is true for people with asthma is not known.

Methods. With the use of primary care data from The Health Improvement Network, we identified people with asthma, and from this cohort, we identified patients with pneumonia or lower respiratory tract infection and age- and sex-matched control subjects. Conditional logistic regression was used to determine the association between the dose and type of inhaled corticosteroid and the risk of pneumonia or lower respiratory tract infection.

Results. A dose-response relationship was found between the strength of inhaled corticosteroid dose and risk of pneumonia or lower respiratory tract infection (P <.001 for trend) such that after adjusting for confounders, people receiving the highest strength of inhaled corticosteroid (³ 1,000 mg) had a 2.04 (95% CI, 1.59-2.64) increased risk of pneumonia or lower respiratory tract infection compared with those with asthma who did not have a prescription for inhaled corticosteroids within the previous 90 days.

Conclusions. People with asthma receiving inhaled corticosteroids are at an increased risk of pneumonia or lower respiratory infection, with those receiving higher doses being at greater risk. Pneumonia should be considered as a possible side effect of inhaled corticosteroids, and the lowest possible dose of inhaled corticosteroids should be used in the management of asthma.

Short- vs Long-Duration Antibiotic Regimens for Ventilator-Associated Pneumonia: A Systematic Review and Meta-Analysis

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Background. We performed a systematic review and meta-analysis of short- vs long-duration antibiotic regimens for ventilator-associated pneumonia (VAP).

Methods. We searched PubMed and Cochrane Central Registry of Controlled Trials. Four randomized controlled trials (RCTs) comparing short (7-8 days) with long (10-15 days) regimens were identified. Primary outcomes included mortality, antibiotic-free days, and clinical and microbiologic relapses. Secondary outcomes included mechanical ventilation-free days, duration of mechanical ventilation, and length of ICU stay.

Results. All RCTs included mortality data, whereas data on relapse and antibiotic-free days were provided in three and two out of four RCTs, respectively. No difference in mortality was found between the compared arms (fixed effect model [FEM]: OR = 1.20; 95% CI, 0.84-1.72; P = .32). There was an increase in antibiotic-free days in favor of the short-course treatment with a pooled weighted mean difference of 3.40 days (random effects model: 95% CI, 1.43-5.37; P < .001). There was no difference in relapses between the compared arms, although a strong trend to lower relapses in the long-course treatment was observed (FEM: OR = 1.67; 95% CI, 0.99-2.83; P = .06). No difference was found between the two arms regarding the remaining outcomes. Sensitivity analyses yielded similar results.

Conclusions. Short-course treatment of VAP was associated with more antibiotic-free days. No difference was found regarding mortality and relapses; however, a strong trend for fewer relapses was observed in favor of the long-course treatment, being mostly driven by one study in which the observed relapses were probably more microbiologic than clinical. Additional research is required to elucidate the issue.

Xpert MTB/RIF for Diagnosis of Tuberculosis and Drug-Resistant Tuberculosis: A Cost and Affordability Analysis

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Xpert MTB/RIF is a rapid test to diagnose tuberculosis (TB) and rifampicin-resistant TB. Cost and affordability will influence its uptake.

We assessed the cost, globally and in 36 high-burden countries, of two strategies for diagnosing TB and multidrug-resistant (MDR)-TB: Xpert with follow-on diagnostics, and conventional diagnostics. Costs were compared with funding available for TB care and control, and donor investments in HIV prevention and care.

Using Xpert to diagnose MDR-TB would cost US$70–90 million per year globally and be lower cost than conventional diagnostics globally and in all high-burden countries. Diagnosing TB in HIV-positive people using Xpert would also cost US$90–101 million per year and be lower cost than conventional diagnostics globally and in 33 out of 36 high-burden countries. Testing everyone with TB signs and symptoms would cost US$434–468 million per year globally, much more than conventional diagnostics. However, in European countries, Brazil and South Africa, the cost would represent <10% of TB funding.

Introducing Xpert to diagnose MDR-TB and to diagnose TB in HIV-positive people is warranted in many countries. Using it to test everyone with TB signs and symptoms is affordable in several middle-income countries, but financial viability in low-income countries requires large increases in TB funding and/or further price reductions.