Meta-analysis: Respiratory rehabilitation relieves dyspnea in COPD


Objective
To assess the effectiveness of respiratory rehabilitation on exercise capacity and health-related quality of life (HRQL) in patients with chronic obstructive pulmonary disease (COPD).

Data sources
Randomized controlled trials were identified by searching MEDLINE (1966 to October 1995) and Cumulated Index to Nursing and Allied Health (1982 to October 1995) using the key words lung diseases, obstructive; rehabilitation; exercise therapy; research design; longitudinal studies; evaluation study; and randomized controlled trial. Reference lists of retrieved articles were also scanned, abstracts presented at international meetings were searched, and experts were contacted.

Study selection
Studies were selected if they included patients with a clinical diagnosis of COPD and evaluated inpatient, outpatient, or home-based rehabilitation programs (including exercise therapy with or without any form of education or psychological support) that lasted 2-4 weeks. The respiratory rehabilitation program had to have been compared with conventional community care or other interventions that were unlikely to affect exercise capacity or quality of life.

Data extraction
Data were extracted on patient characteristics; the setting, components, and duration of the respiratory rehabilitation program; exercise capacity; and HRQL (assessed in most studies by use of a questionnaire about chronic respiratory problems).

Main results
14 studies met the selection criteria. Most patients were elderly and had severe COPD. Statistically significant improvements were found for exercise capacity and HRQL. The effect of respiratory rehabilitation on maximum exercise capacity was assessed in 11 trials involving 309 patients. The pooled effect size was 0.3 SD units (95% CI 0.1 to 0.6 SD), which corresponds to 8.3 W (CI 2.8 to 16.7 W) in units of the incremental cycle ergometer test. The effect of respiratory rehabilitation on functional exercise capacity was assessed in 11 trials involving 413 patients. For the 6-minute walk test, a difference of 55.7 m (95% CI 27.8 to 92.6 m) was found between the treatment and control groups. The overall effect of treatment was compared with its minimum clinically important difference (MCID), defined as the smallest difference considered important by the average patient. For 2 features of HRQL, dyspnea and mastery, the overall treatment effect was larger than the MCID: 1.0 (CI 0.6 to 1.5) and 0.8 (CI 0.5 to 1.2), respectively, compared with an MCID of 0.5.

Conclusion
Respiratory rehabilitation that includes at least 4 weeks of exercise training relieves dyspnea and improves control over chronic obstructive pulmonary disease.

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DIAGNOSIS

D-dimer levels detected DVT in patients hospitalized for stroke rehabilitation


Objective
To determine whether plasma D-dimer level was a useful screening test for deep venous thrombosis (DVT) in patients who were hospitalized for stroke rehabilitation.

Design
Blinded comparison of plasma D-dimer levels measured by an enzymelinked immunosorbent assay and patient characteristics with venous duplex ultrasonography (VDU) to detect DVT.

Setting
Rehabilitation unit of a Chicago hospital in the United States.

Patients
103 patients (mean age 63 y, 50% women) who were hospitalized in a stroke rehabilitation unit. Inclusion criteria were acute ischemic or hemorrhagic stroke within the previous 3 months and lack of mobility (patients could walk < 30 m at admission). Exclusion criteria were renal failure, coma, or cancer.

Main results
14 patients (13%) had DVT. No clinical features predicted DVT. Using results directly from the study, the sensitivity, specificity, and (likelihood ratio) for screening for DVT were less useful for its diagnosis. Other screening tests for DVT, such as lipid crystal thrombography (2) have been assessed in patients with stroke, but these tests also have high sensitivity and poor specificity.

Conclusions
Plasma D-dimer levels of > 1092 ng/mL may exclude DVT in patients who were hospitalized for stroke rehabilitation. D-dimer levels > 1092 ng/mL require confirmatory DVT by other tests.

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Numbers calculated from data in article.