Meta-analysis: Respiratory rehabilitation relieves dyspnea in COPD


Objective
To assess the effectiveness of respiratory rehabilitation on quality of life (HRQL) in patients with chronic obstructive pulmonary disease (COPD).

Data sources
Randomized controlled trials were identified using MEDLINE (1966 to October 1995) and Cumulative 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 educational or psychological support) that lasted 2-4 weeks. The respiratory rehabilitation program had to have been compared with conventional 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 most outcomes. 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 an 8.3 W (CI 2.8 to 16.5 W) in natural 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 (CI 27.8 to 92.6 m) was found between the treatment and control groups.

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

Source of funding: No external funding.

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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 enzyme-linked 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, comorbid conditions.

Data extraction
Data were abstracted from patients' charts at admission and during rehabilitation (n = 103). D-dimer levels were measured at admission and up to 2 weeks after admission. Complete data were available for 94 patients. The D-dimer level was a useful screening test for DVT, with sensitivity and specificity of 88.9% (95% CI 76% to 95%), 97.2% (95% CI 90% to 100%), and positive and negative predictive values of 91.3% (95% CI 80% to 95%) and 97.2% (95% CI 92% to 100%), respectively.

Conclusion
Actual sensitivity and specificity at different plasma D-dimer levels and estimated sensitivity and specificity if the study was repeated in additional samples of patients (jackknife validity analysis).

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 96% (95% CI 88% to 99%), 86% (95% CI 77% to 91%), and 10.4, respectively. The jackknife-adjusted sensitivity and specificity for DVT were 79% and 78% for plasma D-dimer levels of > 1591 ng/mL and 66% for D-dimer levels of > 1092 ng/mL.

Conclusions
Plasma D-dimer levels > 1092 ng/mL excluded DVT in patients who were hospitalized for stroke rehabilitation. D-dimer levels > 1092 ng/mL require confirmation of DVT by other tests. Source of funding: American Heart Association; Department of Health and Human Services; The Women's Board of the Rehabilitation Institute of Chicago.

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*Numbers calculated from data in article.


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