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 keywords 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 means of a questionnaire about chronic respiratory problems). The outcome of interest was the change in exercise capacity following rehabilitation.

Main results

14 studies met the selection criteria. Most patients were elderly and had severe COPD. Statistically significant improvements were found for exercise capacity. 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 corresponded to an effect size of 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-min 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.


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 yr, 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 refusal.

14 patients (13%) had DVT. No clinical features predicted DVT. Using results directly from the study, the sensitivity, specificity, and likelihood ratios for a positive and negative test"* for D-dimer levels of > 1591 ng/mL were 94% (95% CI 66% to 99.8%), 79% (CI 69% to 87%), 4.4 and 0.9, respectively, and for D-dimer levels of > 1092 ng/mL were 100% (CI 99% to 100%), 60% (55% to 76%), 3.1, and 0.07, respectively. The jackknife-adjusted sensitivity and specificity for DVT were 79% and 78% for plasma D-dimer levels of > 1591 ng/mL and 100% and 68% 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 may be useful for the development of decision rules for DVT by other means. 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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*dNumbers calculated from data in article.


DIAGNOSIS

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

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References


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