Is the 1-minute sit-to-stand test related to respiratory muscle strength in patients with COPD?

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Abstract

It has been suggested that patients with chronic obstructive pulmonary disease (COPD) with respiratory muscle weakness achieve poorer results in exercise capacity tests, namely in the six-minute walk test (6MWT). 1-min. sit-to-stand (1min STST) is a reliable and valid indicator of functional exercise capacity that correlates well with 6MWT. However, its association with respiratory muscle strength in COPD is unknown. This study explored the relationship between 1-min STST and maximum inspiratory (MIP) and expiratory pressures (MEP) in patients with COPD.

66 outpatients with COPD (66±11y; 75% ; FEV1 58±26% pred) were recruited from routine pulmonology appointments. 1-min STST and MIP/MEP were collected. Correlations were explored using Pearson coefficient correlation.

Moderate and low positive correlations were found between 1-min STST and MIP (r=0.51; p<0.001) and 1-min STST and MEP (r=0.46; p<0.001), respectively (Fig. 1).

1-min STST correlated significantly with respiratory muscle strength, especially MIP, in patients with COPD. Patients with respiratory muscle impairments seem to have worse functional capacity than those with better MIP/MEP. Thus, respiratory muscle training may play an important role in the improvement of functional capacity in patients with COPD with respiratory muscle weakness.
Footnotes

This abstract was amended on 27 December 2017 to correct an error in the author list.

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We recommend

Relationship between 1-minute and 5-repetition sit-to-stand tests in COPD
Ana Machado et al., European Respiratory Journal

Comparison between six minutes walking test and sit-to-stand test in COPD patients
Marc Beaumont et al., European Respiratory Journal

Comparison between six minutes walking test and sit-to-stand test in COPD patients
Marc Beaumont et al., European Respiratory Journal

1 Minute Sit-to-Stand Test versus 6 minutes walk test: methods of evaluating exercise capacity in COPD patients
Sava Marius-Gabriel et al., European Respiratory Journal

A comparison of the correlation of health status of the one minute sit-to-stand test (STST) and the six minute walk test (6MWT) in stable COPD
Emma Munro et al., European Respiratory Journal

Decreased left ventricular stroke volume is associated with low-grade exercise tolerance in patients with chronic obstructive pulmonary disease
Sumito Inoue et al., BMJ Open Resp Res

P143 Associations between quadriceps isokinetic endurance and exercise test parameters in COPD patients
TJ Hargreaves et al., Thorax

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K.R. Costa Pereira et al., Ann Rheum Dis

Fixed-Rate vs Rate-Responsive Pacing in Refractory Atrial Fibrillation and LV Dysfunction
PracticeUpdate

Temporal evolution of thoracocentesis-induced changes in spirometry and respiratory muscle pressures
Stylianos A Michaelides et al., Postgrad Med J