Conference Abstract Free

Associations of cognitive and quadriceps function in persons with COPD: a preliminary cross-sectional analysis

Dries Cops | Johan Jakobsson | Jonas Westman | Thomas Sandström | Marc Daenen | David Ruttens | Jana De Brandt | André Nyberg | Chris Burtin See Less

European Respiratory Journal 2025 66(suppl 69): PA4899; DOI: https://doi.org/10.1183/13993003.congress-2025.PA4899

This article appears in:

European Respiratory Journal

Vol 66 Issue suppl 69

Abstract

Background: Cognitive and quadriceps dysfunction are highly prevalent in chronic obstructive pulmonary disease (COPD) and associated with higher mortality. Quadriceps strength is positively associated with cognitive function in healthy adults. The relationship between cognitive and quadriceps function in persons with COPD is unknown.

Aims: To investigate associations between cognitive and quadriceps function in persons with COPD.

Methods: A cross-sectional analysis of 44 persons with stable COPD (75±8 years; 50% male). Cognitive function was assessed with the Montreal cognitive assessment (MoCA, screening tool mild cognitive impairment) and the trail making test (TMT) A (visual scanning, visuomotor speed) and B (cognitive flexibility, visual scanning, visuomotor speed). Quadriceps strength (1-RM) and endurance (repetitions x workload (45% 1-RM)) were measured with a computerized dynamometer, and quadriceps power during the five-times sit-to-stand (5STS) and stair climbing power test (SCPT) was calculated.

Results: TMT A was negatively associated with SCPT and 5STS (Fig. 1D/E) and TMT B was negatively associated with quadriceps strength (Fig. 1F). The MoCA score was not associated with quadriceps function.

Conclusion: Better quadriceps function may be related with better cognitive function in persons with COPD. Future research should further investigate this muscle-brain relationship in persons with COPD.

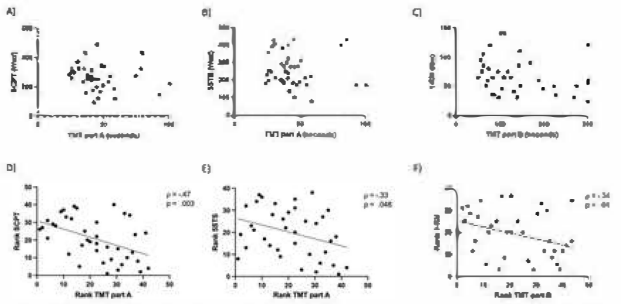

Figure 1. Associations of quadriceps and cognitive function in individuals with COPD. Figure 1A-1C show absolute values of the outcome measures. Figures 1D-1F show the associations of quadriceps and cognitive function using Spearman rank correlation coefficient (ρ). Lower scores on TMT A and B indicate better performance. Abbreviations: SCPT: stair climbing power test; TMT: trail making test; 5STS: five-times sit-to-stand; 1-RM: one-repetition maximum.

Footnotes

Cite this article as *Eur Respir J* 2025; 66: Suppl. 69, PA4899.

This article was presented at the 2025 ERS Congress, in session "Enhancing respiratory health: the role of mind and muscle".

This is an ERS Congress abstract. No full-text version is available. Related materials (such as slides or recordings) will be accessible *via* the ERS Respiratory Channel at https://channel.ersnet.org/programme-live-418

We recommend