

Effectiveness of Pulmonary Rehabilitation in Interstitial Lung Disease, Including Coronavirus Diseases: A Systematic Review and Meta-analysis

- Reina-Gutierrez S.
- Torres-Costoso A.
- Martinez-Vizcaino V.
- Nunez de Arenas-Arroyo S.
- Fernandez-Rodriguez R.
- Pozuelo-Carrascosa D.P.

Abstract

Objective: A meta-analysis of randomized controlled trials (RCTs) was conducted to determine the effect of pulmonary rehabilitation on functional capacity and quality of life in interstitial lung diseases, including those caused by coronaviruses. Data Sources: MEDLINE, EMBASE, SPORTDiscus, Cochrane Library, Web of Science, and MedRxiv from inception to November 2020 were searched to identify documents. Study Selection: Publications investigating the effect of pulmonary rehabilitation on lung function (forced vital capacity [FVC]), exercise capacity (6-minute walk distance [6MWD]), health related quality of life (HRQOL), and dyspnea were searched. Data Extraction: The data were extracted into predesigned data extraction tables. Risk of bias was evaluated with the Cochrane Risk of Bias tool (RoB 2.0). Data Synthesis: A total of 11 RCTs with 637 interstitial lung disease patients were eligible for analyses. The pooled effect sizes of the association for pulmonary rehabilitation were 0.37 (95% confidence interval [CI], 0.02-0.71) for FVC, 44.55 (95% CI, 32.46-56.64) for 6MWD, 0.52 (95% CI, 0.22-0.82) for HRQOL, and 0.39 (95% CI, -0.08 to 0.87) for dyspnea. After translating these findings considering clinical improvements, pulmonary rehabilitation intervention increased predicted FVC by 5.5%, the 6MWD test improved by 44.55 m, and HRQOL improved by 3.9 points compared with baseline values. Results remained similar in sensitivity analyses. Conclusions: Although specific evidence for pulmonary rehabilitation of coronavirus disease 2019 patients has emerged, our data support that interstitial lung disease rehabilitation could be considered as an effective therapeutic strategy to improve the functional capacity and quality of life in this group of patients. © 2021 The American Congress of Rehabilitation Medicine

Author keywords

Coronavirus; COVID-19; Pulmonary fibrosis; Rehabilitation; SARS virus