E-Poster

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Pulmonary Rehabilitation and Balance Recovery in COPD (Chronic Obstructive Pulmonary Disease): A Prospective Study

Topic: Diagnosis

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BACKGROUND

Chronic Obstructive Pulmonary Disease (COPD) is a systemic disease that affects not only the lungs but also leads to muscular, cardiovascular, and balance disorders. These complications significantly increase the risk of falls, with an incidence of 1.2 falls per person-year. Pulmonary rehabilitation (PR) is known to improve physical function, but its impact on balance remains underexplored. This study aims to evaluate the effects of a six-month PR program on balance and exercise tolerance in COPD patients.

METHODS

This prospective, descriptive study included 30 COPD patients who met the inclusion criteria: age 30–50, confirmed COPD diagnosis, and no other disabling conditions. The PR program consisted of endurance reconditioning sessions on an ergocycle or inclined treadmill, muscle strengthening exercises, therapeutic education workshops, postural balance training, and respiratory techniques learning, conducted three times a week for six months. Assessments were performed before and after the intervention using the following tests: Timed Up and Go (TUG), Berg Balance Scale (BBS), Tinetti Scale, Unipedal Stance Test (UST), and Six-Minute Walk Test (6MWT). Respiratory function was evaluated by measuring forced expiratory volume in one second (FEV1).

RESULTS

The mean age was 40 ± 9 years; 70% were men, and all were smokers. The mean body mass index (BMI) was 27.5 ± 4.2 kg/m², with 40% classified as overweight and 30% as obese. The mean FEV1 was 45 ± 12%, indicating moderate to severe respiratory impairment. Before PR, the TUG test result was 14.5 ± 4.3 seconds, the BBS score was 40 ± 6, and the 6MWT distance was 320 ± 80 meters. After six months of PR, significant improvements were observed: TUG improved to 11.5 ± 3.6 seconds, the BBS score increased to 50 ± 5, and the 6MWT distance reached 420 ± 90 meters. The Tinetti score and UST also improved. Additionally, FEV1 improved from 45 ± 12% to 55 ± 11%, indicating a significant improvement in respiratory function.

CONCLUSION

This study demonstrates the effectiveness of a targeted rehabilitation program in COPD patients, improving mobility, stability, exercise tolerance, and respiratory function while reducing fall risk.

Statement of Disclosures

None

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