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Title: Inspiratory muscle training with threshold loading in a rehabilitation program of COPD patients

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Body: Background: Respiratory muscle impairment could contribute to symptoms, exercise intolerance and diminished quality of life in COPD patients. Aim: To assess the results of inspiratory muscle training (IMT) added to general exercise training in COPD patients. Method: 28 moderate-severe COPD patients were divided randomly into 2 groups. The control group performed a rehabilitation program RP (outpatient, 8 weeks, lower and upper limbs training, education, psychological support). The study group (n=14), in addition to rehabilitation program, performed IMT (daily, at home, with Threshold device, 30 min/day). The parameters evaluated were: maximal inspiratory pressure (MIP), 6 minutes walking test (6MWT), modified Medical Research Council (mMRC) dyspnea scale, St. George Respiratory Questionnaire (SGRQ), Hospital Anxiety and Depression Scale (HADS). Results: Study group (IMT + RP): n=14; mean age 63.4±8 years, mean FEV1: 41.2±15% predicted. Parameters changes after therapy (p≤0.001): increasing MIP value with 11.2 cm H2O and 6MWT distance with 44 m, decreasing mMRC dyspnea score with 0.85 points, HADS score with 3.5 points and SGRQ value with 5.5 points. Control group (RP): n=14; mean age 60.3±11 years, mean FEV1: 44.6±15% predicted. Parameters changes after therapy (p<0.05): increasing MIP value with 6.41 cm H2O and 6MWT distance with 59.3 m, decreasing mMRC dyspnea score with 0.71, HADS score with 3.71 points and SGRQ value with 4.81 points. Conclusion: Both groups had a significant amelioration in parameters evaluated. However, the rehabilitation program including inspiratory muscle training led to a greater improvement in inspiratory muscle strength, dyspnea and quality of life.