Title: Respiratory muscle strength and peak cough flow in patients with Parkinson’s disease

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Body: Background: Respiratory muscle weakness and decreased cough capacity are the main causes of pulmonary complications that result in morbidity and mortality in patients with Parkinson’s disease (PD). Aim: to evaluate the respiratory muscle strength and peak cough flow in patients with Parkinson’s disease and determine if there is an association with the stage, symptoms and duration of the disease. Methods: In a cross-sectional study, we evaluated 107 patients with PD (65.43±9.47 years) with Hoehn and Yahr stages I-III, and 107 healthy participants (65.32±9.34 years). We measured the maximal inspiratory pressure (MIP), maximal expiratory pressure (MEP) and peak cough flow (PCF) by a peak flow-meter. The Unified Parkinson’s Disease Rating Scale (UPDRS) and Hoehn and Yahr scale were employed to analyze the symptoms and stages of the disease respectively. Results: The PD group showed an impairment of the MIP cmH2O (71.16±43.45 vs 89.72±33.03, p<0.01), MEP cmH2O (80.60±33.52 vs 107.88±41.25, p<0.01), PCF l/s (425.14±160.78 vs 481.74±148.28, p<0.01) than control group. There was a correlation between MIP and PCF (r=0.57, p<0.01), MIP and MEP (r=0.75, p<0.01) and MIP and symptoms (r=-0.21, p<0.01). Conclusion: The patients with PD showed decreased respiratory muscle strength, peak cough flow and these parameters were correlated with the symptoms of the disease.