Effectiveness of a Goal-Based Intensive Rehabilitation in Parkinsonian Patients in Advanced Stages of Disease

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Abstract: Background:Parkinsonian patients in advanced stages of disease suffer from many motor and non-motor symptoms, whose responsiveness to dopamine replacement therapy and deep brain stimulation is poor. It is necessary to find complementary strategies in order to improve the clinical conditions of patients in advanced Parkinson's disease (PD) stages. Objective:We aimed to understand whether an inpatient, motor-cognitive, multidisciplinary, aerobic, intensive and goal-based rehabilitation treatment (MIRT), specifically designed for PD, is effective for patients in advanced stages of disease. Methods:638 Parkinsonian patients, hospitalized to undergo a 4-week MIRT, were retrospectively identified. According to the Hoehn & Yahr (H&Y) scale, 496 were in H&Y stage 3 and 142 in H&Y stage 4-5. Outcome measures included: Unified Parkinson's Disease Rating Scale (UPDRS), Berg Balance Scale (BBS), Timed Up and Go Test (TUG), Six Minute Walk Test (6MWT), and Parkinson's Disease Disability Scale (PDDS). Results:At baseline all measures, except UPDRS IV, significantly worsened passing from H&Y stage 3 to H&Y stage 4-5 ($p \leq 0.002$ all). After rehabilitation all outcome measures significantly improved in both groups of patients ($p < 0.0001$ all). Comparing the amount of improvement in the two groups, significant differences were observed only for the changes in BBS and TUG (both $p < 0.0001$ after adjustment), with a better improvement in the H&Y stage 4-5 group. Conclusions:A multidisciplinary, motor-cognitive, intensive and goal-based rehabilitation treatment, such as MIRT, could be an effective complementary treatment in PD patients in advanced stages of disease.

Keywords: Advanced stages of disease, multidisciplinary treatment, Parkinson's disease, rehabilitation

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