

Abstract

Title: The effect of individual telerehabilitation on functional mobility and balance in patients with multiple sclerosis

Objectives: The aim of the thesis is to verify the usefulness of telerehabilitation in influencing balance disorders of people with multiple sclerosis and to describe the effect of telerehabilitation on balance disorders and functional mobility in patients with multiple sclerosis. The theoretical part aims to describe the current trends in telerehabilitation and therapy of balance disorders in patients with multiple sclerosis in the Czech Republic and abroad.

Methods: The research group consisted of 20 probands with multiple sclerosis, who subjectively perceived balance disorders. The group was divided into control and experimental group in a ratio of 1:1. The experimental group underwent an online twelve-week training course conducted in the form of the individual telerehabilitation (twice per week, 45 minutes each intervention). The training included strength and balance exercises supplemented by the Homebalance device. The control group underwent a twelve-week routine rehabilitation care, where patients underwent at least one individual physiotherapy and homework instruction. The initial and final examinations that all subjects underwent included functional tests: One-leg stance test, Berg Balance Scale (BBS), Timed Up and Go (TUG), TUG with cognitive task and standardized questionnaires: Modified Fatigue Impact Scale (MFIS), 12-Item Multiple Sclerosis Walking Scale (MSWS-12), Falls Efficacy Scale International (FES-I), Activities-specific Balance Confidence Scale (ABC Scale). The Shapiro-Wilk normality test was used to evaluate the distribution of the obtained data. Based on this Student's t-test, Wilcoxon test or Mann-Whitney test were applied.

Outcomes: The results showed a statistically significant improvement of the experimental group, when comparing initial and after 12 weeks of therapy data, in tests of functional mobility (TUG, TUG with cognitive task), balance (One-leg stance, BBS) and in standardized questionnaires (MSWS-12, MFIS). When comparing the experimental group with the control group, a statistically significant improvement of the experimental group was found in the functional mobility test (TUG), balance (One-leg stance, BBS) and in the standardized questionnaire ABC Scale. However, there was no statistically significant improvement in functional mobility with cognitive task

(TUG with cognitive task) or standardized questionnaires MFIS, MSWS-12, FES-I. The results suggested that individual telerehabilitation could be a feasible and suitable alternative to routine rehabilitation care for treatment of balance and mobility disorders in patients with multiple sclerosis.

Keywords: multiple sclerosis, telerehabilitation, balance, mobility, Homebalance