Abstract

Title: Evaluation of therapeutic treatment effect by gait analysis in patients with Parkinson's disease

Objectives: The aim of the presented diploma thesis is to expand the Parkinson´s disease (PD) information base and contribute to the elimination of existing contraindications. Specifically, the thesis is focused on researching the gate of patients with PD, as one of the subjectively most distressing symptoms of this disease.

Methods: 8 probands with Parkinson's disease aged 62–76 years participated in the research. Anamnestic questionnaires specialized in the diagnosis of PD were used to obtain basic information about the probands. Gait itself was tested using 3D kinematic analysis by the Qualisys device, and also by standardized physiotherapy tests indicated in the guidelines of physiotherapy for PD. Dual-task training, which was applied for six weeks, was chosen as the therapy method. A comparative t-test was used to evaluate statistically significant changes during walking after the therapeutic intervention.

Results: By evaluating the data using statistical tests and direct observation, a positive effect of the therapeutic intervention using dual-task training on the walking of patients with PN was found. Statistically significant changes in measurements using the Qualisys motion capture system were confirmed within average walking speed and stride height. At the same time, the correlation of these results with the results of standardized tests was confirmed, which confirmed positive changes in the area of influencing freezing of gait, turns, and especially the reduction of falls. With the help of the mentioned tools, it was possible to reduce the risk of falls in the group of probands, and at the same time to define the reduction of variability as a determinant of gait quality.

Keywords: Parkinson's disease, gait, dual-task, risk of falls, gait parameters, kinematic analysys