ABSTRACT

AIM: The objective of the present study was to estimate the influence of the driven gait orthosis Lokomat on the functional mobility in the post-stroke hemiparetic patients and to elucidate the mechanisms underlying the improvement of functional mobility after the treatment.

MATERIALS AND METHODS: The study included 141 patients presenting with post-stroke hemiparesis of the mean duration 12.00 [3.0; 14.5] months. The patients of the experimental group (n = 100) completed the robot-assisted training course, those of the control group (n = 41) were given conventional gait training therapy under the guidance of a specialist in therapeutic physical training. The results of the treatment were evaluated using the following clinical scales: Fugl-Meyer assessment scale, Modified Ashworth scale and Perry mobility scale. Step symmetry, intra- and interjoint kinematics were measured using the 3D gait videoanalysis system before and after the treatment course.

RESULTS: The study has demonstrated a decrease of step asymmetry, the improvement of kinematic gait parameters (hip flexion/extension and hip abduction/adduction amplitudes, hip abduction/ adduction and knee flexion/extension torque amplitudes) as well as inter- and intrajoint dynamic interactions. It is concluded that these changes can be the main causes behind the enhancement of the functional mobility of walking under the influence of training with the use of the driven gait orthosis Lokomat.