Does Robot-Assisted Gait Training Improve Balance in Hemiplegic Stroke: A Randomized Control Trial

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Introduction/Background: Robot-assisted gait training (RAGT) has become an important part of modern rehabilitation after stroke. There exists numerous evidence that end-effector type RGAT does significantly improve ambulation function of stroke patients. However, the effect of RGAT on balance is less well demonstrated. This study aims to explore the improved balance ability of subacute stroke which is measured with the Berg Balance Scale (BBS).

Material and Methods: 60 first-ever, non ambulatory subacute stroke patients were

randomized into experiment and control groups. The experiment group received 30 minutes RAGT plus 30 minutes conventional physical therapy while the control group received 60 minutes conventional physical therapy every working day for 4 weeks. The outcome measurements were assessed before, after four weeks treatment, and three months follow up period, using the BBS to determine if the treatment was effective for increasing the patient's balance ability.

Results: After four weeks treatment, both groups revealed significant improvement in balance scores measured by the BBS. The mean change after four weeks of the BBS of the experiment groups is 25.6(17.6), 95% CI=14.8-29.7 while in the control group is 9.8(12.6), 95% CI=5.2-14.4, P= 0.001, after three months is 33.2(17.4), 95% CI=22.3-37.2 of the experiment group and 15.7(18.0), 95% CI=9.1-22.3 of the control group, P= 0.001. There are 23/30 responders (who demonstrate a difference of more than 7 BBS points) from the experiment and 13/30 from the control group (P= 0.008).

Conclusion: RAGT plus conventional physical therapy can better improve balance ability of subacute stroke patients than solely conventional physical therapy.

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