

Locomotor imagery training improves gait performance in people with chronic hemiparetic stroke: a controlled clinical trial

Sujin Hwang Department of Rehabilitation Therapy, Yonsei University, Wonju, **Hye-Seon Jeon, Chung-hwi Yi, Oh-yun Kwon, Sang-hyun Cho** and **Sung-hyun You** Department of Physical Therapy, College of Health Science, Yonsei University. Institute of Health Science, Yonsei University, Wonju, Republic of South Korea

Received 13th August 2009; returned for revisions 31st August 2009; revised manuscript accepted 14th November 2009.

Objective: The purpose of this study was to evaluate whether locomotor imagery training leads to clinical improvements in gait after stroke.

Design: Pretest–posttest matched control design.

Participants: A total of 24 people with chronic hemiparetic stroke (13 for experimental and 11 for control) were recruited in this study.

Interventions: The subjects in the experimental group participated in videotape-based locomotor imagery training five days a week for four weeks. They also conducted regular physical therapy.

Outcome measures: Kinematic gait parameters were collected using a three-dimensional motion analysis system. Functional gait performance was assessed using clinical measures: Activities-specific Balance Confidence Scale, Berg Balance Test, Dynamic Gait Index and modified Emory Functional Ambulation Profile.

Results: After training, walking velocity increased 0.07 ± 0.06 m/s in the experimental group and 0.01 ± 0.07 m/s in the control group. In the experimental group, the affected and less affected limb stride lengths increased by 0.09 ± 0.12 m and 0.10 ± 0.07 m respectively, whereas in the control group they decreased by 0.00 ± 0.04 m and increased by 0.02 ± 0.06 m, respectively. Kinematic parameters in the lower extremity joints during walking were more improved after the training in the experimental group. Confidence in balance, postural control, dynamic balance and performance time for different environmental walking situations were also improved more in the experimental group.

Conclusion: Locomotor imagery training can be considered as a useful option for restoration of ambulation for individuals with chronic hemiparetic stroke who are unable to participate in physical gait training.

Introduction

Address for correspondence: Hye-Seon Jeon, Department of Physical Therapy, College of Health Science, Yonsei University, 234 Heoungup-Myon, MaeJi-Ri, Wonju City, Kangwon-do, Republic of South Korea 220-710.
e-mail: hyeseonj@yonsei.ac.kr or hyeseonj@hotmail.com

Gait dysfunction persists in individuals with stroke, although approximately 65–85% of patients are able to walk independently by six months following a stroke.¹ General