

The effect of hemispatial neglect on balance and functional mobility of patients with stroke

Bomi Kwon^{1*}, Hyun Haeng Lee¹, Hyuntae Kim¹, Jongmin Lee^{1,2†}

Konkuk University Medical Center, Department of Rehabilitation Medicine¹, Konkuk University, Institute of Biomedical Science & Technology²

Introduction

Clinicians have suspected poststroke hemispatial neglect may affect balance function and functional mobility with stroke. The Purpose of this study was to investigate the effect of poststroke hemispatial neglect on the balance and functional mobility of patients with stroke.

Methods

Among the patients with first ever stroke who were admitted to the university hospital for poststroke rehabilitation, patients with Korean Mini-Mental State Examination (K-MMSE) ≥ 24 and Motility Index (MI) of upper extremity ≥ 61 and MI of lower extremity ≥ 58 were included. Kessler Foundation-Neglect Assessment Process (KF-NAP) was used to decide whether the enrolled patients have hemispatial neglect or not. Patients with KF-NAP ≥ 1 were considered to have hemispatial neglect and the others were considered to not have it. We excluded patients with peripheral neuropathy that may affect sensory abnormality, vestibular dysfunction, visual field defect, Ataxia, Spasticity, or Sarcopenia. We used Berg balance scale (BBS), Functional Ambulatory Categories (FAC), modified Barthel index (BI) as the primary outcome measurements.

Results

We enrolled 35 patients with first-ever stroke (24 men; 28 ischemic; 30 supratentorial stroke; 59.06 ± 14.54 years). Interval between onset of stroke and evaluation of hemispatial neglect was 27.54 ± 28.79 days. The patients with hemispatial neglect have lower score of BBS and mBI, albeit without significance ($p = 0.069$ and $p = 0.136$, respectively). We however found out that the patients with hemispatial neglect have lower score in BBS subdomains significantly; standing with feet together, turning to look behind, turning 360 degrees, and placing alternate foot on stool ($p = 0.015$, $p = 0.048$, $p = 0.035$ and $p = 0.040$, respectively). We also showed that the patients with hemispatial neglect have lower score in one subdomain of mBI which was 'chair to bed transfer' ($p = 0.030$).

Conclusion

In the present study, we found out that patients with poststroke hemispatial neglect have balance dysfunction in a few of specific postural control, which may Result in disability of daily living. Therefore, poststroke patients with hemispatial neglect need to be trained to take good balance with doing the specific tasks.