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The effects of the computer-assisted cognitive rehabilitation on visuospatial perception, cognition, and activities of daily living in patients with unilateral spatial neglect from brain injury: A randomized controlled trial

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We compared the effect of computerized-assisted cognitive rehabilitation (CACR) and conventional rehabilitation (CR) on visuospatial perception, visual field and attention, and visual memory in patients with unilateral spatial neglect.

Twenty patients with unilateral spatial neglect from brain injury were randomized into the experimental group (n = 10) or the control group (n = 10). The experimental group received CACR intervention from RehabCom software, including saccadic eye movement, visual field, and visual-motor coordination training, whereas the control group received CR with 30 minutes for each intervention, five times a week for 4 weeks. Outcome measures were Motor-Free Visual Perception Test (MVPT) and Line Bisection Test (LBT) for visuospatial perception, Visual Span Test (VST) for visual field and attention, Visual Recognition Test (VRT) for visual memory, evaluated before and after each of intervention. A statistically significant difference was found in MVPT ($p < 0.01$), VST ($p < 0.01$), VRT ($p < 0.01$) between the groups after adjusting for baseline values but not in the LBT. Furthermore, the effect sizes showed a large effect on the MVPT and VRT and a moderate effect on the VST in favor of the CACR (Cohen's $d = 1.06$, 1.12, 0.67, and 0.58, respectively). Both groups demonstrated statistically significant improvement in all variables ($p < 0.01$).

The CACR was found to be more beneficial than CR at improving visuospatial perception, visual field and attention, and visual memory, implying that the CACR may be an effective intervention to treat the unilateral spatial neglect caused by brain damage.

Biography

Kyu-Hoon Lee is a Director at Department of Physical Medicine and Rehabilitation, Hanyang University. He has published more than 100 research article, book chapter, and edited three books in neurology rehabilitation and robotic walking rehabilitation field. He has published more than 10 paper in reputed journals and has been serving as an editorial board member of Korea rehabilitation medicine.

Yeon-Gyu, Jeong is a research professor at Hanyang University. He has published more than 30 research article in effects of rehabilitation interventions for neurologic system field. He has been serving as a reviewer of disability and rehabilitation & physiotherapy theory and practice.

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