

Tablet Computer Based Cognitive Rehabilitation Program, Injini, for Children with Cognitive Impairment

Authors : Eun Jae Ko, In Young Sung, Eui Soo Joeng

Abstract : Cognitive impairment is commonly encountered problem in children with various clinical diseases, including Down syndrome, autism spectrum disorder, brain injury, and others. Cognitive impairment limits participation in education and society, and this further hinders development in cognition. However, young children with cognitive impairment tend not to respond well to traditional cognitive treatments, therefore alternative treatment choices are need. As a cognitive training program, touch screen technology can easily be applied to very young children by involving visual and auditory support. Injini was developed as tablet computer based cognitive rehabilitation program for young children or individuals with severe cognitive impairment, which targeted on cognitive ages of 18 to 36 months. The aim of this study was to evaluate the efficacy of a tablet computer based cognitive rehabilitation program (Injini) for children with cognitive impairment. 38 children between cognitive ages of 18 to 36 months confirmed by cognitive evaluations were recruited and randomly assigned to the intervention group (n=20) and the control group (n=18). The intervention group received tablet computer based cognitive rehabilitation program (Injini) for 30 minutes per session, twice a week, over a period of 12 weeks, in addition to the traditional rehabilitation program. The control group received traditional rehabilitation program only. Mental score of Bayley Scales of Infant Development II (BSID II), Pediatric Evaluation of Disability Inventory (PEDI), Laboratory Temperament Assessment Battery (Lab-TAB), Early Childhood Behavior Questionnaire (ECBQ), and Goal Attainment Scale (GAS) were evaluated before and after 12 weeks of therapeutic intervention. When comparing the baseline characteristics, there was no significant difference between the two groups in the measurements of cognitive function. After 12 weeks of treatment, both group showed improvements in all measurements. However, in comparison of improvements after treatment, the intervention group showed more improvements in the mental score of BSID II, social function domain of PEDI, observation domain of Lab-TAB, and GAS, as compared to the control group. Application of the tablet computer based cognitive rehabilitation program (Injini) would be beneficial for improvement of cognitive function in young children with cognitive impairment.

Keywords : cognitive therapy, computer-assisted therapy, early intervention, tablets

Conference Title : ICPMR 2017 : International Conference on Physical Medicine and Rehabilitation

Conference Location : Rome, Italy

Conference Dates : September 18-19, 2017