World Academy of Science, Engineering and Technology
International Journal of Computer and Information Engineering
Vol:15, No:09, 2021

Effects of Virtual Reality on the Upper Extremity Spasticity and Motor Function in Patients with Stroke: A Single Blinded Randomized Controlled Trial

Authors : Kasra Afsahi, Maryam Soheilifar, S. Hossein Hosseini, Omid Seyed Esmaeili, Rouzbeh Kezemi, Noushin Mehrbod, Nazanin Vahed, Tahereh Hajiahmad, Noureddin Nakhostin Ansari

Abstract : Background: Stroke is a disabling neurological disease. Rehabilitative therapies are important treatment methods. This clinical trial was done to compare the effects of VR beside conventional rehabilitation versus conventional rehabilitation alone on spasticity and motor function in stroke patients. Materials and Methods: In this open-label randomized controlled clinical trial, 40 consecutive patients with stable first-ever ischemic stroke in the past three to 12 months that were referred to a rehabilitation clinic in Tehran, Iran, in 2020 were enrolled. After signing the informed written consent form, subjects were randomly assigned by block randomization of five in each block as cases with 1:1 into two groups of 20 cases; conventional plus VR therapy group: 45-minute conventional therapy session plus 15-minute VR therapy, and conventional group: 60-minute conventional therapy session. VR rehabilitation is designed and developed with different stages. Outcomes were modified Ashworth scale, recovery stage score for motor function, range of motion (ROM) of shoulder abduction/wrist extension, and patients' satisfaction rate. Data were compared after study termination. Results: The satisfaction rate among the patients was significantly better in the combination group (P=0.003). Only wrist extension was varied between groups and was better in the combination group. The variables generally had a statistically significant difference (P < 0.05). Conclusion: Virtual reality plus conventional rehabilitation therapy is superior versus conventional rehabilitation alone on the wrist and elbow spasticity and motor function in patients with stroke.

Keywords : stroke, virtual therapy, rehabilitation, treatment
Conference Title : ICVRM 2021 : International Conference on Virtual Reality in Medicine
Conference Location : Vancouver, Canada
Conference Dates : September 23-24, 2021