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Effects of whole-body vibration on fall risk and functional mobility in a case of unilateral chronic stroke patient

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Purpose: Whole-body vibration (WBV) has been used to improve neuromuscular function. The aim of the study is to determine whether whole body vibration is beneficial for fall risk and functional mobility performance in a chronic stroke patient.

Methods: A patient who is 37 years-old had hemorrhagic stroke in 2010. Hemiplegia was assessed via Brunnstrom motor recovery stage. The fall risk and functional mobility were measured by using Biodex Balance System and Timed Up and Go Test (TUGT). In treatment programme for lower extremity, 50 Hz vibration applied while patient was standing on a vibration platform for 1-minute six times in one session. The same protocol was performed while the patient was in quadriped position, their hands on the vibration platform for 30 seconds six times for upper extremity. The patient was treated three times a week for 10 session. The assessment were done before and after the treatment.

Results: Pre and post-treatment Brunsstrom motor recovery stages of lower extremity, upper extremity and hand were 4,5; 2,2; 2,3 respectively. Fall Risk Test overall stability index is 1.70± 0.35; 1.0±0.34. The affected and unaffected side TUGT score are 13,12 s and 15,13 s, respectively.

Discussion: The protocol which performed for this case can be used to improve functional mobility performance and may decreased fall risk in patients with chronic stroke. However, further studies are needed to develop a standard treatment program with WBV for fall risk and functional mobility performance among chronic stroke patient.

Biography

Denizoglu Kulli H is pursuing PhD in Biomedical Engineering and she is a Teaching Assistant in the Faculty of Health Sciences, Division of Physiotherapy and Rehabilitation at Bezmialem Vakıf University. Her research interests include "Biomechanics of human, cardiopulmonary and neurological rehabilitation especially stroke, exercise sciences.

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