

Efficacy of Transcranial Magnetic Therapy on Balance in Patients with Vestibular Dysfunction

Authors : Ibrahim M. I. Hamoda, Ahmed R. Z. Baghdadi, Mohammed K. Mohamed, Nawal A. Abu-Shady

Abstract : Background: Most of patients with vestibular dysfunction suffering from balance disorders, Abnormality in balance increase effort and exertion which affect the independency, so this study might be a guide in managing balance problem and consequently improve walking with less exertion and maximum function. Purpose: to analyze and discuss the effect of transcranial magnetic therapy on balance in patients with vestibular dysfunction. Methods: forty subjects from both sexes were classified to divided randomly into two equal groups; Group I study group: this group received transcranial magnetic therapy, with a selected physical therapy program for improving balance and vestibular disorders (Balance training, Cawthorne-Cooksey Exercises) and group II (control group): this group received a selected physical therapy program as group I without transcranial magnetic therapy. This treatment procedure will be applied three times weekly for three months. The mean age was 54.53 ± 3.44 and 55.33 ± 2.32 years and BMI 35.7 ± 3.03 and 35.73 ± 1.03 kg/m² for group I and II respectively. The Biodex Balance System, Berge balances scale (BBS) and brain MRI were used for assessment. Assessments were conducted before and after treatment. The treatment program for group I included balance training, Cawthorne-Cooksey Exercises and pulsed magnetic therapy (Parameters used in the program of 20 minutes, Intensity 2 gauss, Frequency 1 Hz). This selected program was done in approximately one hour every other day for three month. The treatment program group II Patients received the same program as group A without transcranial magnetic therapy. Results: The One-way ANOVA revealed that there were no significant differences in BBS scores, overall balance index, Anterior / posterior balance index, Medial / lateral balance index and dynamic limits of stability between both groups. Moreover, the BBS scores increased and overall balance index, Anterior / posterior balance index, Medial / lateral balance index and dynamic limits of stability decreased significantly after treatment in group I and II compared with before treatment. Interpretation/Conclusion: Adding pulsed magnetic therapy to balance training, Cawthorne-Cooksey Exercises has no effect on static and dynamic balance in patients with balance problems due to benign positional paroxysmal vertigo.

Keywords : balance, transcranial magnetic therapy, vestibular dysfunction, biomechanic

Conference Title : ICBSE 2015 : International Conference on Biomechanics and Sports Engineering

Conference Location : Kuala Lumpur, Malaysia

Conference Dates : February 12-13, 2015