



The Effect of Different Frequencies of Transcranial Magnetic Stimulation Combined with Aerobic Exercise on Cognitive Function in Stroke Patients

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Abstract:Repetitive transcranial magnetic stimulation (rTMS) holds promise as a therapeutic tool in cognitive impairment in stroke.The aim of this study to evaluate the effect of differentfrequencies of transcranial magnetic stimulation combined with aerobic exercise on cognitive function in stroke patients.Thirty right hand stroke patients,right side hemiparesis of both gender classified into three equal groups, (GI) received (10 Hz) frequency of rTMS combined with aerobic exercise and physiotherapy program while (GII) received (5Hz) frequency of rTMS combined with aerobic exercise and physiotherapy and (G III) received aerobic exercise and physiotherapy program. All patients evaluated by using Addenbrooke Cognitive Examination Revised for cognitive function and Transcrinal Doppler (TCD)for blood flow velocity in affected middle cerebral artery pre and post treatment and Neurophysiological evaluations included the intensity of motor threshold in each patient in both group (GI and GII) before the first session.There were significant differences in blood flow velocity in affected side(left MCA) in group (I, II and III) with a percentage of improvement (19.68, 10.98 and 7.35%), respectively. There were significant differences in addenbrookes cognitive examination within group (I, II and III) with a percentage of improvement (30.29, 26.92 and 17.79%), respectively and there were significant positive correlation ($P>0.05$) between improvement percentage of blood flow velocity in affected side of MCA and improvement percentage of total addenbrookes cognitive examination in groups I (10 HZ) and II (5 HZ), but a no correlation ($P>0.05$) was observed in group III (aerobic exercise).In our study we demonstrated that rTMS combined with aerobic exercise play a major role in increasing blood flow velocity which Reflect in improvement cognitive function in stroke patients mainly high frequency (10HZ).

Keywords:Stroke, Repetitivetranscranial magnetic stimulation,Aerobic exercise, Cognitive function.