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A STUDY TO ASSESS THE EFFECT OF MOTOR MENTAL IMAGERY IN THE REHABILITATION OF UPPER LIMB IN POST STROKE PATIENTS

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ABSTRACT **BACKGROUND:** Stroke is a complex pathology with many clinical presentations with unique impairments and activity limitations. Physiotherapy has a massive impact on quality of life of a stroke survivor. **AIM/ OBJECTIVES:** The aim of the study is to assess the effect of motor mental imagery in the rehabilitation of upper limb in post stroke patients. **METHOD:** 20 post stroke patients with the age between 40 to 70 years, were recruited for study. All patients were assigned motor mental imagery treatment for 4 weeks. The upper limb movements were trained. Pre and post test scores were analyzed. **RESULTS:** Statistical analysis showed significant improvement after performing motor mental imagery in rehabilitation for upper limb in post stroke patients. **CONCLUSION:** The study concluded that the upper limb function has improved in post stroke patients after performing the motor mental imagery for 4 weeks.

KEYWORDS : Stroke, motor mental imagery, rehabilitation, CAHAI

INTRODUCTION

Stroke can be referred as an accident to the brain with rapidly developing clinical signs of focal or global disturbance to cerebral function, with symptoms lasting 24 hours or longer, or leading to death, with no apparent cause other than of vascular origin and includes cerebral infarction, intracerebral haemorrhage, and subarachnoid haemorrhage". The more meaningful term is "brain attack", which could be similar in significance to "heart attack". Stroke is a sudden-onset neurologic dysfunction resulting from focal disruption to the cerebrovascular system that requires rapid diagnosis and intervention. Acute neurologic symptoms are a medical emergency that justify immediate transport to the emergency department of an acute-care hospital for evaluation and treatment.

Mental Mental Imagery of tasks is an advancing therapy that is receiving increasing attention within rehabilitation research. Mental Imagery or motor imagery has been proven to be effective in sports training and other skills training. The technique works effectively, because, when we mentally rehearse an activity, the same muscles are activated as if we are actually performing the activity. Repeated use of mental practice provides the same benefits as physically rehearsing a task. This has extended the application of mental practice for other skills development for normal individuals such as, playing instruments, or balance training for the elderly. Further researches are yet to be determined if the same assuring results could be obtained when this training method is used in persons with brain lesions, like stroke.

AIM/ OBJECTIVES:

The aim of the study is to assess the effect of motor mental imagery in the rehabilitation of upper limb in post stroke patients.

RESEARCH DESIGN AND METHODOLOGY:

An experimental study design was conducted with 20 patients within the age group of 60 to 70 years who fulfilled the inclusion and exclusion criteria.

INCLUSION CRITERIA

(1) Hemi-paretic patients with 50-70 years of age.
(2) No significant range of motion limitations in hemi-paretic upper limb.
(3) Mini-mental status examination score >24.
(4) Voluntary movement control to perform the task.
(5) Medically stable patients.

EXCLUSION CRITERIA:

(1) Perceptual disorders and Uncorrected vision problems.
(2) Symptomatic cardiac failure.
(3) Patients with other neurological disorders\ musculo-skeletal problems.
(4) Patients who are not able to follow the commands.
(5) Patients who are unwilling to participate

OUTCOME MEASURES:

CHEDOKE ARM AND HAND ACTIVITY INVENTORY (CAHAI-13)

The CAHAI-13 is a performance test using functional items. The purpose of this test is to evaluate the functional ability of the paretic arm and hand to perform tasks. The test consists of 13 functional tasks, which assess activities of daily living and upper extremity function.

PROCEDURE:

In this experimental study, 20 post stroke patients who signed the written informed consent were enrolled in this study. All the subjects were screened for selection criteria. The subjects who have met the inclusion criteria were selected for the study and the subjects who haven't met the inclusion criteria and who fall under the exclusion criteria were excluded from the study. The patients were initially assessed for functional outcome of the hand by means of Chedoke arm and hand activity inventory (CAHAI-13). Patients were treated with motor mental imagery training which includes task-specific activities. The duration of the treatment is 45min per day for 3days per week for 4 weeks. After 4 weeks of treatment the patients were again assessed for functional outcome of the hand by means of Chedoke arm and hand activity inventory (CAHAI-13).

DATAANALYSIS

Testing the effect of Treatment in increasing the value of CAHAI Score

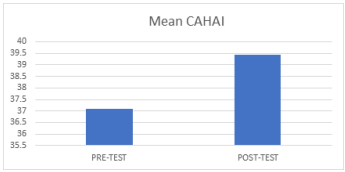
H0: There is no significant effect of Treatment in increasing the value of CAHAI score

H1: There is significant effect of Treatment in increasing the value of CAHAI score

The above hypothesis is tested by the use of Paired Sample t-test and the corresponding output is shown below:

t-Test: Paired Two Sample for Means

	PRE-TEST	POST-TEST
Mean	37.1	39.45
SD	5.96	5.83
Variance	37.46315789	35.83947368
Observations	20	20
Pearson Correlation	0.979741367	
Hypothesized Mean Difference	0	
df	19	
t Stat	-8.573469443	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.729132812	
P(T<=t) two-tail	0.00	
t Critical two-tail	2.093024054	



RESULT:

Test Statistic: $t = -8.57$, P-value $= 0.000 < 0.05$.

Since the p-value (0.000) of the test statistic is less than 0.05, we reject the null hypothesis at 5% level of significance ($t = -8.57$, $p < 0.05$). In addition, the mean value of CAHAI score is increased from Pre-test (37.1) to Post-test (39.45). Hence, the evidence is sufficient to conclude that there is significant effect of Treatment in increasing the value of CAHAI Score from Pre-test to Post-test.

CONCLUSION:

The study concluded that there is significant effect in the treatment of motor mental imagery in the rehabilitation of upper limb in post stroke patients.

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