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The Effect of Taping on Scapular Stability & Upper Limb Function in Recovering Hemiplegic Patients With Scapular Muscles Weakness--A Comparative Study

Medical Science.

KEYWORDS : Taping, scapula muscles weakness, chronic hemiplegia, CMAP.

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Introduction

Stroke is the 3rd leading cause of the death and an important cause of hospital admission and long term disability among Indian population. Stroke results from a disturbance of blood supply to a section of the brain & should not be considered as an isolated event but as a clinical consequence of a progressive underlying vascular disorder, which is having two major risk factors for stroke are high B.P. & age[3]. The World Health Organization Defines stroke as "Rapidly developing clinical signs of focal [or global] disturbance of cerebral function, with symptoms lasting 24 hours or leading to death, with no apparent cause other than vascular origin"[3]. Men have been reported to be at greater risk than women in two studies. Stroke accounts for 10-20% of all deaths in industrialized countries & about 88% of stroke deaths are among people over 65 years[3]. Most common deficit is motor impairment but not all strokes cause physical disabilities, about 16-25% of strokes have been reported to be non hemiplegic[3].

The most common of impairment of stroke is weakness or paralysis which is to be found in over 80% of CVA survivors at 3 months after stroke & even after one year hemiplegia or hemiparesis is to be found in 46% of patients[4]. Hemiplegia is the commonest form of paralysis, involving arm, leg and sometimes the face on one side of the body. Shoulder girdle in chronic hemiplegic suffers from two sorts of problems a) the spasticity of elevators and retractors which full the scapula into a fixed elevated and retracted position. b) the weakness of the opposite group of scapular muscles i.e. depressors and protectors.[5-9] This leads to instability of the scapulothoracic joint resulting in impaired functional use of the upper limb. Taping is method of maintaining orientation of the scapula by means of proprioceptive biofeedback to the patient. [10] Hence aim of this study is to check the effect of taping on scapular stability and upper limb function in recovering hemiplegics. Nerve stimulation techniques were used to study the effect of ischemia on nerve excitability and slowing of impulse propagation in ischemic nerve was demonstrated by Kugelberg, 1944; Cobb and Marshall, 1954.[11]

Material & Method:

SUBJECTS:

50 chronic hemiplegic patients with scapular weakness were taken and divided into two groups: Group A (Experimental group) and Group B (Control group).

SOURCE OF DATA COLLECTION:

1. Government Physiotherapy College, Surat.
2. New Civil Hospital, Surat.

INCLUSION CRITERIA:

1. Patients diagnosed as stroke leading to hemiplegia by neurologists.
2. Chronic stroke patient more than 9 months.
3. Hemiplegic patients demonstrating weakness of scapular muscles i.e. less than grade 3 on manual muscle testing scale.

EXCLUSION CRITERIA

1. Unconscious Patients
2. Hemiplegic Patient with unstable vital parameters
3. Hemiplegic Patient in flaccid stage
4. Hemiplegic Patient having spasticity greater than grade 2 according to Modified Ashworth Scale.
5. Hemiplegic Patient having contractures & deformity of the upper limb.
6. Hemiplegic Patient with cognitive & perceptual disorders.
7. Hemiplegic Patient having sensory, behavioural dysfunction & emotional liability.
8. Hemiplegic Patient who is having any associated history of trauma & other medical disorders of hemiplegic upper extremity.

SAMPLING:

Convenience sampling

METHOD:

Study Design: Experimental Study

50 chronic hemiplegic patients with scapular weakness were taken and divided into two groups: Group A (Experimental group) and Group B (Control group).

All the 50 chronic hemiplegic patients were evaluated by Fugl Meyer Physical Performance Assessment Scale for hemiplegic upper extremity before starting the treatment. Group A patients received scapular taping combined with physiotherapeutic exercises and Group B patients received only physiotherapeutic exercises for the period of two weeks.

After the 2 weeks both group A & B patients were reevaluated on Fugl Meyer Physical Performance Assessment Scale for hemiplegic upper extremity.

Pre and Post treatment Nerve Conduction Studies have been done on all the patients where Motor Distal Latency and CMAP was measured and compared for both the Cranial Nerve XI (Spinal Accessory Nerve) and Long Thoracic Nerve on affected side.

RESULT:

Table 1 Showing descriptive statistics of age variable in study population

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	25	30	73	50.98	10.046
Valid N (listwise)	25				

Table 2 Showing descriptive statistics of age variable group wise (Experimental and Control Population) Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
age_exp	25	30.00	73.00	51.7200	10.54251
age_control	25	31.00	70.00	50.3800	9.52952
Valid N (listwise)	50				

Mean age of the study population is 51.98 years ± 10.03. Mean age of experimental group is 51.72 years ± 10.54 years. Mean age of control group is 50.38 years ± 9.53 years. (Table 1 & 2)

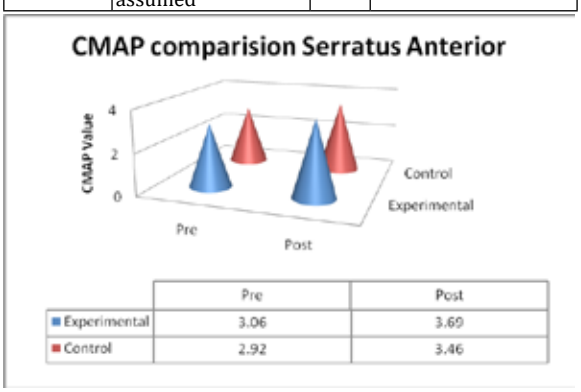
Table 3 Showing fugle Meyer Physical Performance assessment scale score in upper arm component for pre to post

intervention in both groups Group Statistics

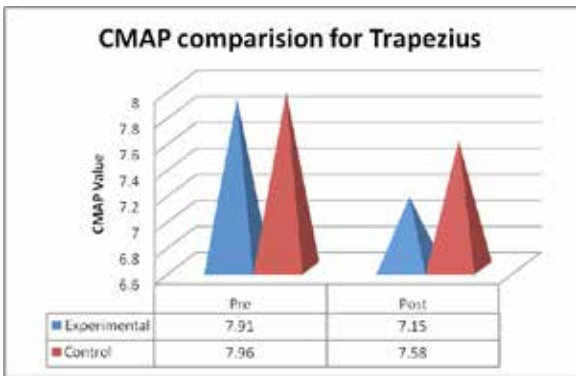
	Group	N	Mean	Std. Deviation	Std. Error Mean
upperarm_ pre	Experimental	25	22.94	5.549	.785
	Control	25	24.26	5.528	.782
upperarm_ post	Experimental	25	27.38	5.131	.726
	Control	25	26.22	5.697	.806

Table 3(a) Testing Levene's Test for Equality of Variances in upper arm component for pre to post intervention in both groups Independent Samples Test

		Levene's Test for Equality of Variances	
		F	Sig.
upper_ arm_pre	Equal variances assumed	.285	.595
	Equal variances not assumed		
upperarm_ post	Equal variances assumed	1.263	.264
	Equal variances not assumed		



Graph 1: CMAP for Serratus Anterior muscle Descriptive data for all groups



Graph 2: CMAP for Trapezius muscle Descriptive data for all groups

There was insignificant improvement between the pre and post treatment scores of Group A patients on the Fugl Meyer Physical Performance Assessment Scale of hemiplegic upper extremity, where as Group B patients score on same scale was insignificant. And during the measurement of CMAP of both serratus and Trapezius muscle also both the group showed insignificant difference.

CONCLUSION:

We concluded that scapular taping has no added effect as compared to conventional physiotherapy treatment in improving stability of the scapula and also in improving functioning motor performance in hemiplegic upper extremity in recovering hemiplegic patients along with traditional physiotherapeutic exercises.

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