*THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES*

# Effect of Problem -Oriented Willed Movement Therapy in Improving Motor Abilities in Post Stroke Cognitive Deficits

**Mohanraj K.**
Professor, Physiotherapy, K.G. College of Physiotherapy
K.G. Campus, Saravanampatti, Coimbatore, India

***Abstract:***
*Stroke or cerebrovascular accident is defined as a rapidly developing clinical sign of a focal or global disturbance of cerebral function lasting for more than 24 hours or leading to death due to no other reason than the vascular origin. Stroke is the third leading killer in the world and India after heart disease and cancer. Among all the neurological diseases of adult life, cerebrovascular disease clearly ranks first in frequency and importance. It is a pretest and posttest experimental study design 30 Patients of age between 40 to 60 years with stroke involving middle cerebral artery were divided into two groups. Group A consists of 15 patients and received problem oriented willed movement therapy. Group B consist of 15 subjects and received neurodevelopmental therapy. Treatment duration for both groups was 40-60 minutes with two sessions per day.*
*Motor ability was used as outcome measure and measured by Rivermead mobility index and Motor assessment scale. Pretest and posttest values were measured and analysed by Student't' test. The results showed that there was a significant difference between the effects of Problem oriented willed movement therapy and Neurodevelopmental therapy in improving lower extremity locomotor abilities in patients with post stroke cognitive deficits. The study concluded that Problem oriented willed movement therapy was effective than Neurodevelopmental therapy in improving lower extremity locomotor abilities of patients with post stroke cognitive deficits.*

***Key words****: Problem oriented willed movement therapy, Neurodevelopmental therapy, Lower extremity motor ability, Rivermead mobility index, Motor assessment scale*

## 1. Introduction

Stroke or cerebrovascular accident is defined as a rapidly developing clinical sign of a focal or global disturbance of cerebral function lasting for more than 24 hours or leading to death due to no other reason than the vascular origin (WHO 1997). Stroke is the third leading killer in the world and India after heart disease and cancer. Among all the neurological diseases of adult life, cerebrovascular disease clearly ranks first in frequency and importance (Adams, 1997). Stroke affects approximately 6, 00,000 individuals each year. With an estimated number of 4, 00,000 stroke survivors and incidence of stroke increases dramatically with age, doubling every decade after 55 years of age (Sullivan, 2001). Approximately 25% 0f stroke occurs in persons below 75 years is 10 per 1, 00,000 populations. In South India, then incidence of stroke is 56.9 per 1, 00,000 population (Daldal 1997).

Cerebral infarctions account for 80% primary intracerebral hemorrhage for 10% and subarachnoid haemorrhage for 5% 0f all the first strokes (Warlow, 1993). The middle cerebral artery is the most common site of occlusion and it supplies the lateral aspect of cerebral hemisphere that is frontal, temporal, parietal and subcortical structure including internal capsule, corona radiate, globus pallidus, most of the caudate nucleus and putamen. The most characteristics of MCA syndrome are contra lateral spastic hemiparesis, sensory loss of face, upper and lower extremities and with more involvement of face. Cognitive impairment is one of the common deficits in people after stroke. The rates of incidence of post stroke cognitive deficits have been reported to be 20% to 37%. It also affects function outcome after stroke. Problem oriented willed movement therapy and Neurodevelopmental therapy are methods of treatment in improving motor abilities of patients with post stroke cognitive deficits. The purpose of this study to compare the effect of Problem oriented willed movement therapy and Neurodevelopmental therapy in improving motor abilities in patients with post stroke cognitive deficits.

## 2. Methodology

A pretest and posttest experimental study design was adopted in this study. The study was conducted at Department of Neurology, K G Hospital, Coimbatore. Patients with stroke, age group varies from 40-60 years and both sexes were included. Patients with psychiatric illness, mental retardation, acute disease, acute renal disease, deformity and contractures in lower extremity, fractures, aphsia, dementia, severe sensory deficits, flaccid stage were excluded. By Purposive sampling, 30 patients were selected and divided into Group A and Group B. Each group consists of 15 patients. Group A received problem oriented willed movement therapy and Group B received neurodevelopmental therapy. Treatment duration for both groups was 40-60 minutes with two

sessions per day for two week. Motor ability was used as outcome measure and measured by rivermead mobility index and motor assessment scale (MAS). Pretest and posttest values were measured and analysed by Student't' test.

*2.1. Problem-Oriented Willed Movement Therapy*

This program emphasis the use of intact or relatively preserved sensory and cognitive function of the patient to facilitate their attention to achieve a specific motor task.

Position the patient and lay objects at the affected side. Activities are mat activities, sitting training, standing training and walking training

*2.2. Neurodevelopmental Therapy*

The main concepts of bobath approach are auto inhibition of abnormal pattern of movements and facilitating active automatic and voluntary movement. Reduction in abnormal tone can be obtained by change in parts of abnormal tone. This is called key points of control and they are usually proximal. Handling is used for facilitation of active movement.

The treatment divided into three stages. Initial stage, Second stage (training for leg), third stage (stage of relative recovery).

**3. Results and Analysis**

Table I and Figure I shows the results of Paired't' test analysis of pretest and posttest values for Group A and Group B. The result shows that there was a significant effect of problem-oriented willed movement therapy and neuro developmental therapy in improving motor abilities in post stroke cognitive deficits at 5% level of significance.

| RMI | PRE TEST MEAN | POST TEST MEAN | SD | PAIRED 't' VALUE |
|---|---|---|---|---|
| GROUP A | 4.07 | 10.9 | 1.36 | 19.6 |
| GROUP B | 3.67 | 7.73 | 1.53 | 10.3 |

*Table 1: Rivermead Mobility Index*

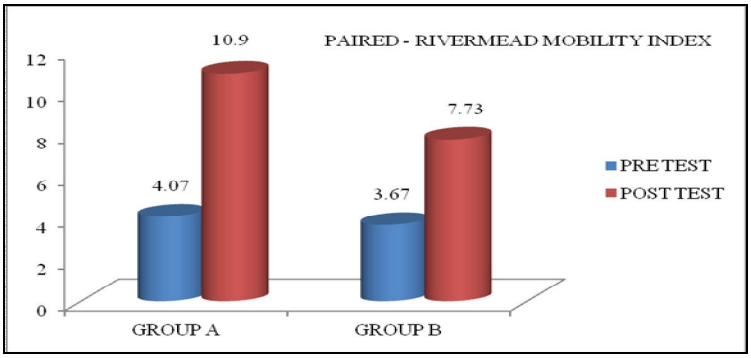


*Figure 1*

Table II and Figure II shows the results of Paired't' test analysis of pretest and posttest values for Group A and Group B. The result shows that there was a significant effect of problem-oriented willed movement therapy and neuro developmental therapy in improving motor abilities in post stroke cognitive deficits at 5% level of significance.

| MAS | PRE TEST MEAN | POST TEST MEAN | SD | PAIRED 't' VALUE |
|---|---|---|---|---|
| GROUP A | 10.7 | 21.0 | 1.72 | 23.3 |
| GROUP B | 10.9 | 18.5 | 1.45 | 20.5 |

*Table 2: Motor Assessment Scale*

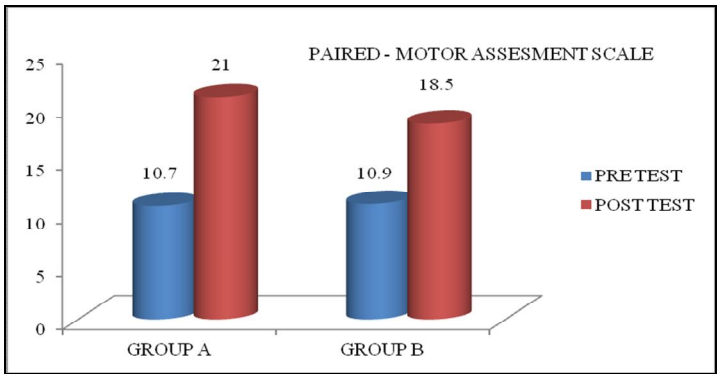


*Figure 2*

Table III and Figure III shows the results of Un Paired't' test analysis of pretest and posttest values for Group A and Group B. The result shows that there was a significant effect of problem-oriented willed movement therapy than neuro developmental therapy in improving motor abilities in post stroke cognitive deficits at 5% level of significance.

| RMI | PRE TEST MEAN | POST TEST MEAN | PRE TEST SD | POST TEST SD | PRE UNPAIRED 't' VALUE | POST UNPAIRED 't' VALUE | TABLE 't' VALUE |
|---|---|---|---|---|---|---|---|
| GROUP A | 4.07 | 10.9 | 1.00 | 1.22 | 1.09 | 7.17 | 2.101 |
| GROUP B | 3.67 | 7.73 | | | | | |

*Table 3: Rivermead Mobility Index*

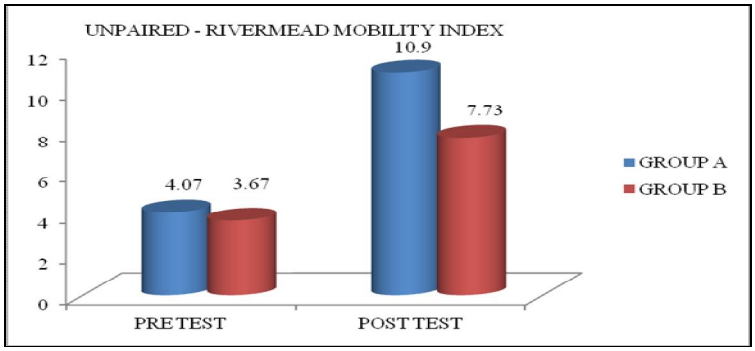


*Figure 3*

Table IV and Figure IV shows the results of Un Paired't' test analysis of pretest and posttest values for Group A and Group B. The result shows that there was a significant effect of problem-oriented willed movement therapy than neuro developmental therapy in improving motor abilities in post stroke cognitive deficits at 5% level of significance.

| MAS | PRE TEST MEAN | POST TEST MEAN | PRE TEST SD | POST TEST SD | PRE UNPAIRED 't' VALUE | POST UNPAIRED 't' VALUE | TABLE 't' VALUE |
|---|---|---|---|---|---|---|---|
| GROUP A | 10.7 | 21.0 | 1.40 | 1.69 | 0.391 | 4.0 | 2.101 |
| GROUP B | 10.9 | 18.5 | | | | | |

*Table 4*

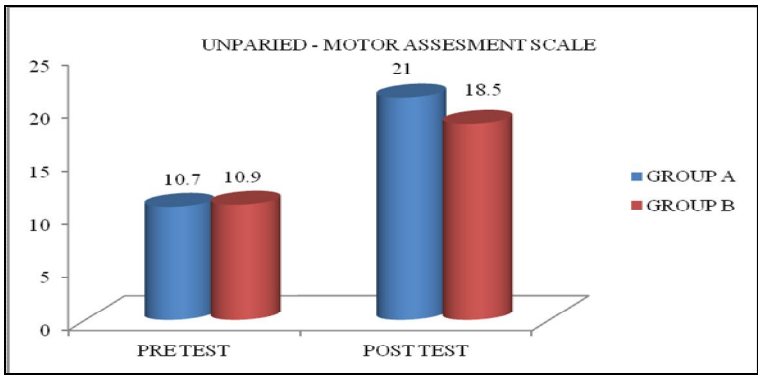


*Figure 4*

**4. Discussion**

This study was done to analyse the effect of problem oriented willed movement therapy and neuro developmental therapy in improving motor abilities in post-stroke cognitive deficits. In paired't' test problem oriented willed movement therapy and neuro developmental therapy showed significant effect in improving motor abilities in post-stroke cognitive deficits. Results of unpaired't' test for posttest values showed that there was significant difference between the effect of problem oriented willed movement therapy and neuro developmental therapy in improving motor abilities in post-stroke cognitive deficits. Cognitive deficits are some of the most important factors limiting ability to perform after stroke. Most treatment approaches focus on retraining of physical dysfunction without emphasis on cognitive dysfunction this leads to limited recovery. Over the years new treatment strategies require proper function. The aim of the study to analyse the effect of one of this approaches, problem oriented willed movement therapy in improving motor abilities after stroke. Mehod patel, et al., 2003 discuss the cognitive impairment following stroke and determine factors associated with recovery of post stroke cognitive deficits and examined the effect of this recovery on stroke outcomes. D.A Brown, et al., 1998 studied the individuals with severely limited physical and cognitive abilities improved the gross motor abilities when given physiotherapy intervention. The patients demonstrated improvement of gross motor abilities practiced during therapy. The reason for improvement in motor abilities includes emphasis on cognitive function, planning and organization of attention strategies, focus on problem solving, individualization of task components by using intact or relatively preserved sensory and cognitive functions.This study concluded that problem oriented willed movement therapy was effective in improving motor abilities in post-stroke cognitive deficits.

**5. References**

1. Patel M, Coshall C, Rudd AG, Wolfe CD. Natural history of cognitive impairment after stroke and factors associated with its recovery. Clin Rehabil. 2003; 17:158 –166.
2. Barba R, Martı´nez-Espinosa S, Rodrı´guez-Garcı´a E, et al. Poststroke dementia: clinical features and risk factors. Stroke. 2000;31:1494 –1501.
3. Zhou D, Wang JY, Li J, et al. Frequency and risk factors of vascular cognitive impairment three months after ischemic stroke in China: the Chongqing stroke study. Neuroepidemiology. 2005;24:87–95.
4. Tang WK, Chan SS, Chiu HF, et al. Frequency and determinants of poststroke dementia in Chinese. Stroke. 2004; 35:930 –935.
5. Fang, Y, Chen X, Li H, et al. A study on additional early physiotherapy after stroke and factors affecting functional recovery. Clin Rehabil. 2003;17:608–617.
6. Sisson RA. Cognitive status as a predictor of right hemisphere stroke outcomes. J Neurosci Nurs. 1995;27:152–156.
7. Paolucci S, Antonucci G, Gialloreti LE, et al. Predicting stroke inpatient rehabilitation outcome: the prominent role of neuropsychological disorders. Eur Neurol. 1996;36:385–390.
8. Ketelaar M, Vermeer A, Harl H, et al. Effects of a functional therapy program on motor abilities of children with cerebral palsy. Phys Ther. 2001;81:1534 –1545.
9. Salokorpi T, Rautio T, Kajantie E, Von Wendt L. Is early occupational therapy in extremely preterm infants of benefit in the long run? Pediatr Rehabil. 2002;5:91–98.
10. Patricia L, Weber MS. Closed head injury. In: Trombly CA, ed. Occupational Therapy for Physical Dysfunction. 2nd ed. Baltimore, Md: Williams & Wilkins; 1983:336–347.
11. Paci M. Physiotherapy based on the Bobath concept for adults with post-stroke hemiplegia: a review of effectiveness studies. J Rehabil Med. 2003;35:2–7.
12. Thelen E. Motor development: a new synthesis. Am Psychol. 1995; 50:79 –95.
13. Royeen CB, DeGangi GA. Use of neurodevelopmental treatment as an intervention: annotated listing of studies 1980–1990. Percept Mot Skills. 1992;75:175–194.
14. Tirosh E, Rabino S. Physiotherapy for children with cerebral palsy: evidence for its efficacy. Am J Dis Child. 1989;143:552–555.
15. Basmajian JV. Therapeutic Exercise. Baltimore, Md: Williams &Wilkins; 1978