Management of Hemiplegia through Preksha Meditation

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Abstract
Introduction: There are more than six lacs people with disabilities worldwide (World Health Organization, 2007), and hemiplegia is one of the more common disabling conditions. It is defined as the paralysis of one side of the body (Pedretti et al, 2001). Yoga and meditation have been stated to enhance neuromuscular coordination leading to better functioning of both voluntary muscles. Hence it may be used as a therapeutic tool to recover from hemiplegic disability. Method: Forty four volunteers suffering from hemiplegia of either gender in the age group of 30-55 years, having body weight in the range of 45-65 Kg and height 155-170 cm were recruited for the present study. The practice module of Preksha Meditation consists of Yogic Kriya, Kayotsarga (relaxation), Sharir Preksha (Perception of Body) and Anupreksha (Contemplation) was applied as therapeutic intervention with the aim of a possible recovery from hemiplegia. Result: A significant improvement was noticed in the values of the strengths of both shoulder flexion and abduction movement and elbow's flexion movement after 3 months practice of Preksha Meditation. The same happened with the flexibility of shoulder and elbow. A significant decline in heart rate and blood pressure was also noticed. There was no such significant improvement in control group. The findings indicate the impact of experimental intervention i.e. Preksha Meditation.

Key words - Hemiplegia, Preksha Meditation, Kayotsarga, Sharir Preksha, Anupreksha

Introduction

There are more than six lacs people with disabilities worldwide (World Health Organization, 2007), and hemiplegia is one of the more common disabling conditions. It is defined as the paralysis of one side of the body (Pedretti et al, 2001). It is caused by lesion, injury or infection in the opposite hemisphere of the brain. People with hemiplegia often display difficulties in mobility, abnormal cardiopulmonary, and sensory functions (Savinelli et al, 1978). These difficulties affect their activities in daily living such as dependence on others in self-care and work and thus have a negative impact on the quality of their life (Kong et al, 2006, Pedretti et al, 2001). They may feel angry, depressed, and guilty when facing these challenges (The Royal College of Psychiatrists, 2007).

Facial hemiplegia is characterized by paralysis of one particular side of the face. Cerebral hemiplegia occur when a brain lesion disrupts the flow of blood to the brain. Spastic hemiplegia is characterized by paralysis along with spastic movement of the affected side. The most common cause of hemiplegia is stroke. A stroke occurs either when a blood clot forms and obstruct normal blood flow or when a blood vessel breaks, cutting off or disrupting blood flow. Stroke is the main cause of cerebral palsy, which further leads to hemiplegia.

Conservative therapy for people suffering for hemiplegia involves medical and surgical treatments. These aim to prevent complications from injuries such as cardiac diseases and pneumonia. Physiotherapy, occupational therapy, and

speech therapy are also common treatments used to improve physical functions and maximise daily living and communication skills (Pedretti et al., 2001; Sunnerhagen, 2006).

Yoga and meditation has been stated to enhance neuromuscular coordination leading to better functioning of both voluntary and involuntary muscles. In such conditions guided movements of voluntary organs are tend to improve because of better motor performance of related neurons. Meditation practices always lead to balance in overall neurotransmitter profile of those motor neurons which are involved in motor coordination of muscle helping progressive recovery from various movement disabilities. Preksha Meditation is a system of meditation based on perception theory. Perceiving and knowing is the fundamental element of this meditation. It has been observed by Shekhawat & Mishra (2013) and Khangarot & Mishra (2013) that Preksha Meditation modulates the functions of central nervous system along with autonomic nervous system which be taken as be a positive sign for the patients of hemeplegia.

It may play a vital role in significant recovery from hemiplegic disability. In the present study it was intended to asses the possible role of Preksha Meditation in any possible recovery from hemiplegic disability and also to provide with a low cost home based programme that will motivate patients and can be adapted in to the rehabilitation process.

Material and Methods

Forty four volunteers suffering from hemiplegia of either gender in the age group of 30-55 years, having body weight in the range of 45-65 Kg and height 155-170 cm were recruited for the present study. The subjects were familiarized with the aim and objectives of the study as well as laboratory environment and written consent was obtained from them. They were divided into two groups of twenty two each. Group I called Experimental group and the subjects of this group were let learn Preksha Meditation as therapeutic intervention while Group II called Control group received no specific training and carried on with their routine activities. The practice module of Preksha Meditation was consists of Yogic Kriya, Kayotsarga (relaxation), Sharir Preksha (Perception of Body) and Anupreksha (Contemplation). The Preksha Meditation training was given to and practiced by experimental group of subjects under the guidance of qualified PM instructor as per details described in literature. Practice session was six days a week during the morning hours for Sixty minutes (1 hour) for a total duration of three months.

Preksha Meditation Practice Module

The experimental group of subjects were trained to practice the under mentioned module:

Yogic Kriya - 25 min
Kayotsarga - 10 min
Sharir Preksha - 15 min
Anupreksha - 10 min

Parameters of Assessment

On the day of test, the subjects reported at our laboratory in the morning after overnight fast. The laboratory temperature was maintained $27^0 \pm 2^0$C. All the measurements were taken in the resting supine position. Arterial BP was measured by Sphygmomanometer, the cuff being maintained at the heart level. Heart rate was measured with the help of multipara-monitor. Strength of shoulder flexion, shoulder abduction and elbow flexion by MRC grading. Flexibility (passive) of shoulder flexion, shoulder abduction and elbow flexion with the help of Goniometer. Three recordings at one minute intervals were taken and the mean of these values was included in study.

Statistical analysis

To analyze the results statistically the comparison between control and experimental groups were made by using *Student's* 't' test. For intra group comparison paired 't' test and for inter group comparison independent 't' test were used. A 'p' value of less then 0.05 was accepted as level of significance.

Results

The mean values of heart rate have shown homogeneity in both the group at the onset of observation but after three months experimental intervention the heart rate in experimental group found decreased (Fig. 1), whereas no such significant difference was there in control group.

Systolic blood pressure was found decreased in experimental group of subjects after three months of Preksha Meditation intervention (Fig. 2). The control group of subjects remain in same range. When we compared both the groups for blood pressure at 0day stage, no significant difference was there showing homogeneity, but there was a significant difference between both the groups after 3 months which confirms the effect of experimental intervention. The diastolic blood pressure of the subjects of the experimental group has again shown a significant decline where as no such difference was there in control group of subjects (Fig. 3). In inter group comparison at beginning no significant difference was there and both the groups have shown homogeneity but after 3 months significant difference was noticed. It reveals that our experimental intervention have led to reduction in the blood pressure of the patients of hemiplegia, which is good sign of improvement.

A significant improvement was noticed in the values of the strengths of both shoulder flexion and abduction movement and elbow's flexion movement after 3 months practice (Fig. 4, 5 & 6) of Preksha Meditation. The same happened with the flexibility of shoulder and elbow. There was no such significant improvement in control group (Fig. 7, 8 & 9), which indicate the impact of experimental intervention Preksha Meditation.

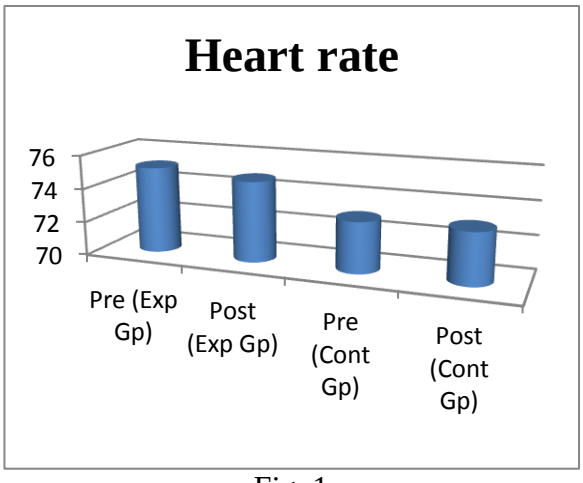


Fig. 1

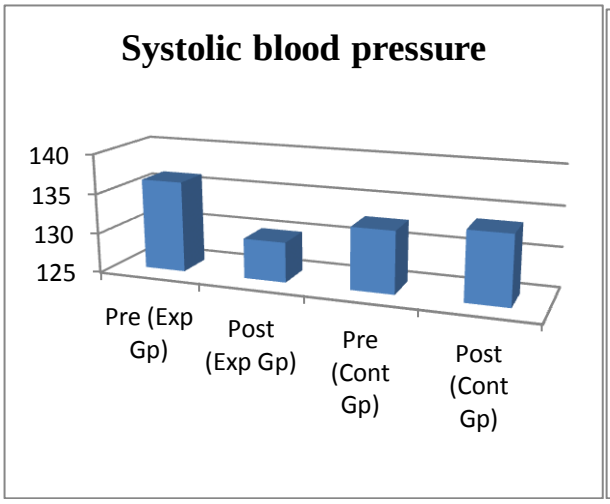
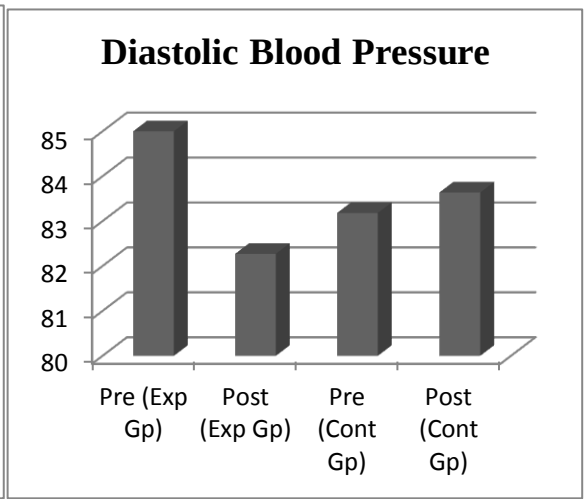


Fig 2



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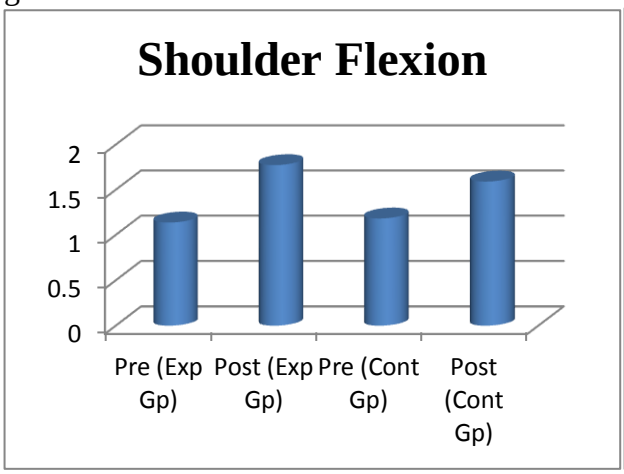

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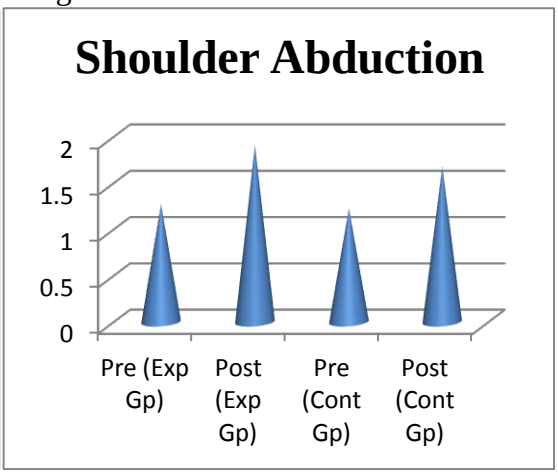

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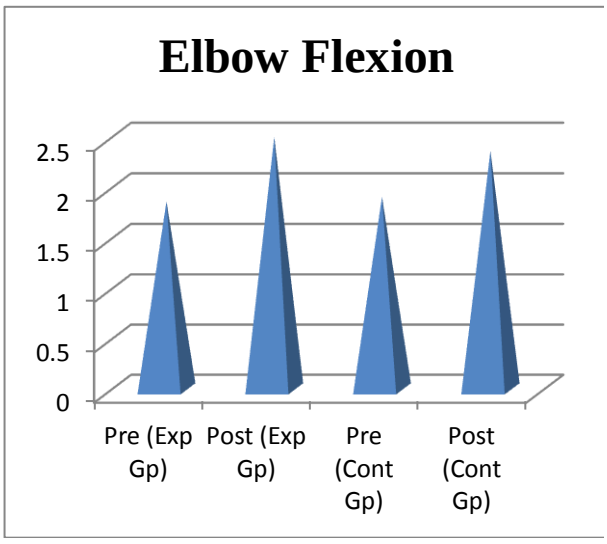

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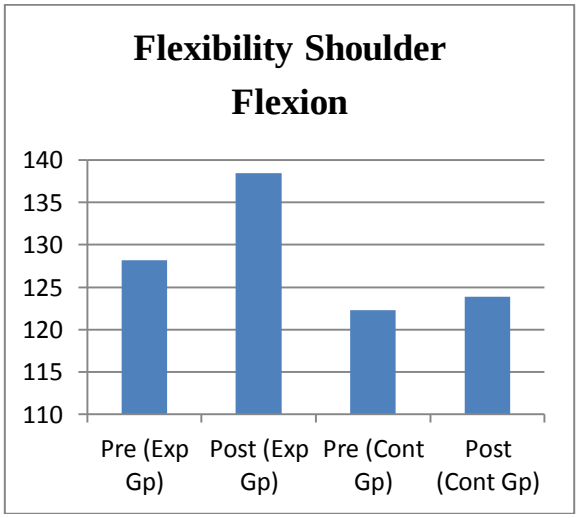

Fig. 7

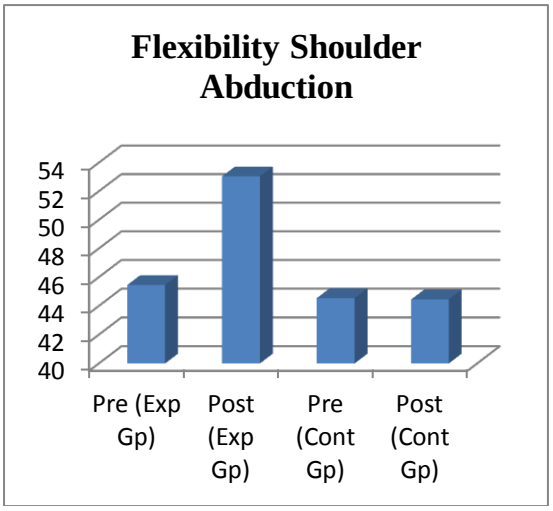

Fig. 8

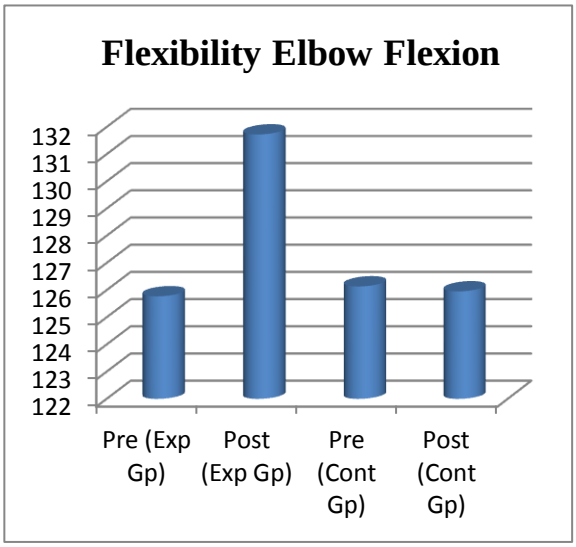

Fig. 9

Discussion

It has been suggested that conservative treatments like physiotherapy, occupational therapy, and speech therapy are more effective and beneficial to get the result of recovery from the problem of hemiplegia. Studies have documented the effectiveness of such therapeutic activities in improving the muscular movement functions of people with hemiplegia (Pedretti et al., 2001; Saunders et al., 2004; Savinelli et al., 1978). Meditation bring a psychosocial therapy seems to be useful in assisting to cope up with hemiplegia. It helps getting relieved in the emotional disturbances and challenges involved during the adjustment period. It can equip the patients in learning how to cope with disabilities. As has been observed, patients of hemiplegia are comfortable in an atmosphere where they feel accepted, their viewpoints recognised, and their feelings validated through the process.

Yoga and meditation has also been commonly used for muscle relaxation (Ghoncheh, 2004). It can be performed by most people, including young people and cardiac patients (Ades et al, 2003, Tran et al, 2001, Raub et al, 2002, Dash et al, 2001). It has been used to build core stability during and after pregnancy (Berk, 2001) and has been shown to increase creativity and reduce stress,(Khasky et al, 1999) as well as to improve muscle power, dexterity, visual perception, (Raghuraj et al, 1997) and reaction time (Madanmohan et al, 1993). While strength, endurance, and muscle reaction times have been previously quantified but little has been done to quantify muscle use during yoga practice (Narayan et al, 1990, Dostalek et al, 1979). The results of the Practice of Preksha Meditation as applied in the present study have depicted worthful impacts on muscle strength.

It is also known that yoga is a good training technique for muscle relaxation. It also reduces anxiety (Platania, 1992) and has been shown to decrease neurological reaction time and improve muscle strength and endurance of the expiratory and abdominal muscles (Madanmohan et al, 1993). The findings of the present study are in the conformity of this opinion. During some Yoga practices, it has been observed that under altered state of consciousness because of certain yogic practices including meditation hemiplegia patients could raise their hands beyond the level upto, which they used to raise normally. This may be due to the removal of inhibitions over the unaffected area of the brain. As observed in present study the improved shoulder and elbow muscle

functions, Preksha Meditation might have promoted the activity of those muscles through activating the suppressed neurons in the brain because of various causative factors of hemiplegia (http://www.svyasadde.com, 2000). In acute attack of stroke, generally every person becomes completely immobile. Then they gradually recover and start movement to reach maximum level in 3-6 months. In some case this recovery is not complete. This may be due to lack of awareness. Understanding of minute levels of damage may help the patient to improve the use of the affected limp (some more). Yoga and meditation let expand internal awareness it might have caused regenerative potentials in various neuromuscular junctions which has led functional recovery in muscle strengths of voluntary organs following experimental intervention. The practice of Anupreksha (contemplation) has been reported to enhance the reverberating circuits in the neurons of brain (Jhaveri, 1992) which further improves the motor coordination of muscle activities. Probably this might have yielded better recovery in the muscle strengths as evident in the findings of present study.

Thus it may be inferred from the results that regular practice of Yoga- Preksha Meditation earns positive and beneficial effects in hemiplegia and it may be accounted for cost effective and useful technique to get recovery from the problem of hemiplegia, which will be an ample contribution in the rehabilitation of hemiplegia patients.

References

1. Ades PA, Savage PD, Cress ME, et al. Resistance training on physical performance in disabled older female cardiac patients. Med Sci Sports Exerc. 35 (2003) 1265-1270.
2. Berk B.Yoga for moms. Building core stability before, during and after pregnancy. Midwifery Today Int Midwife. 59 (2001)27-29.
3. Dash M,Telles S. Improvement in hand grip strength in normal volunteers and rheumatoid arthritis patients following yoga training. Indian J Physiol Pharmacol. 45 (2001) 355-360.
4. Dostalek C, Faber J, Krasa H, et al.Yoga meditation effect on the EEG and EMG activity. Act Nerv Super (Praha). 21(1) (1979) 41.
5. Ghoncheh S, Smith JC. Progressive muscle relaxation, yoga stretching, and ABC relaxation theory. J Clin Psychol.60 (2004) 131-136.
6. http://www.svyasadde.com/event/2000/incofyra/33g.asp
7. Jhaveri J. B. Structure and function of human body. Jain Vishva Bharati, Ladnun. (1992) 58.
8. Khangarot Y. S. & Mishra J. P. N. Neural, Autonomic and Neuro-muscular impact of Kayotsarga (meditative relaxation) in adult females. A doctoral thesis unpublished, JVBI, Ladnun. 2013.
9. Khasky AD, Smith JC. Stress, relaxation states, and creativity. Percept Mot Skills. 88 (1999) 409-416.
10. Kong, K. H., & Yang, S. Y. Health-related quality of life among chronic stroke survivors attending a rehabilitation clinic. Singapore Medical Journal. 47(3) (2006) 213-218.
11. Madanmohan, Thombre DP, Balakumar B, et al. Effect of yoga training on reaction time, respiratory endurance and muscle strength. Indian J Physiol Pharmacol. 36 (1993) 229-233.
12. Narayan R, Kamat A, Khanolkar M, et al. Quantitative evaluation of muscle relaxation induced by Kundalini yoga with the help of EMG integrator. Indian J Physiol Pharmacol. 34 (1990) 279-281.
13. Pedretti, L. W., Smith, J. A., & Pendleton, H. M. Cerebral vascular accident. In L. W. Pedretti & M. B. Early (Eds.), Occupational therapy: Practice skills for physical dysfunction. St. Louis, MO: Mosby (5th ed.) (2012) 785-806.
14. Platania-Solazzo A, Field TM, Blank J, et al. Relaxation therapy reduces anxiety in child and adolescent psychiatric patients. Acta Paedopsychiatr. 55 (1992) 115-120.

15. Raghuraj P,Telles S. Muscle power, dexterity skill and visual perception in community home girls trained in yoga or sports and in regular school girls. Indian J Physiol Pharmacol. 41(1997) 409-415.
16. Raub J. Psychophysiologic effects of Hatha yoga on musculoskeletal and cardiopulmonary function: a literature review. J Altern Complement Med. 8 (2002) 797-812.
17. Saunders, D. H., Greig, C. A., Young, A., & Mead, G. E. Physical fitness training for stroke patients. Cochrane Database of Systematic Reviews. 1 (2004)1-41.
18. Savinelli, R., Timm, M., & Montgomery, J. Therapy evaluation and management of patients with hemiplegia. Clinical Orthopaedics and Related Research. 131 (1978) 15-29.
19. Shekhawat P. S. & Mishra J. P. N. Psychophysiological efficacy of Preksha Meditation Journal of Indian health psychology. 2 (2) (2008) 186-195.
20. Sunnerhagen, K. S. Circuit training in community-living "younger" men after stroke. Journal of Stroke and Cerebrovascular Diseases. 16(3) (2006) 122-129.
21. The Royal College of Psychiatrists. Coping with physical illness. Retrieved from http://www.rcpsych.ac.uk/mentalhealthinformation/mentalhealthproblems/physicalillness/copingwithphysicalillness.aspx (2007).
22. Tran M, Holly R, Lashbrook J, Amsterdam E. Effects of Yoga practice on the health-related aspects of physical fitness. Prevent Cardiol. 4 (2001) 165-170.
23. Wong, C. W., Lee W. K., & Lau, B. S. T. Are Chinese men less susceptible to anxiety and depression? A community-based cross-sectional survey from Hong Kong. Journal of Men's Health and Gender. 3(2) (2006) 152-159.
24. World Health Organization. Disability, including prevention, management and rehabilitation. Retrieved from http://www.who.int/nmh/a5817/en/. (2007).