ejpmr, 2023, 10(12), 368-371

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

EFFECTIVENESS OF COMPREHENSIVE THERAPEUTIC APPROACH IN THE MANAGEMENT OF SONOGRAPHIC STRUCTURAL ABNORMALITIES ASSOCIATED WITH POST STROKE SHOULDER PAIN

Dr. K. Kalyana Bharathi MPT*[1], Dr. P. Kiran Prakash MPT [2], Dr. P. Apparao MPT,PHD[3] and Ganapathi Swamy[4]

[1]Postgraduate, Swatantra Institute of Physiotherapy and Rehabilitation, GSL Medical College Rajamahendravaram.
[2]Professor, Department of Physiotherapy, Swatantra Institute of Physiotherapy and Rehabilitation, GSL Medical College, Rajamahendravaram.
[3]Principal of College, Swatantra Institute of Physiotherapy and Rehabilitation, GSL Medical College, Rajamahendravaram.
[4]Professor, Department of Statistics, GSL Medical College, Rajamahendravaram.

***Corresponding Author: Dr. K. Kalyana Bharathi MPT**

Postgraduate, Swatantra Institute of Physiotherapy and Rehabilitation, GSL Medical College Rajamahendravaram.

Article Received on 04/10/2023 **Article Revised on 25/10/2023** **Article Accepted on 15/11/2023**

ABSTRACT

Background and Objective: Shoulder pain after stroke is one of the disabling complications which is associated with poor recovery of upper limb, decreased quality of life, longer hospital stay. Some Studies reported that the incidence of PSSP ranges from 16% to 84% and also researchers found that soft tissue injuries around shoulder is a primary contributor to post stroke shoulder pain. High-resolution real-time sonography has been shown to be a successful imaging technique to assess both rotator cuff and non-rotator cuff disorders. **Methods:** Quasi experimental study design. 60 subjects with age of above 50 years having clinical diagnosis of post stroke shoulder pain were allocated into single group. All the subjects are Pre and Post screened by Sonographic evaluation for Structural Abnormalities and SPADI assessment for Shoulder Pain, Disability. After completion of prescreening, subjects participated in Standard Rehabilitation Programme for 3 sessions per week for 8 weeks study duration. **Results:** In this study 60 participants completed Standard Rehabilitation training. Paired student "t" test was performed to assess the statistical difference within the group by SPADI for Shoulder Pain, Disability, structural abnormalities. **Conclusion:** In this present study participant has shown significant improvement in the structural abnormalities and shoulder pain, Disability scores after the 8 weeks of comprehensive therapeutic approach. So, this study concluded that comprehensive therapeutic approach was effective in the management of post stroke shoulder pain.

KEYWORDS: Post Stroke Shoulder Pain, Standard Rehabilitation Programme, Musculoskeletal Ultrasound.

INTRODUCTION

Pain in the Hemiparetic shoulder is a most common consequence of hemiplegia due to Cerebrovascular lesions, stroke is the 3rd. leading cause of death and its leads to neuronal damage, It is usually develops within 2 to 3 months after stroke. Pain in the shoulder usually spontaneous, but it is elicited by various stimuli. Risk of injury appears greater in early stages of recovery after stroke.[1] The hemiplegic shoulder pain is also associated with prolonged hospital stay that can hamper the rehabilitation. Pain negatively impacts patient's quality of life and also associated with psychological distress. It has been reported that HSP is associated with depression, disturbed sleep, and that limits patient's participation in the rehabilitation.[2] There is an inconsistency in reporting incidence and prevalence of HSP following stroke. Some studies reported that the incidence of HSP ranges from 16% to 84% and also some researchers found that soft tissues injuries around shoulder are a primary contributor to Post Stroke Shoulder Pain.[3] The Mechanisms underlying the development of post stroke shoulder pain is a complex issue due to the involvement of Nociceptive and Neuropathic mechanisms in both central and peripheral nervous system.[4] The causes of hemiplegic shoulder pain has described as neurological abnormalities including shoulder muscle flaccidity or spasticity, sympathetic dystrophy, thalamic pain, soft tissue lesions that includes rotator cuff tears, adhesive capsulitis and restricted joint range of motion could damage the surrounding soft tissues in Subjects with PSSP.[5] Roy et al and Aras et al reported the incidence of shoulder pain in stroke subjects have poor motor function of the paralytic upper extremity, limited shoulder range of motion due to degeneration of Articular surfaces and Soft tissues.[7]

The exact Etiology of HSP is often difficult to determine and is considered to be multifactorial in most cases. Studies over the past two decades have demonstrated a high incidence of rotator cuff pathologies and impingement syndrome in hemiplegic shoulder subjects.[8] Kalichman et al., proposed a systemization for pathologies underlying post stroke shoulder pain which includes impaired motor control and soft tissue lesions.[9] Several objective methods, including physical examinations and imaging techniques are used in evaluating soft tissues injuries of the shoulder, physical examinations such as the Neer test, Drop Arm Test, Speed Test are commonly used to diagnose rotator cuff injuries. Shoulder structural abnormalities can be easily identified by Ultrasonography, High frequency Sonography identifies the structural abnormalities in the shoulder girdle complex that is difficult to assess by clinical examination.[10] The Sensitivity and Specificity of Ultrasonography for the diagnosis of rotator cuff injuries has been reported to vary from 57 – 100% and 76 – 94%.[11]

According to Hongxing wang 2017 et al., explained MU guided physical therapy exercises along with drug administration for 2 months can effectively improve range of motion and also reduces multiple sites of effusion and thickness of long head of biceps tendon, subscapularis muscle tendon.[12]

Wide variety therapeutic approaches have been used for hemiplegic shoulder pain; some authors recommended that standard rehabilitation can alter specific muscle and joint impairments presented in the subjects. Standard rehabilitation that emphasizes on improving rotator cuff pathologies and scapular stabilizers.[13]

Recently, various Systematic reviews and an Evidence based clinical practice guidelines have evaluated the efficacy of Stroke Rehabilitation interventions. The main goal of Standard Rehabilitation method is to help Subjects to achieve their highest functional level, by application of sensori motor training, manual therapy, Strengthening exercises, Stretching, along with PNF and kinesiotaping. The primary intension of PNF exercises in specific patterns is to enhance strengthening and relaxation of muscle groups. Previous studies hypothesized that diagonal scapular patterns will be effective in Hemiplegic Shoulder Pain. A study showed that kinesio taping method may facilitate or inhibit muscle function and support joint structure for the upper extremity in HSP Subjects.[14]

This Current Study focused on Structural changes along with Shoulder Pain and Disability through comprehensive therapeutic approach in subjects with Post Stroke Shoulder Pain. So, the Aim of this study was to find out the Effectiveness of Comprehensive Therapeutic Approach in the management of Sonographic Structural Abnormalities Associated with Post Stroke Shoulder Pain.

METHODOLOGY AND MATERIALS

Methodology: Quasi Experimental Study Subjects clinically diagnosed as stroke having Post Stroke Shoulder Pain. Subjects were recruited from GSL Medical College and General Hospital, Department of Physiotherapy, Rajahmundry. The Study was conducted during the period between July 2020 to June 2021. Non-Probability Sampling Design Both males and females with Post Stroke Shoulder Pain. By Non-Probability Sampling method a total number of 60 subjects both men and women above age of 50 years who clinically diagnosed as having Post Stroke Shoulder Pain.

MATERIALS

1. Musculoskeletal ultrasound
2. Kinesiotape
3. Therabands
4. Dumbells

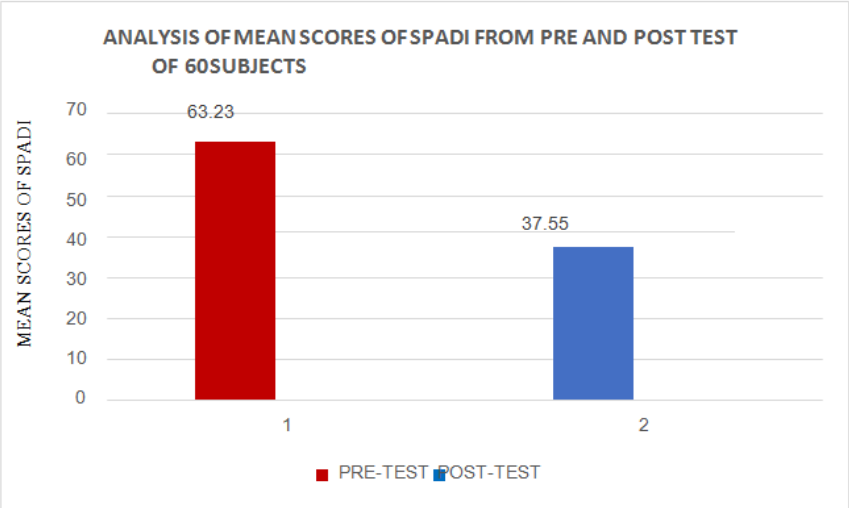
RESULTS

The aim of the study was to compare the effectiveness of comprehensive therapeutic approach on Structural abnormalities in Post Stroke Shoulder Pain. The consort flow chart of the study showed the Study organization in terms of subjects screening, random allocation and analysis following the intervention.

A total of 66 subjects were screened for eligibility amongst 60 subjects was included in the study trail. All the 60 subjects who met inclusion criteria have baseline assessment of SPADI and Musculoskeletal Ultrasonography. In this study 60 participants completed standard rehabilitation training results showed that there was a statistical difference in pre and post MUS and SPADI.

Table 1: Analysis of Mean scores of SPADI from pre test to post test of 60 subjects.

SPADI	Mean	SD	P-value	Inference
Pre Test	63.23	9.401	0.000*	Highly Significant
Post Test	37.55	8.840		

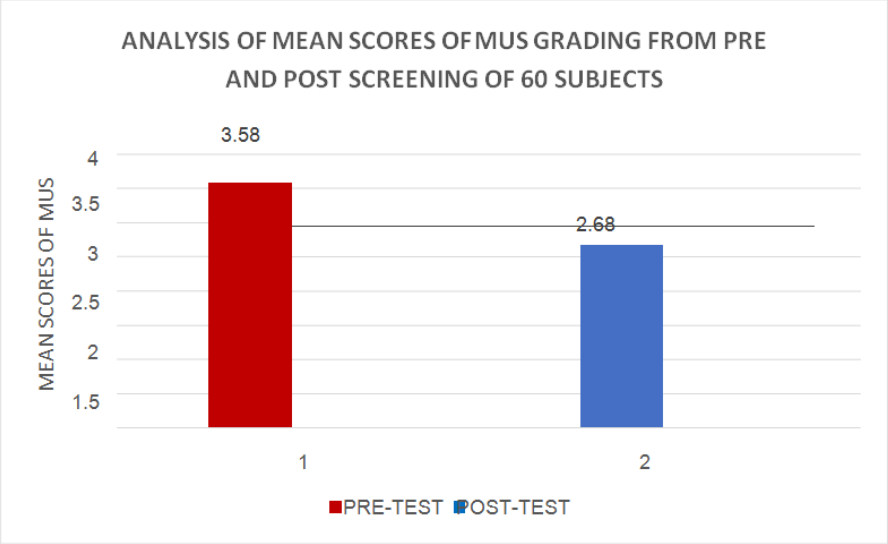


Graph 1.

Results: The above Table and Graph shows that mean score of SPADI changes from pretest to post test values.

Table 2: Analysis of Mean scores of MUS grading from pre and post screening of 60 subjects.

MUS	Mean	SD	P-value	Inference
Pre screening	3.58	1.062	0.000*	Highly Significant
Post screening	2.68	1.513		



Graph 2.

Results: The above Table and Graph shows that mean score of MUS grade changes from pre and post screened values.

DISCUSSION

The Aim of this Current Study was to evaluate the impact of Comprehensive Therapeutic Approach on Sonographic Abnormalities in PSSP subjects. The subjects with Stroke can experience a high incidence of PSSP. Stroke is a one of the most devastating of all the Neurological diseases, frequently causing death, gross Physical Impairment or Disability.

Many stroke Subjects survive with appropriate emergency care and early treatment following a stroke; they frequently suffer from Motor, Sensory or Cognitive Disorders. The Pain intensity can be moderate to severe and it may increase at night. Several studies proved that pain may be due to mild to moderate damage of Soft tissues around the Shoulder.

Hemplegic shoulder as a Consequence of Muscle weakness, Joint Immobility, restricted Shoulder Joint range that could damage the surrounding Soft tissues in subjects with PSSP.

So, some researches suggested that Accurate clinical assessment is vital as this helps to improve clinical

outcomes, have benefits for subjects with chronic pain and help to establish the targeted Standard Rehabilitation plans. United State considered Musculo Skeletal Ultrasound as the preferred method of diagnosis for Subjects with PSSP. MUS assessment of non – inflammatory and inflammatory changes has been proved to be more specific and sensitive the clinical evaluation. KT also improves the Proprioceptive feedback and thereby provides muscle activation, reduces the Shoulder effusion and tendon Swelling. Therefore, vascular networks in deep vessels under the skin are increased, reducing Inflammation and Swelling in injured soft tissues. It produces increased stimulation of Mechano receptors to contribute to relief of pain then enhance function. All Participants showed statically significant difference within the groups from pre- test to post-test values on reduce Pain, Disability and improve Structural Abnormalities in subjects with Hemiplegic Shoulder Pain through Comprehensive Therapeutic approach. This study states that structural improvements were observed in PSSP subjects through comprehensive therapeutic approach.

CONCLUSION

In this present study participants has shown significant improvement in the structural abnormalities and shoulder pain, Disability scores after the 8 weeks of comprehensive therapeutic approach. So, this study concluded that comprehensive therapeutic approach was effective in the management of post stroke shoulder pain.

REFERENCES

1. Zeilig G, Rivel M, Weingarden H, Gaidoukov E, Defrin R. Hemiplegic shoulder pain: evidence of a neuropathic origin. Pain., Feb. 1, 2013; 154(2): 263-71.
2. Korkmaz N, Yaşar E, Demir Y, Tezen Ö, Gurcay E. Sonographic predictors in Subjects with hemiplegic shoulder pain: a cross-sectional study. Journal of Stroke and Cerebrovascular Diseases, Nov. 1, 2020; 29(11): 105170.
3. Zhang J, Li Y, Wang H. Musculoskeletal ultrasound-guided physical therapy in hemiplegicshoulder pain: A CARE-compliant case report. Medicine, Dec, 2017; 96(50).
4. Kumar P. Hemiplegic shoulder pain in people with stroke: present and the future. jan 2019.
5. Pompa A, Clemenzi A, Troisi E, Di Mario M, Tonini A, Pace L, Casillo P, Cuccaro A, Grasso MG. Enhanced-MRI and ultrasound evaluation of painful shoulder in Subjects afterstroke: a pilot study. European neurology, 2011; 66(3): 175-81.
6. Li Z, Alexander SA. Current evidence in the management of poststroke hemiplegic shoulderpain: a review. Journal Of Neuroscience Nursing, Feb 1, 2015; 47(1): 10-9.
7. Pong YP, Wang LY, Wang L, Leong CP, Huang YC, Chen YK. Sonography of the shoulderin hemiplegic Subjects undergoing rehabilitation after a recent stroke.
8. Lindgren I, Gard G, Brogårdh C. Shoulder pain after stroke–experiences, consequences in daily life and effects of interventions: a qualitative study. Disability and rehabilitation, May 8, 2018; 40(10): 1176-82. urnal of Clinical Ultrasound, May, 2009; 37(4): 199-205.
9. Lin PH. Sonographic findings of painful hemiplegic shoulder after stroke. Journal of theChinese Medical Association, Jul 1, 2018; 81(7): 657-61.
10. Adunsky A, Mizrahi E, Arad M, Hershkowitz M, Zeilig G, Blankstein A. Ultrasonographyand clinico-functional parameters of hemiplegic upper extremity in a rehabilitation setting. Journal of Musculoskeletal Research, Mar, 2009; 12(01): 53.
11. Ali F, Hamdy M, Abdel-Magied RA, Elian MM. Musculoskeletal ultrasonographic findingsof the affected and unaffected shoulders in hemiplegic Subjects . Egyptian Rheumatology and Rehabilitation, Jan, 2016; 43(1): 14-20.
12. Benlidayi IC, Basaran S. Hemiplegic shoulder pain: a common clinical consequence of stroke. Practical neurology, Apr. 1, 2014; 14(2): 88-91
13. Wang SS, Trudelle-Jackson EJ. Comparison of customized versus standard exercises in rehabilitation of shoulder disorders. Clinical rehabilitation, Aug, 2006; 20(8): 675-8.
14. Ribeiro DC, Tangrood ZJ, Sole G, Abbott JH. Effectiveness of a tailored rehabilitation versus standard strengthening programme for Subjects with shoulder pain: a protocol for afeasibility randomised controlled trial (the Otago MASTER trial). BMJ open, Jul 1, 2019; 9(7): e028261.