



International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

ISSN:2347-6567

IJAMSCR | Volume 5 | Issue 3 | July - Sep - 2017
www.ijamscr.com

Research article

Medical research

Added effect of kinesiotaping on pain, range of motion and functional outcome in stage 2 peri arthritis shoulder

Taruna Jain¹, Dr Snehal Ghodey²

¹BPTH Intern, MAEER's Physiotherapy College, Talegaon Dabhade, Pune, India.

²Principal, MAEER's Physiotherapy College, Talegaon Dabhade, Pune, India.

*Corresponding Author: Taruna. Shravan. Jain

Email id: tarunajain09@gmail.com

ABSTRACT

Background and Objectives

In Frozen Shoulder patients have a painful loss of shoulder motion with development of dense adhesions, capsular thickening and capsular restrictions, especially in the dependent folds of the capsule. Kinesiotaping will provide support to the shoulder joint and proprioceptive stimulation helps in reducing pain by correcting the altered posture and increasing Range of Motion [6]. Pain reduction via gate control theory .increased blood supply and thus improved nutrition [11]. The aim of the study is to find out the effect of Kinesiotaping with Conventional therapy to reduce pain, improve the shoulder range of motion and function in frozen shoulder.

Materials and Method

This experimental study was conducted among 30 participants who included both male and female symptomatic individuals from the age group of 40 to 60 years. Participants were randomly assigned into two groups of 15 each which included Conventional therapy (group A) and Kinesiotaping along with conventional therapy (group B) was given for 4 days. The Outcome measures were recorded pre and post 4 day of intervention using universal goniometer for shoulder Range of motion, NRS for pain and Shoulder Pain and Function Disability Scale (SPADI).

Result

Within group analysis showed that improved pain, range of motion and functional disability was statistically significant in both the groups ($p < 0.0001$) whereas between group analysis revealed that Conventional treatment along with Kinesiotaping (group B) is more effective than conventional treatment in improving range of motion and function in Frozen shoulder.

Conclusion

Hence, it can be concluded that Kinesiotaping along with Conventional therapy is more effective in treatment of stage 2 peri arthritis shoulder.

Keywords: Kinesiotaping, Stage 2 peri arthritis Shoulder, Conventional Therapy, NRS, shoulder ROM, SPADI.

INTRODUCTION

Adhesive capsulitis or frozen shoulder is a common painful condition characterized by severe loss of mobility and shoulder pain. [1] .It is an inflammatory process resulting in the formation of adhesions between the capsule, anatomical neck of the humerus and the inferior capsular recess [1]. The onset is insidious and usually occurs between the ages of 40-60 years⁽²⁾A capsular pattern of restricted passive motion and abnormal glenohumeral joint accessory movements are among the physical examination signs that suggest glenohumeral joint capsule involvement [3]. The capsular pattern at the shoulder is represented by external rotation as the most limited motion followed by abduction and internal rotation [3].

Stages of periarthritis shoulder

Freezing Stage: Characterized by persistent and more intense pain even at rest [2]

Frozen Stage: Characterized by pain only with movement, significant adhesions, and limited GH motions [2]. Activities of daily living become severely restricted. Patients complain about their inability to reach into the back pocket, fasten the bra, comb the hair, or wash the opposite shoulder. When performing these activities, a sharp, acute discomfort can occur as the patient reaches the restraint of the tight capsule. Pain at night is a common complaint and is not easily treated with medications or physical modalities. This stage can last from 3 to 18 months.

Thawing Stage: Characterized by minimal pain and no synovitis but significant capsular restrictions from adhesions. Motion may gradually improve during this stage [2].

Periarthritis: shoulder has an incidence of 3-5% in general population and up to 10- 20% in those with diabetes according to the American Academy of Orthopaedic Surgeons [3]. In diabetes there is increased glycosylation of collagen protein and increased formation of abnormal glycation end products and their subsequent accumulation was found to have detrimental effect on a number of cellular and extracellular processes that might facilitate adhesion and fibrosis [13]

Kinesiotaping

Kinesiotaping uses a special elastic cotton adhesive tape that is directly applied to stretched

skin to support and rehabilitate [5]. Ligaments and joints that have become damaged typically lose their ability to stabilize and to provide proper functional control to a segment, thereby relying on stretched tape for this correction. [5].The essential function of kinesio tape is to provide support to the joint during movement, enhance the proprioceptive input which would help to reduce the occurrence of injuries [6]. Kinesiotaping will provide support to the shoulder joint and proprioceptive stimulation helps in reducing pain by correcting the altered posture and increasing Range of Motion [6]. Pain reduction via gate control theory .increased blood supply and thus improved nutrition [11].

Methodology

In this study 30 patients between the age group of 40 to 60 years were randomly divided into 2 equal groups using simple random sampling. The inclusion criteria was (A) Participants diagnosed with Peri arthritis Shoulder, (B) Peri arthritis shoulder with and without diabetes mellitis, (C) Subjects with unilateral Peri arthritis Shoulder, (D) Patients who were willing to take part in the study. The exclusion criteria was (A) subjects with rotator cuff tears and other shoulder ligament injuries, (B) Frozen Shoulder secondary to fracture, dislocation, reflex sympathetic dystrophy, neurological disorders, (C) Shoulder pain associated with neck pain,(D) Any skin condition. The study was conducted at BSTRH (Bahusaheb Sardeasi Talegaon Rural Hospital) Talegaon Dabhade Pune. Outcome measures were Pain using NRS(Numerical Rating Scale), Range of motion (ROM) for shoulder Flexion, abduction, internal rotation and external rotation were measured using universal goniometer and functional disability using SPADI (Shoulder pain and disability index). The readings were taken both pre and post 4th day of intervention for all the outcome measures.

Procedure

After taking the patients consent they were randomly allocated into two groups using chit method. Group A (Control group) -15 patients received conventional treatment which consisted of IFT, Hot pack, Capsular stretching exercises, wand exercises, Codman's exercises, finger ladder, shoulder shrugs and shoulder retraction exercises. Group B (Experimental group) - 15 patients received Kinesiotape and conventional therapy. The

tape was applied on the first day and was removed on 4th days.

Kinesiotaping technique

Step 1: Anchor Y(blue) tape at the upper arm and adhere the outside tail to the top of shoulder while lifting the arm forward for stretching the posterior part of the shoulder.



Step 2: Apply the inside tail of the Y(blue) tape to the top of shoulder while putting arm behind the back for stretching the anterior part of the shoulder.



Step 3: The process begins with placing another I strip from the middle of the trapezius below with no tension applied. Now, move the patients shoulder in the extended abduction position and apply the base with light tension (about 15-25%).

The upper tail should follow the upper angle of your muscle while the lower tail should follow the inner angle of your muscle. The distal ends should be laid down without any tension and the gluing process initiated before further movement.



Step 4: Another I strip tape is applied at the shoulder joint starting from the anterior aspect of the shoulder to the lateral border of scapula (stabilizing tape).



Statistical Analysis

Statistical analysis of values, obtained after pre and post parameter measurements were performed using InStat (Version 3.05, created 27 September 2000.) Descriptive statistics including p-value, standard deviation, mean and t-value were

calculated. Comparison of ROM within the groups was assessed with paired t-test. Comparison of NRS and SPADI within the groups was assessed with Wilcoxon test. Comparison between NRS, SPADI and ROM of two groups was done using Unpaired t- test.

Table 1: Showing Pre and Post NRs values of Experimental and control group and there comparision.

Groups	Mean		Standard Deviation		P value	t value	Significance
	Pre	Post	Pre	Post			
Experimental	7.466	2.33	1.552	1.291	< 0.0001	-	Extremely significant
Control	7.067	4.267	0.8857	1.033	< 0.0001	-	Extremely significant
Comparison	Exp.	Cont.	Exp.	Cont.			
	2.333	4.267	1.291	1.033	< 0.0001	4.529	Extremely Significant

The p value of NRS is extremely significant for both the groups

Table 2: SPADI Pre and post values of experimental and control group and there comparision

Group	Mean		Standard Deviation		P value	t value	significance
	Pre	Post	Pre	Post			
Experimental	74.73	17.933	22.480	10.640	< 0.0001	-	Extremely significant
Control	74.60	39.067	14.59	9.975	< 0.0001	-	Extremely significant
Comparison	Exp.	Cont.	Exp.	Cont.			
	17.933	39.067	10.640	9.975	< 0.0001	-	Extremely Significant

The p value of SPADI is extremely significant for both the groups.

Table 3: ROM experimental and control.

ROM	Group	Mean		Standard Deviation		P value	t value	Significance
		Pre	post	Pre	Post			
Flexion	Exp.	107.67	169.67	19.899	15.864	<0.0001	11.153	Extremely Significant
	Cont.	120.33	136.67	19.682	21.520	<0.0001	8.511	Extremely significant
Extension	Exp.	39	59	5.071	2.070	<0.0120	18.330	Very significant
	Cont.	42.33	53.80	3.716	4.916	<0.0001	20.190	Extremely significant
Abduction	Exp.	92	162	15.095	21.613	<0.0001	10.939	Extremely Significant
	Cont.	102.33	117	15.221	17.505	<0.0001	9.291	Extremely Significant
Internal rotation	Exp.	38	64.562	16.562	17.203	<0.0061	6.998	Extremely significant
	Cont.	34.33	43.73	10.499	11.430	<0.0001	11.613	Extremely significant
External	Exp.	34.33	64.867	16.242	18.792	<0.0006	9.413	Extremely

Rotation							significant
Cont.	30.533	40.267	7.318	9.662	<0.0001	7.324	Extremely significant

The p value for flexion, abduction, internal rotation, external rotation for both the group is extremely significant and for extension for

experimental group it is very significant and for control group it is extremely significant.

DISCUSSION

The present study tells us about the added effect of kinesiotaping on stage 2 Peri arthritis. In this study it was found that the mean of NRS in the experimental group is (2.333) and in control group (4.267) and P value obtained is 0.0001 which is considered extremely significant , the mean of SPADI in the experimental group (17.933) and control group(39.067) P value is 0.0001 which is considered extremely significant and the mean of ROM in the experimental group for flexion (169.67),extension(59),abduction(162), internal rotation(64.333),external rotation(64.867) and control group flexion(136.67),extension(53.800),abduction(117),i nternal rotation(43.733),external rotation(40.267) P value of flexion is 0.0001 extremely significant, extension is 0.0008 very significant, abduction is 0.0001 which is extremely significant, internal rotation is 0.0023 which is very significant, external rotation is 0.0001 which is extremely significant. The result of these study coincides with the study held in (2014) by Smita Bhimrao Kanase ,studied compare effectiveness of Maitland mobilization and kinesiotaping on functional outcome in frozen shoulder. They concluded that Maitland mobilization with Kinesiotaping along with conventional therapy improves the pain and disability in patients with frozen shoulder they attributed that Kinesio Tape has expanding and contracting properties which provides gentle sensory stimulation to various types of sensory receptors in the skin during movement. This activates the spinal inhibitory system through stimulation of touch receptors and activates the descending inhibitory system to decrease pain via the Gate Control Theory; hence in the current study experimental group has benefitted from this effect and showed more decrease in pain as compared to control group. Pain reduction can also be attributed by postural correction [4]. Another reason for pain

reduction could be IFT by pain gate mechanism [13]. In the present study improvement in ROM was by stretching exercises helped in breaking the collagen bonds and increased flexibility and mobility of the soft tissues and another reason could be that kinesio tape stimulates the proprioceptors in the joints [4].

CONCLUSION

The conclusion based on the results, strongly emphasized that Kinesiotaping is more effective in improving shoulder range of motion (ROM) reducing pain and function in stage 2 peri arthritis Shoulder. Hence, it can be said that Kinesiotaping is an excellent technique which involves lesser time and gives better results for increasing the range of motion (ROM), reducing pain and function of the patient, so this technique should be incorporated with conventional therapy for the management of stage 2 peri arthritis Shoulder.

Acknowledgement

I would like to thank God Almighty and my Parents for being the guiding star in my life.

The poverty of words has never been so profound than now, when I wish to express my feelings of gratitude, respect and affection to all my esteemed professors for helping me in this venture.

I am extremely grateful to MAEER's Physiotherapy College for allowing me to conduct my study and for their help.

I am extremely thankful to my guide Dr. Snehal Ghodey under whose expert guidance I was able to successfully complete this study. Her constant encouragement helped me immensely.

I express my deep sense of gratitude to my mom (Vimla Jain) dad (Shravan Jain), all my friends and batch mates for their support.

Last but not the least I express my special thanks to all the Subjects who participated in this study and gave their full co-operation for the study.

REFERENCES

- [1]. Emir Sinaj European Scientific Journal February 2, 2015.
- [2]. Therapeutic Exercise Foundations and Techniques Kisner and Colby Copy right 2013.
- [3]. Donatelli RA. Physical Therapy of the Shoulder. 4th edition. St. Louis, Missouri; 2004.
- [4]. Smita Bhimrao Kanase¹, S. Shanmugam²; 3(9), 2014, 423- 430.
- [5]. Martin j. Kelley; journal of orthopedic & sports physical therapy; 39 (2), 2009
- [6]. Mark d. Thelen, The Clinical Efficacy of Kinesio Tape for Shoulder Pain; journal of orthopaedic & sports physical therapy; 38(7), 2008.
- [7]. Bridgman JF. Journal of orthopedic & sports physical therapy; 38(7), 2008, 74-82.
- [8]. Donald D. Price, Patricia A. McGrath Pain, 17, 1983, 45-56 21.
- [9]. Michael J Mullaney Physiotherapy Theory and Practice: An International Journal of Physiotherapy 26(5), 2010.
- [10]. Williams JW Jr., Holleman DR Jr., Simel DL: Measuring shoulder function with the Shoulder Pain and Disability Index. J Rheumatol. 22 (4), 1995, 727-732
- [11]. K Taping An Illustrated Guide by Birgit Kumbrink..
- [12]. Giovanni De Domenico pain relief with interferential therapy Australian Journal of Physiotherapy 1987(28).
- [13]. Mohammad Uddin et.al Presentation of Frozen Shoulder among Diabetic and Non Diabetic patients journal of Clinical Orthopaedic and Trauma 2014.
- [14]. Mahmoud Mohamed Nasser studied the Efficacy of kinesio taping in the treatment of diabetic frozen shoulder 2012.
- [15]. Shakil Ahmed Adil studied the biomechanical changes at shoulder girdle among the frozen shoulder patient attended at crp. 2006.

How to cite this article: Taruna Jain, Dr Snehal Ghodey. Added effect of kinesiotaping on pain, range of motion and functional outcome in stage 2 peri arthritis shoulder. Int J of Allied Med Sci and Clin Res 2017; 5(3): 734-740.

Source of Support: Nil. **Conflict of Interest:** None declared.