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Effects of Kinesio Taping in Supraspinatus Tendinitis

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Abstract: ***Background:*** Shoulder pain is one of the most commonly reported musculoskeletal problems after low back pain. One common reason for the shoulder pain is supraspinatus tendinitis that is often associated with impingement syndrome. ***Objective:*** To find the effects of kinesio taping in reducing pain and disability in subjects with supraspinatus tendinitis. ***Methodology:*** In this study, patients were randomly allocated the treatment using a set of predefined inclusion and exclusion criteria. Subjects were managed with kinesio taping. Pre- and post-evaluation of the patients was done using Numerical Pain Rating Scale (NPRS) and Disability of Arm Shoulder & Hand Questionnaire (DASH) score and the data gathered was entered and analyzed using SPSS version 23. ***Results:*** Mean difference of 2.65 was reported between the pretreatment and post treatment values of NPRS in KT taping group which was significant ($P < 0.05$). Mean difference of 27.25 was reported between the pre-treatment and post-treatment values of DASH score in KT taping group which was significant ($P < 0.05$). ***Conclusion:*** Kinesio taping is an effective Program in management of supraspinatus tendinitis.

Keywords: Kinesio taping; DASH Score; Pain intensity; Conventional physiotherapy

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1. Introduction

Shoulder pain is among the most commonly occurring musculoskeletal disorders, placed next to low back pain [1], and among these shoulder impingements, is considered the top most occurring shoulder ailment [2]. About more than half of the general population complaint, the occurrence of shoulder pain once a year and its prevalence ratio is estimated to be about 10% throughout their lives [3]. Among these statistics, almost 2% of adult population require medical attention to any kind of specific or non-specific shoulder pain every year. Nevertheless, an estimate of about 25–50% of patients suffering from any kind of shoulder symptoms had to see a doctor for their disabling condition [4]. A research about comparison between kinesio taping and physical therapy modalities in treatment of shoulder impingement was put forward by Shakeri et al. [5] Tonus inhibiting muscle taping on supraspinatus, deltoid and teres minor muscle was included in kinesio taping treatment. Fascia and lymphatic taping techniques were also applied. Ultrasound, TENS, exercise and hot bag treatment were also given to the physical therapy group. Significantly lower pain during rest, movement and sleep during first week was experienced by the kinesio taping group. In second week, no notable difference was observed between the two groups [5]. A recent systematic review, based on similar application principles of kineso taping, stated that using tape not only provides useful results in reducing the intensity of pain caused by impingement but also is helpful in controlling and improving scapular rhythm in shoulder movement on sagittal plane for contributors diagnosed with shoulder impingement disorder [6]. There are currently no clear guidelines nor consensus on recommending any ideal or specific treatment schedule. Since the tendon of the supraspinatus commonly impinges under the acromion as it

passes between the acromion and the humeral head, one possible form of improvement can increase the space with the use of tape. Although KT tape is an effective method in the treatment of supraspinatus tendinitis, its efficacy over the standard physical therapy treatment is yet to be proven.

2. Materials and methods

This was an experimental study conducted in the outpatient department of Physical therapy at Nasser Hospital, Lahore and District Headquarter Hospital, Okara, Punjab, Pakistan. The study was completed in a period of six months after the approval of synopsis. Thirty-four patients were selected for this study. Sample size was calculated using an online software Epi tool and divided into two groups. The sample calculation was based on the previous study at margin of error of 5% [7]. Subjects were selected using a predefined inclusion and exclusion criteria. Patients of both gender, age between 25 – 50 years, with positive Empty can, Neers Sign, Hawking Kennedy Test, pain in resisted abduction and tenderness over the greater tuberosity were excluded. Subjects reporting any history of shoulder fracture, dislocation/subluxation, shoulder surgery and intra articular injection in past six months or signs of cervical radiculopathy were excluded from the study. Disability of Arm Shoulder & Hand Questionnaire (DASH) and Numerical Pain Rating Scale (NPRS) were used as outcome measurement tools. A technique described as space and lymphatic correction defined by Buke and Unver [8] was used in this study to reduce the pressure by lifting the skin. The KT tape strip also acts as channel by directing the exudate to the nearest lymph nodes. This technique also helps to maintain the scapula-thoracic stability via the mechanical correction [8]. After fulfilling the predefined inclusion and exclusion criteria, subjects were asked to sign a consent form after which demographic variables and pretreatment values for VAS and DASH were recorded form subjects. The subjects were treated with kinseio taping at shoulder joint for 2 weeks. The tape applied was assessed after every third day and changed after 1 week. After 2 weeks of post-treatment, values of VAS and DASH were recorded and analyzed for possible change. The data collected for the study was entered in SPSS version 23 and analyzed subsequently. Continuous variables were presented in the form of mean and standard deviation, while categorical variables were presented in frequency and percentages. Paired sample *t* test was used to compare pre- and post-treatment values. Informed consent was taken from each of the study participants and he/she was given right to withdraw from the study and ensured the confidentiality of the information.

3. Results

The mean age of the participants in KT taping group was 37.40 ± 4.83 years with minimum age of 30 years and maximum age of 45 years. The mean duration of symptoms of the participants in KT taping group was 2.77 ± 1.53 months with minimum duration of 1 month and maximum duration of 5 months. There were 34.3% (n=12) males and 65.7% (n=23). Mean difference of 2.65 was reported between the pre-treatment and post-treatment values of NPRS in KT taping group which was significant ($P < 0.05$). Mean difference of 27.25 was reported between the pre-treatment and post-treatment values of DASH score in KT taping group which was significant ($P < 0.05$).

Paired sample *t* test was applied to determine any significant difference in the baseline and post-treatment values for NRPS within each group. Mean difference of 2.65 was reported between the pre-treatment and post-treatment values of NPRS in KT taping group which was significant ($P < 0.05$). Mean difference of 1.89 was reported between the pre-treatment and post-treatment values of NPRS in standardized PT program group which was significant ($P < 0.05$).

Paired sample *t* test was applied to determine any significant difference in the baseline and post-treatment values for DASH score within each group. Mean difference of 27.25 was reported between the pre-treatment and post-treatment values of DASH score in KT taping group which was significant (P <

0.05). Mean difference of 28.08 was reported between the pre-treatment and post-treatment values of DASH score in standardized PT program group which was significant (P < 0.05).

Table 1. Within-the-group comparison for NPRS

Paired samples test									
			Paired differences					t	df	Sig. (2-tailed)
			Mean	Std. deviation	Std. error mean	95% confidence interval of the difference				
						Lower	Upper			
KT taping group	Pair 1	Pre.Treat.NPRS - Post.Treat.NPRS	2.65	1.76	.29	2.05	3.26	8.90	34	.000

Table 2. Within-the-**g**roups **c**omparison for DASH **s**core

Paired samples test									
			Paired differences					t	df	Sig. (2-tailed)
			Mean	Std. deviation	Std. error mean	95% confidence interval of the difference				
						Lower	Upper			
KT taping Group	Pair 1	Pre.Treat.DASH - Post.Treat.DASH	27.25	10.33	1.746	23.70	30.80	15.6	34	.000

4. Discussion

The main objective of this study was to determine the effects of kinesio taping in the management of supraspinatus tendinitis. Application of kinesio taping in sports settings and orthopedic problems is extensive and this method is also used as an adjunct treatment in physical therapy rehabilitation. The basic principle behind its application is its role in correcting postural malalignments by relaxing the overused muscles, supporting the instable joints and strengthening of the weakened muscles [9-11]. Different authors have also reported the application of kinsesio taping in conditions like supraspinatus tendinitis [12] and sub-acromial impingement syndrome [13]; this led to an improvement in self-reported pain and range of motion during early phase of rehabilitation. In a systemic review and meta-analysis conducted by Dong et al. [14], results from various studies reported that combination of exercise and kinseio taping is an ideal combination in rehabilitation of sub-acromial impingement syndrome during early phase of rehabilitation. Results of this study also show that kinesio taping is an effective treatment option in patients with chronic supraspinatus tendinitis with decreasing disability and pain [14]. Similar findings were reported by another author in which kinesio taping was applied every third day in conjunction with physiotherapeutic modalities like ultrasound and TENS. The study reported improvement in self-reported pain and disability in both groups at the end of treatment, but the pain relief was earlier in subjects receiving kinesio taping [15]. Further recommendation also suggested kinesio taping as an alternate form of therapy in management of supraspinatus tendinitis especially during the early phase of rehabilitation. This finding was also supported by the results of this study in which both treatment groups (kinesio taping and standardized physical therapy) were similar at the end of treatment in terms of pain and disability. Finding form another study also reported

that effectiveness of kinesio taping and extra corporeal shock wave therapy in management of supraspinatus tendinitis [12]. Extra corporeal shock wave therapy has been applied in different dosage in the treatment of supraspinatus tendinitis and similar effect was noticed in low and high intensity since there is no universally accepted dosage for non-calcifying tendinitis [16]. Previous studies advocated the use of kinesio taping in shoulder pathologies like supraspinatus tendinitis or sub-acromial impingement syndrome, as they are helpful in relieving pain using gate control theory, decreasing edema and supporting the facial function [8,13,17]. Results from different studies were contrary to the findings of this study. A systemic review that determined the effectiveness of kinesio taping in combination with physical therapy compared to physical therapy alone concluded no superiority of kinesio taping in management of sub-acromial impingement syndrome. Saracoglu et al. [6] conducted a systematic review study to assess the application of any kind of kinesio taping in patients with SIS together with PT in comparison with physical treatment alone. The study concluded that the efficacy of taping as an alternative therapy [6]. Celenay et al. found that kinesio taping and sham taping equally effective in reducing pain and disability various shoulder-related pathologies like sub-acromial impingement and supraspinatus tendinitis [18].

5. Conclusion

Kinesio taping is an effective therapy program in the management of supraspinatus tendinitis.

Disclosure statement

The authors declare they have no conflict of interest.

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