

The Effectiveness of Kinesiotaping on Pain and Disability in Cervical Myofascial Pain Syndrome - A Comparative Study

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Abstract

Myofascial Pain Syndrome (MPS) is one of the most common musculoskeletal problems associated with significant morbidity in adults. There are various subjective and objective outcome measures to assess pain and disability in myofascial pain syndrome. The purpose of conducting this study was to investigate the effectiveness of kinesio-taping (KT) in patients with cervical myofascial pain syndrome by comparing the efficacy of KT and placebo KT on pain, pressure pain threshold (PPT), Range of Motion (ROM) and disability in patients with MPS. The inclusion criteria for diagnosis of MPS were as per the criteria described by Travell and Simons. The study subjects were forty six patients diagnosed with cervical MPS, willing to participate in the study, and statistical analysis was done by using SPSS V.20 software. There were no significant difference in Neck Disability Index (NDI) in both the groups ($p > 0.05$). The study showed improvement in mechanical neck pain in study group. The beneficial effects are also considered due to psychological effects. In conclusion, k-taping is ineffective in improving PPT and ROM, but not in disability over short period of time.

KEYWORDS: Myofascial pain syndrome; disability; Range of motion; Kinesiotaping

INTRODUCTION

Myofascial Pain Syndrome (MPS) is one of the most common musculoskeletal problems associated with significant morbidity in adults. MPS characteristically involves chronic pain in body and is associated with trigger points in one or more muscles¹. Symptoms often include local or referred pain, tenderness, tightness, limited mobility, and local twitch response in the affected muscle, sooner exhausting, and referred spasm².

The treatment of MPS comprises of “Non invasive” and “Invasive” methods. Non invasive techniques include nonsteroidal anti-inflammatory drugs (NSAID), physiotherapy interventions such as stretching exercises, general exercises,

myofascial release, massage, muscle relaxation techniques, manual therapy, neuromuscular techniques and different electrotherapy modalities includes ultrasound, interferential therapy, transcutaneous electrical nerve stimulation, and laser therapy^{1,2,3}. The invasive treatments for Myofascial trigger points include dry needling, local injections, acupuncture therapy, local aesthetics, corticosteroids, and botulin toxin¹⁻⁴.

A study shows that psychological and social factors associated with chronic neck pain led to depression⁵. Myofascial pain syndrome is a disease of muscle that produces local and referred pain⁶.

KT is mainly used for muscle dysfunction caused by microtrauma or tension and works on principle of inhibition technique⁷. Role of KT has been studied in whiplash injury, spasticity, low back pain, patellofemoral pain syndrome and ankle instability,⁸⁻¹². There have been only two studies of the effectiveness of KT on mechanical neck pain.^{7, 13}

Sham taping: It is a kind of placebo tape which is adhesive in nature but does not have other characteristics like that of kinesiotape. One study and a single case report have evaluated the effects of sham tape use in patients with myofascial pain^{14,15}.

There are various subjective and objective outcome measures to assess pain and disability in myofascial pain syndrome such as VAS, NPRS, McGill questionnaire, Neck Disability Index. Thus, the present study was aimed to compare the efficacy of KT and placebo KT on pain, pressure pain threshold (PPT), Range of Motion (ROM) and disability in patients with MPS.

NEED FOR STUDY:

Kinesio tape is a non-invasive, painless method that has less side effects, is well tolerated and easy to apply for the patients with this acute myofascial pain syndrome. Therefore, the purpose for conducting this study was to investigate the effectiveness of taping in patients with cervical myofascial pain syndrome.

AIM -

- To evaluate the effectiveness of kinesiotaping on pain and disability in patients with cervical myofascial pain syndrome.

Objectives –

- To find out effectiveness of Kinesiotaping on pain, disability and limited mobility in myofascial pain syndrome.
- To find out effectiveness of sham-taping on pain, disability and limited mobility in myofascial pain syndrome.
- To compare Kinesiotaping with sham taping with respect to pain, disability and limited mobility in myofascial pain syndrome.

MATERIALS AND METHODOLOGY:

Study type: Experimental design.

Sampling method: Simple random sampling.

Sample size:46

Place of the study: Physiotherapy department, MIP COPT, MIMSR, Latur.

Duration of the study : 6 months

Criteria of the study :

Inclusion criteria : diagnosis of MPS as per the criteria described by Travell and Simons.

- ❖ Major Criteria:1. Regional pain.2. Referred pain.3. A taut band.4. A tender point in a taut band.5. Restricted range of motion.
- ❖ Minor Criteria:1. Pain complaint reproduced by pressure on the Tender spot.2. A local twitch response.3. Relief of pain with stretching.

Exclusion criteria :

- ❖ fibromyalgia syndrome, cervical disc lesion, radiculopathy, myelopathy,
- ❖ recent trigger point injection,
- ❖ participating in a physical treatment program within the last 6 months,
- ❖ neurologic and inflammatory diseases,
- ❖ pregnancy,
- ❖ history of neck and shoulder surgery

Procedure of the study

Forty six patients diagnosed with cervical MPS referred to physiotherapy outpatient department, willing to participate in the study, were screened thoroughly as per the inclusion and exclusion criteria and selected as **Subjects**. Before treatment, all participants were informed about the study and signed written consent was taken. For Randomization of subjects, Patients were randomly assigned into two groups (group A and group B).

Group A subjects ($n = 23$) were treated with Kinesio Tape, five times by intervals of 3 days for 15 days. A 15–20 cm long “I” strip was used. Application will start from the insertion to origin of the levator scapulae muscle. Initial portion of the tape stretched maximum 4–5 cm and then it will be applied from superior angle of scapula to the muscle origin which will be at the level of C1-C4 cervical transverse process.

Group B Subjects ($n = 23$) treated with sham taping five times by intervals of 3 days for 15 days. Sham taping will be applied with an “I” strip of the same material on ineffective parts of the muscle without a stretch with the neck in neutral position.

Additionally, all Subjects will receive a home-based exercise program including isometric-isotonic neck exercises and stretching exercises everyday for two weeks.

DATA ANALYSIS & INTERPRETATION:

Statistical analysis was done by using SPSS V.20 software. The Kinesio tape (group A) showed reduction in pain and increase in ROM after the intervention. The paired 't' test was used within same group (pre and post intervention) analysis, and unpaired 't' test was used between group analysis.

RESULTS

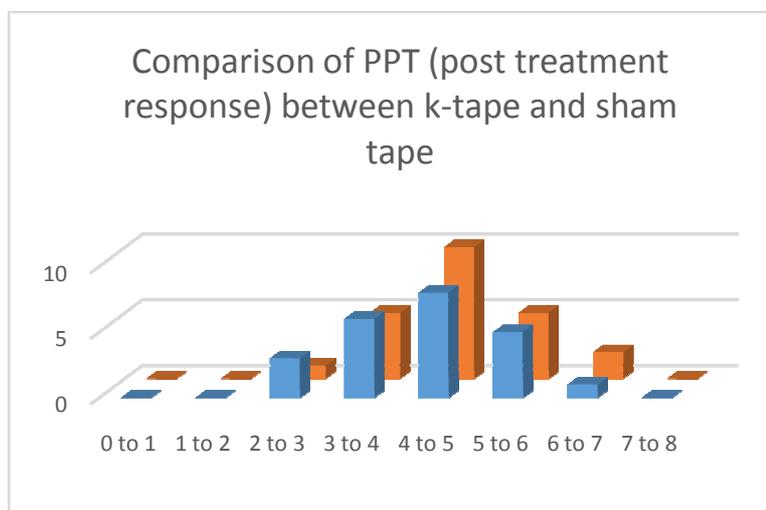
Twenty three patients were recruited in Group A (14 females and 9 males) & Twenty three patients were allotted in Group B (14 females and 9 males) with MPS. Forty six patients completed the study and no side effects were observed.

Numerical Pain Rating Scale showed significant improvement in Group A (K-tape) compared to sham tape. Pain Pressure Threshold improved significantly at the end of 2 week intervention in k tape. (Table 1, Graph 1)

Table 1

Pain Pressure Threshold

	K tape	Sham tape
Pre test (mean)	4.48	4.25
Post test (mean)	5.38	4.6
Pre test (SD)	1.17	0.98
Post test (SD)	1.09	0.99
t test	0.0098	0.2411
p value	<0.05	>0.05



Graph 1: Comparison of PPT between k-tape and sham tape

Patients improved to a lesser extent in Cervical Flexion-Extension ROM. Also there were no significant changes in NDI in both the groups ($p > 0.05$).

DISCUSSION:

The present study was conducted to study the role of Kinesiotaping, when compared with placebo KT for alleviation of pain, pressure pain threshold and disability with improvement in ROM in patients with MPS. No standardised treatment

for MPS is available. The main aims of treatment for MPS involve provision of pain relief on trigger points and improvement of disability and cervical range of motion. Kinesio Taping is a new form of treatment for MPS.

In the present study, there was improvement numerical pain rating after KT application were observed. Numerical Pain Rating Scale showed significant improvement in Group A (K-tape) compared to sham tape. The results of our study are similar to those of these recent studies^{7, 13, 16}. Whereas Hernandez et al.¹⁶ Gonzalez-Iglesias et al.⁷, KT is compared with cervical manipulation and Karatas et al.¹³ said that KT shows improvements on application in mechanical neck pain.

Pain Pressure Threshold improved significantly at the end of 2 week intervention in k tape but it did not continue in the placebo group. However sensory feedback improved patient awareness in cervical spine movements, due to improvement in ergonomics awareness and decreased soft tissues mechanical irritation¹⁶. The beneficial effects are also considered due to psychological effects^{17,18}.

Cervical Flexion-Extension ROM showed improvement in the study group. Concentric pull on fascia provided by KT application has been proposed to result in a small immediate increase in muscle strength, by stimulating increased muscle contraction. Improved muscle alignment and facilitated muscle activity also may contribute to increase in muscle strength after KT¹⁷. KT can improve strength or flexibility of the healthy muscle musculoskeletal pathologies¹⁹. Additionally all Subjects of both groups performed a home-based exercise program including isometric-isotonic neck exercises and stretching exercises everyday for two weeks, so benefit in muscle strength in the placebo group may have been related to exercise. The data from the present study are in agreement with those of the previous study^{17, 20}.

CONCLUSION:

In conclusion, KT is an effective form of therapy for patients with MPS, especially when combined with other conventional form of therapies.

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