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Comparative Study on Active Release Technique Versus Myofascial Release Technique for Upper Trapezius Muscle Spasm

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Abstract

Background: Trapezius pain is a classic example of stress pain and the most common musculoskeletal disorder which leads to long and serious disability. In Active Release Technique, deep digital pressure is applied over the tender point (trigger point) in a shortened position of the muscle and then patient is asked to actively take it in an opposite lengthened position. MFR therapy involves specifically guided low load, long duration mechanical forces to manipulate the myofascial complex, intended to restore optimal length, decrease pain, and improve function. **Aim & objective of the study:** To observe and analyze the effectiveness of active release technique versus myofascial release technique in upper trapezius spasm patients. **Data Analysis and Results:** Data analysis and result of this study shows that there is homogeneity of pre intervention variables of Neck Disability Index (NDI) and pain in VAS. There was statically significant improvement in Neck Disability Index and Pain in VAS with p value <0.05 of control group pre and post intervention values and also in experimental group with p value <0.05. While comparing both control and experimental group there is a statistically greater improvement in experimental group in which Myofascial Release Technique (MFRT) is given to the patients with trapezius spasm of Neck Disability Index (NDI) and pain in VAS with p value <0.05. **Conclusion:** It is concluded that both ART and MFRT are statistically significant and effective in alleviation of symptoms and associated disability in upper trapezius spasm, but Active Release Technique (ART) gave statistically significant better results as compared to Myofascial Release Technique (MFRT).

Keywords: Trapezius Muscle Spasm, Myofascial Release Technique (MFRT), Active Release Technique (ART).

1. Introduction

Neck pain is the common problem in general population with prevalence between 10% and 15%. Population based surveys have shown lifetime prevalence of neck pain between 67% and 87%.¹ Work related neck pain is a major concern in the industrialized world. Even among adolescents, this trend is growing, posing future challenges to society,²

Trapezius pain is a classic example of stress pain and the most common musculoskeletal disorder which leads to long and serious disability. The upper trapezius muscle being a postural muscle is highly susceptible to overuse.³

Upper trapezius is designated as postural muscle. Fibers of upper trapezius initiate rotation of the clavicle to prepare for elevation of the shoulder girdle. Any position which places trapezius in a shortened state for a period of time without rest may shorten the fibers and lead to dysfunction and restricted movements of neck.⁴

Active release technique was developed by chiropractor Dr. P. Michael Leahy to work on a variety of muscle, tendon, ligament, fascia and nerve issues. In this technique deep digital pressure is applied over the tender point (trigger point) in a shortened position of the muscle and then patient is asked to actively take it in an opposite lengthened position. This will break the adhesions.^{5,6}

Myofascial Release (MFR) is a soft tissue mobilization technique. It can be defined as “the facilitation of mechanical, neural and psycho-physiological adaptive potential as interfaced

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via the myofascial system.^{7,8} MFR utilizes the manual traction and prolonged stretching of the fascia and muscle to break down the adhesions, thus helps to decrease the pain and increase flexibility and thereby increase ROM.⁹ Literatures are available which shows the effectiveness of both the techniques either individually or with some other technique but there is dearth in the literature comparing the effectiveness between two techniques ART and MFR in patients with upper trapezius spasm.¹⁰⁻¹²

The main aim of this study is to observe and analyze the effectiveness of active release technique versus myofascial release technique in upper trapezius spasm patients. By this study results that we can learn the efficacy of active release technique and myofascial release technique for treating upper trapezius spasm and future application these techniques in those patients.

2. Material and Methods

Study Design

Comparative Study Design.

Study Setting

Abhinav Pain and Neuro Rehabilitation Centre, Madurai.

Study Duration

12 Months.

Study Population

In and around Madurai district.

Study Sampling

Convenient Sampling.

Study Sample

Control group - 30 Subjects.

Experimental group -30 Subjects.

Criteria of Selection

Inclusion Criteria

Age - 20-55 Years.

Gender-Both.

Grade II Periarthritis

Exclusion Criteria

Persons with Cervical Radiculopathy.

Neck and Back deformities.

History of trauma or fractures in the neck.

Any surgeries in the neck.

Any skin disease in the trapezius area.

Variables

Neck Disability Index scale (NDI).

Visual Analog Scale (VAS).

Interventions

Active Release Technique.

Myofascial Release Technique.

Procedure

The participants were divided into two groups, Group A and Group B, 30 each. Group A received ART and group B received MFR. NDI scale and VAS tools were used as outcome measures. For application of ART, patient was made to sit on a stool with hands supported on the thighs. Therapist stood behind the patient stabilizing the shoulder with one hand. Neck was taken in extension and contact was made using thumb with the trapezius muscle over the tender area and deep tension stretch was applied. Patient was then asked to flex and turn the neck. This was repeated for 5 times.

MFR was also applied with patient sitting on stool, arm supported on thighs. Therapist stood behind the patient close on the side to be treated. Forearm and/or ulnar border of the palm were used to apply the pressure and glide medially towards the base of the neck and/ or towards the upper scapular region. As the glide was given, patient was asked to do side bending and to turn the head in opposite direction while sitting in erect position. Glides were given for 5 times.

At the end of seventh day both the groups A and B were reassessed to check functional ability of neck with NDI, the pain intensity of trapezius muscle with VAS. Data were recorded and both the groups were compared for its effect after seventh session of the treatment on seventh day on NDI & VAS. Appropriate statistical method for data analysis were selected and applied. Data analysis was done by spss 16.0 software version for windows.

3. Data Analysis and Results

Shapiro Wilk test was used for checking normality distribution of data and student t test was used for analysis between variables.

Data analysis and result of this study shows that there is homogeneity of pre intervention variables of Neck Disability Index (NDI) and pain in VAS. There is statically significant improvement in Neck Disability Index and Pain in VAS with p value <0.05 of control group pre and post intervention values and also in experimental group with p value <0.05. While comparing both control and experimental group there is a statistically greater improvement in experimental group in which Myofascial Release Technique (MFR) is given to the patients with trapezius spasm of Neck Disability Index (NDI) and pain in VAS with p value<0.05.

Table 1: Comparison of pre intervention values of mean, SD and p value between control and experimental group with independent t student t test (Source: Author).

No of Subjects	Variables	Control Group (ART) Mean ± SD	Experimental Group (MFR) Mean ± SD	P value
60	NDI	46.2 ± 54.4	46.2 ± 72.4	0.546
	Pain in VAS	8.87 ± 9.73	8.80 ± 12.4	0.419

Table 2: Comparison of post intervention values of mean, SD and p value between control and experimental group with independent student t test (Source: Author).

No of Subjects	Variables	Control Group (ART) Mean \pm SD	Experimental Group (MFR) Mean \pm SD	P value
60	NDI	23.4 \pm 65.6	6.13 \pm 37.73	0.0001
	Pain in VAS	5.27 \pm 6.93	2.13 \pm 11.73	0.0001

**Fig. 1:** Application of Active Release Technique (Source: Author).**Fig. 2:** Application of Myofascial Release Technique (Source: Author).

4. Discussion

This study results showed that the Active Release Technique (ART) reduce the pain in VAS and improve the Neck Disability Index (NDI) than Myofascial Release Technique (MFRT). Because Active Release Technique (ART) relieve pain and improvement in Neck Disability Index (NDI) than by free the adhesion and relaxing contracted soft tissue and muscles and also it stimulates the stretch reflex than MFRT.

This study results reinforced the study results of Daxa Mishra et al (2018) stated that, although both techniques are effective in alleviation of symptoms and associated disability in upper trapezius muscle spasm, Active Release Technique gave better results as compared to Myofascial Release Technique. So that we can understand the effect of Active Release Technique is more useful than Myofascial Release Technique (MFTR) for treating trapezius muscle spasm.¹¹

This study was also reinventing the same results of Mayuri Parab et al (2020) stated that, myofascial releases, as well as cryo-stretching, were effective in reducing pain. The myofascial release showed immediate greater improvement in cervical lateral flexion range of motion as compared to cryo-stretching.¹²

This study can be further explored to do in large number of subjects and experimental study design to extract better statistically significant results.

5. Conclusion

It is concluded that both ART and MFRT are statistically significant and effective in alleviation of symptoms and associated disability in upper trapezius spasm, but Active Release Technique (ART) gave statistically significant better results as compared to Myofascial Release Technique (MFRT).

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