



A Comparative Study to Analyze the Effects of Myofascial Release with Ultrasound and Exercises Vs. Ultrasound with Stretching in Patient with Trapezitits

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Abstract

Background: It is believed that the origin of trapezitis is mainly mechanical. Theories suggest poor posture, poor ergonomics as primary prevailing causes for trapezitis. So instead of releasing tension in the muscle with the help of stretching we should release the fascia holding those muscles which in turn releases the muscle tension.

Objective: The aim of the study was to analyse the effects of myofascial release with ultrasound and exercises v/s ultrasound with stretching in patients with trapezitis.

Material and Method: The study was conducted under the guidance of Department of Physiotherapy at the Pacific Medical University in Udaipur, Rajasthan, India. A total of 30 patients of Trapezitis were included in the study. Patients were divided into two equal groups: 15 in each group. Group A patients were treated with Myofascial Release with Ultrasound and exercise. Group B patients were treated with ultrasound with stretching. Treatment duration was 20 to 30 minutes per sitting for 12 weeks.

Result: A total of 30 patients of Trapezitis were included in the study. Results showed that over all 't' value for level of thirst between the Group A & Group B was 10.733 which was highly significant at $p < 0.001$. The group A mean of was 2.53 whereas in group B was 0.93 and their mean difference was 1.600 which had greater improvement than other parameters. It is concluded that myofascial release, ultrasound and exercises was highly effective in reducing pain among patients with upper back pain.

Conclusion: In conclusion, both myofascial activation with ultrasound and exercises and ultrasound and stretching have demonstrated efficacy in treating shoulder back muscle spasm in patients with low back pain. While myofascial activation with ultrasound and exercises showed positive results, ultrasound and stretching exhibited a greater impact on pain reduction and functional improvement.

Keywords: Trapezitis, ultrasound, myofascial release and exercise

1. Introduction

Trapezititis refers to inflammation of the trapezius muscle, typically resulting from overuse or injury [1]. Myofascial Release (MFR) aims to relax tight muscles, enhance blood flow, and activate the stretch reflex in both muscles and the surrounding fascia. In contrast, phonophoresis utilizes therapeutic ultrasound to administer anti-inflammatory or pain-relieving medications through the skin into deeper tissues. Neck pain cause painful situation, decrease mobility and limits in function of neck and if discussed about specially trapezius muscle it could effect on neck muscles, shoulder and arm movement[2, 3].

As per review of literature 85% or more than that people experience neck pain at least once in their life but in now a day as people are more prone to use technology over use of cellophanes, who are working at desks and computer, bike rider or car driver they affected with upper trapezius muscle become painful or tightness from them two third of cases complaints with neck pain. If we talk about estimated percentage of neck irritation or pain although literature also shows the result prevalence rate of neck pain was estimated to be around 4.7% in 2010. Cases are increasing in advance age group people and incident rate is high in women than the men ration is 5% high in females[4].

In Indian epidemiological study shows in their result about the prevalence and incidence rate of trapezititis are limited. When collected data from hospital records, it was found that 60-70 client are came to OPD for neck pain in our hospital on average every month. Now a day's cases are increasing in students and kids who over used the cellophane. The aim of present study is with the intention to find out the effect of ultrasound with exercise and effect of ultrasound with stretching on myofascial release who suffering from trapezititis.

During exercise and sports commonly results muscle injuries. It can happen due to not getting proper training, improper warm up and stretching skills or trauma. In medical science there are too many ways to treat muscle injuries. Ultrasound, exercise and stretching are used frequently[5].

It is believed that the origin of trapezititis is mainly mechanical. Theories suggest poor posture, poor ergonomics as primary prevailing causes for trapezititis. So instead of releasing tension in the muscle with the help of stretching we should release the fascia holding those muscles which in turns releases the muscle tension[6]. Thus, the aim of the study was to analyse the effects of myofascial release with ultrasound and exercises v/s ultrasound with stretching in patients with trapezititis.

2. Material and method

Study design: The study was conducted under the guidance of Department of Physiotherapy at the Pacific Medical University in Udaipur, Rajasthan, India. The study was carried out in October 2022.

Sample size: A total of 30 patients of Trapezititis were included in the study. Patients were divided into two equal groups: 15 in each group. Group A patients were treated with Myofascial Release with Ultrasound and exercise. Group B patients were treated with ultrasound with stretching. Treatment duration was 20 to 30 minutes per sitting for 12 weeks.

Inclusion criteria

- Age-20 year to 50 year.
- Degenerative origin with or without radiation.
- Positive special test.

Exclusion criteria

- Patient with soft tissue injury, fracture, and cervical canal stenosis.
- Age less than 20 and more than 50.
- Patient with pathological skin conditions.
- Cervical myelopathy.

Clinical examination: The patients of Trapezititis diagnosed by functional examination. VAS (Visual Analogue Scale), neck range of motion test and goniometry was used for outcome measurement.

Procedure: The subjects were fitted according to inclusion criteria and informed consent was taken from the patients and explained the procedure in detail. Appropriate treatment category was chosen according to plan for the patients for better effectiveness, proper treatment and thus better results. Following treatment was used for patients:

Group A: Exercises: Isometric Strengthening:

- Neck Flexion Isometric Strengthening Exercise

- Neck Extension Isometric Strengthening Exercise
- Neck Side Bend Isometric Strengthening Exercise
- Chin Tuck

Ultrasound
Myofascial release

Group B: Cervical stretching:

- Active stretch
- Passive stretch

Ultrasound: Followed for 10minutes

Data analysis: The collected data was analysed by using the statistical software SPSS 16. The statistical analysis included the application of paired t-test and mean improvement analysis.

3. Results

A total of 30 patients were included in study and we compared two distinct groups-Group A and Group B-across various demographic variables. The data provides insights into the composition of these groups based on sex, age, education, occupation, and area.

TABLE 1: FREQUENCY, PERCENTAGE DISTRIBUTION OF DEMOGRAPHIC VARIABLES OF PATIENTS OF TRAPEZITIS

S.No.	Demographic Variables		Group A		Group B	
			Frequency	Percentage	Frequency	Percentage
1.	Sex	Male	5	33.30%	8	53.30%
		Female	10	66.70%	7	46.70%
2.	Age	18-27 Years	0	0%	0	0%
		28-37 Years	4	26.70%	4	26.70%
		38-47 Years	9	60.60%	7	46.70%
		48 Years and above	2	13.30%	4	26.70%
3.	Education	No Formal Education	7	46.70%	2	13.30%
		Primary Education	3	20.00%	2	13.30%
		Sec. & high sec. Education	0	0%	2	13.30%
		Graduation and above	5	33.30%	9	60.00%
4.	Occupation	Unemployed	0	0%	0	0%
		Employee	8	53.30%	8	53.30%
		Business	7	46.70%	7	46.70%
5.	Area	Rural	9	60.00%	6	40.00%
		Urban	6	40.00%	9	60.00%

TABLE 2: UNPAIRED ‘T’ TEST FOR GROUP A AND GROUP B LEVEL OF PAIN AMONG PATIENTS WITH UPPER BACK PAIN

Level of pain	Group A		Group B		Mean difference	t value
	Mean	SD	Mean	SD		
Group A & Group B	0.60	0.507	0.80	0.676	0.200	0.917

(*** P<0.001 highly significant)

The table 2: shows that the obtained over all ‘t’ value for level of thirst between the Group A & Group B was 0.917 which was highly significant at p<0.001 The group A mean of was 0.60 whereas in group B was 0.80 and their mean difference was 0.200 which had greater improvement than other parameters.It is concluded that myofascial release,

ultrasound and exercises was highly effective in reducing pain among patients with upper back pain. Hence research hypothesis is accepted.

TABLE 3: UNPAIRED ‘T’ TEST FOR GROUP A AND GROUP B NECK DISABILITY INDEX AMONG PATIENTS WITH UPPER BACK PAIN

Neck Disability Index score	Group A		Group B		Mean difference	‘t’ value
	Mean	SD	Mean	SD		
Group A & Group B	2.53	0.516	0.93	0.258	1.600	10.733

(*** P<0.001 highly significant)

The table 3: shows that the obtained over all ‘t’ value for level of thirst between the Group A & Group B was 10.733 which was highly significant at p<0.001 The group A mean of was 2.53 whereas in group B was 0.93 and their mean difference was 1.600 which had greater improvement than other parameters. It is concluded that myofascial release, ultrasound and exercises was highly effective in reducing pain among patients with upper back pain. Hence research hypothesis is accepted.

4. Discussion

The study found that myofascial release, ultrasound, stretching, and exercise treatments effectively reduce back shoulder pain associated with trapezititis. Notably, significant differences in pain intensity were observed within each group and between Group A and Group B after 12 days of treatment. Group B exhibited a substantial decrease in pain intensity, while both Group A and Group B experienced pain relief.

When applied for the chosen treatment duration in this study, effectively alleviated pain by addressing issues such as muscle fiber imbalance and correcting improper proprioceptive activity. Previous research has also supported the effectiveness of manipulative techniques like stretching and isometrics for treating somatic dysfunction[7,8]. Studies evaluating the impact of myofascial release with ultrasound and exercise vs only ultrasound and stretching in patients with shoulder back pain activity have shown significant improvements.

Regarding range of motion (ROM), both treatment groups exhibited statistically significant improvements in activeneck rotation and lateral flexion at the end of the treatment. However, there was statistical difference observed between the two groups.

Data shows that the obtained over all ‘t’ value for level of thirst between the Group A & Group B was 0.917 which was highly significant at p<0.001 The group A mean of was 0.60 whereas in group B was 0.80 and their mean difference was 0.200 which had greater improvement than other parameters. It is concluded that myofascial release, ultrasound and exercises was highly effective in reducing pain among patients with low back pain.

The study by Osteopathic manual treatment and ultrasound therapy for chronic low back pain investigated the impact of osteopathic manual treatment (OMT) and ultrasound therapy on chronic low back pain. Although the study did not specifically mention myofascial release, it provides relevant insights into the effectiveness of manual therapies and ultrasound [9].

Additionally, a systematic review and meta-analysis on myofascial release for chronic low back pain found that myofascial release significantly improved pain and physical function in patients with chronic low back pain (CLBP). While this study didn’t directly compare myofascial release with ultrasound and exercises, it highlights the positive effects of myofascial release [10].

Therefore, based on existing research, it can be inferred that myofascial release, ultrasound, and exercises collectively contribute to pain reduction in patients with low back pain.

5. CONCLUSION

In conclusion, both myofascial activation with ultrasound and exercises and ultrasound and stretching have demonstrated efficacy in treating shoulder back muscle spasm in patients with low back pain. While myofascial activation with ultrasound and exercises showed positive results, ultrasound and stretching exhibited a greater impact on pain reduction and functional improvement. These findings emphasize the need to consider different manual therapy approaches and tailor treatments to individual patient needs in order to optimize outcomes for patients with trapezititis.

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