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ORIGINAL ARTICLE

Comparison of Short Term Outcomes Between Dry Needling and Manual Therapy on Upper Trapezius Trigger Points

Irrij Javed Jadoon[1], Syed Ali Hussain[2], Abdul Ghafoor Sajjad[3], Rabia Afzal[4], Shahrukh Mehtab[5]

[1]Lecturer, Women Institute of Rehabilitation Sciences, Abbottabad
[2]Assistant Professor, Women Institute of Rehabilitation Sciences, Abbottabad
[3]Assistant Professor/HOD, Spine Rehab Center, Max Health Hospital Sector G-8 Islamabad
[4]House Officer, Fauji Foundation Hospital Rawalpindi
[5]Assistant Professor, Sahara Medical College

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Address of Correspondence

Abdul Ghafoor Sajjad
abdulghafoorsajjad@yahoo.com

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A B S T R A C T

Background: Myofascial pain syndrome is considered as the most common source of neck pain in skeletal muscles which become a cause of chronic neck pain. In the neck region trapezius is most commonly affected by Myofascial trigger points.

Objective: To compare the effects of trigger point dry needling and trigger point manual therapy of trigger points of upper trapezius muscle.

Methodology: It was a randomized control; single blinded clinical trial was conducted from 5th September to 3rd October 2016 from Clinical Facility of Women Institute of Rehabilitation Sciences, Abbottabad. Purposive sampling technique was used for sample selection. After taking consent from patients, 30 patients with neck pain and active MTrPs were divided randomly in two groups through lottery method. Group A was treated with dry needling, group B was treated only with manual therapy. Research data was recorded at the first visit and 4th week by using prescribed validated questionnaire, NPRS, NDI and cervical ROMs with Inclinometer.

Results: Among 30 participants 16 were male and 14 were female having overall mean age was 35.75±7.63. Within the group analysis the pain and disability were shows statically significant having P value less than P < .001. There were no significantly differences at base line values show that the data was made uniform. The final result showed that the dry needling group significantly improves the pain and functional status of the patient.

Conclusion: It is concluded that both groups showed improvement during the follow up period. But, dry needling group showed significant results than manual therapy group in terms of reduction pain and improving function of the patients.

Introduction

Myofascial pain syndrome is considered as the most common source of neck pain in skeletal muscles which becomes a cause of chronic neck pain. In general population the prevalence of neck pain was found between 10-15%. Neck pain was found to be more prevalent in females than males.[1] In the neck region trapezius is most commonly affected by Myofascial trigger points (MTrPs). Trapezius is known as the most hyperalgesic muscle in neck region, especially the upper fibers of trapezius are notorious for MTrPs. There is growing evidence that MTrPs play an important role in patients complaining of chronic neck pain.[2-5]

Trigger points are sensitive, hyperirritable tender points in skeletal muscle fibers that are associated with patients' symptoms or specific pattern of referred pain.

These taut bands feel like knots in the muscles. It is important to note that a true trigger point should be able to produce local and referred pain pattern. [6] Medical intervention and physiotherapy are widely used to treat patients with chronic neck pain in primary care settings. [7] According to Cochrane review manipulation and mobilization are mostly used to treat chronic neck pain. Still evidence is not enough to suggest what type of manual therapy is better for patients of neck pain. [8]When there are MTrPs in the trapezius muscle, dry needling and ischemic compression have shown reduction in pain intensity. Moreover a systematic review suggested that in injection therapy the substance injected didn't have any effect rather it was the prick of the needle which was responsible for the effects. [9-12]

Purpose of this research was to know about the efficacy of dry needling for the treatment of myofascial trigger points as the topic of dry needling has gained steam in the physiotherapy community.

Methodology

This single blinded clinical trial was carried out at the Women Institute of Rehabilitation Sciences, Abbottabad. Thirty patients with active myofascial trigger points in trapezius muscles were randomly allocated to either group A or group B.A lottery method use for randomization the patients into two groups. The patients were unaware about the treatment group. The Group A was treated with dry needling and group B was treated with manual therapy. The participants in the dry needling group were treated with dry needling of all MTrPs found in the trapezius muscle. The control group received manual therapy for MTrPs found in trapezius muscle. The patients were treated for three sessions in a two-week period with at least a two-day break between each session, and in session four, an assessment of primary outcomes was conducted without any treatment. Outcome measures included neck pain intensity measured using numeric pain rating scale, cervical range of motion (ROM), and a questionnaire (neck disability index). Data was analyzed using SPSS version 20. To find out the significance of the interventions independent and paired t-test was used.

Results

All thirty participants were randomly divide into Dry needle and Manual therapy group (15 in each). The overall mean age was 35.75±7.63, in dry needling group the mean age was 34.47±7.23 and in manual therapy group the mean age was 36.67±8.121. Among participants 16 were male and 14 were female. (Table No I)

Table I: Demographic Data

Variable	Sub Variable	Over All	Dry Needling Group	Manual Therapy Group
Age		35.75 ±7.63	34.47±7.23	36.67±8.121
Gender	Male	16	9	7
	Female	14	6	8

Within the group analysis the pain and disability were shows statically significant having P value less than .001 (Table No II)

There were no significantly differences at base line values show that the data was made uniform. The final result showed that the dry needling group significantly improves the pain and functional status of the patient. (Table No III)

Table II: Pre-& Post Values Comparison in Groups

Variable		Pre Value	Post Value	Difference	P value
1 VAS	Dry Needling Group	6.67±0.724	2.93±0.797	3.74±0.073	0.001
	Manual Therapy Group	6.93±0.704	4.20±0.941	2.73±0.237	0.001
2 NDI	Dry Needling Group	38.13±3.852	15.07±3.634	23.13±0.218	0.001
	Manual Therapy Group	37.47±4.068	29±5.278	8.47±1.21	0.001

Table III: Comparison Between the Groups

		Base Line Comparison		End Values Comparison	
Variables	Groups	Mean ± S.D	**P Value**	**Mean ±S.D**	**P Value**
VAS	Dry Needling Group	6.67 ± 0.724	0.315	2.93 ± 0.799	0.001
	Manual Therapy Group	6.93 ± 0.704		4.02 ± 0.941	
NDI	Dry Needling Group	38.13 ± 3.85	0.648	15.07 ± 3.63	0.001
	Manual Therapy Group	37.47 ± 4.06		29 ± 5.27	

Discussion

This study was designed to compare the effects of trigger point dry needling and trigger point manual therapy for the treatment of myofascial trigger points for the patients with chronic neck pain. Improvement was seen in both groups but dry needling group showed better results than manual therapy group. Experts suggest that multimodal approach should be used in the treatment of chronic neck pain because patients respond better to multimodal approach.

A randomized clinical trial conducted by Cerezo-Téllez et al to know the effects of dry needling concluded that deep dry needling and passive stretch seems to be more effective than passive stretch only in the management of myofascial trigger points in neck region.[12]

Dry needling has scientific theory behind this as compare with acupuncture. Furlan AD et al. did systematic review on acupuncture and dry-needling for low back pain in which Thirty-five RCTs were included. For chronic low-back pain there is evidence of pain relief and functional improvement for acupuncture, compared to no treatment or sham therapy. These effects were only observed immediately after the end of the sessions and at short-term follow-up. There is evidence that acupuncture, added to other conventional therapies, relieves pain and improves function better than the conventional therapies alone. However, effects are only small. Dry-needling appears to be a useful adjunct to other therapies for chronic low-back pain. [13]

In a systematic review and meta-analysis of randomized controlled trials of seven studies concluded that one study showed that direct dry needling was superior to no intervention. Two studies, comparing direct dry needling to needling elsewhere in the muscle, produced contradictory results. Four studies used a placebo control and were included in a meta-analysis. Combining these studies (n = 134), needling was not found to be significantly superior to placebo. [14]

Another Systemic review which support our study done by Cagnie et al. (2015), in which they compare the effects of ischemic compression and dry needling on trigger point. The target area was the trapezius muscle. The fifteen studies were analysis on the pain, ROM, Functional disability and quality of life. There is a moderate evidence for ischemic compression and strong evidence for dry needling was noted specially on the intensity of the pain. [15]

There is some studies which did not support the result of this study such as a study done by Dominik Irnich et al on Immediate effects of dry needling and acupuncture at distant points in chronic neck pain. In this study result show that acupuncture is superior to Sham in improving motion-related pain and ROM following a single session of treatment in chronic neck pain patients. Acupuncture at distant points improves ROM more than DN. [16]

Limitations of the study included, Smaller sample size, Only three sessions were given to the patients, more sessions are provided in clinical practice, A placebo group could be included to know the effects of other factors on treatment, A longer follow-up period could help to understand the effects of treatment in a better way, Other factors which effect neck pain such as anxiety and depression were not taken into account, Only trapezius muscle was treated for neck pain but trigger points of other muscles can be the source of pain.

In future studies long term follow-up should be seen while comparing treatments for neck pain with a larger sample size. A placebo group should also be included. Other factors causing neck pain should also be considered so that more accurate results can be generated.

Conclusion

It is concluded that both groups showed improvement during the follow up period. But, dry needling group showed significant results than manual therapy group in terms of reduction pain and improving function of the patients.

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