



Received: 28 September, 2021

Accepted: 10 November, 2021

Published: 11 November, 2021

***Corresponding author:** Umair Arif, Lecturer statistics at The University of Faisalabad, Pakistan, Email: umair.arif@tuf.edu.pk, umairrana1765@gmail.com

Keywords: Myofascial patch; Physical therapy treatments; Trigger points

Copyright: © 2021 Razaq K, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

<https://www.peertechzpublications.com>



Check for updates

Research Article

A comparison of efficacy of diclofenac patch and physical therapy techniques in the treatment of patients with myofascial pain disorder of the upper trapezius

Komal Razaq¹, Umair Arif^{2*}, Rabia Javaid³, Hafiz Muhammad Almas Sabir³, Attia Noreen³, Maryam Ashfaq³ and Ramish Akram³

¹Demonstrated at School of Rehabilitation Sciences, The University of Faisalabad, Pakistan

²Lecturer statistics at The University of Faisalabad, Pakistan

³Student of Physical therapy at The University of Faisalabad, Pakistan

Abstract

Objective: This study was conducted to find the best treatment in treating the patients of myofascial syndrome for this purpose two treatment options were compared to rule out the best option of treatment in minimizing the pain, enhancing the cervical movement and in determining the pressure pain threshold of MTrp.

Material and methodology: It was a comparative study. Total 60 patients were randomly allocated to each group of treatment. We compared two treatments, treatment A of 30 patients was physical therapy and 30 patients of treatment B was diclofenac patch. For seven days, these patches were applied three times per day to the MTrp area of the upper trapezius muscle. The fix's sufficiency and security boundaries were evaluated before it was used (day 0), three days later (day 3), and six days later (day 6). Chi square test was used for checking association of treatments and different attributes of patients.

Results: There is significance association was found between demographic characteristics and treatments groups with p-values less than 0.05. There is significance difference effect between both treatments using VAS pain scale and cervical active Rom and PPT of MTRP using p-value less 0.05. These results shows that physical therapy treatment effects are better as compare to diclofenac patch.

Conclusion: Physical therapy techniques and the diclofenac patch have both been shown to be helpful but significant results are shown by Group A in treating trigger points of upper trapezius by normalizing the pathophysiological reasons of trigger points of this region. Physical therapy techniques are more helpful in reducing pain and in achieving cervical movement.

Introduction

Myofascial pain syndrome (MPS) is a regional musculoskeletal pain condition caused by trigger points that affects one or even more muscles or sets of muscles [1-3].

Myofascial trigger points (MTrPs) are hyperirritable spots or points that can be found inside a tight band of skeletal muscle or in the muscular fascia [4,5]. The site becomes uncomfortable with muscular activity and in case of compression distinctive referred pain patterns and tenderness occurred, motor function abnormalities, and autonomic features [6-8].

MPS is a prevalent cause of musculoskeletal pain and dysfunction. It comprises for 20 percent to 95 percent of musculoskeletal pain patients who present to general medical centers and pain treatment centers [9-11]. MTrPs frequently affect the muscles of the upper extremities including back and neck, lower extremity is often involved. Upper trapezius muscular component, sternocleidomastoid, scalene, levator scapulae, quadratus lumborum are the most often affected postural muscles with MTrPs [12-14]. TrP1, which is found in the topmost portion of the Trapezius, generally produces pain over one part of the neck, posteriolateral to the mastoid bone, and superiorly down the side of the head to the skull and rear of the eye socket, producing the appearance of a question mark. Temporal headache occurs because all of the trigger points generate severe pain from the neck to the posterior of back [15].

Objective

This study was conducted to find the best treatment in treating the patients of myofascial syndrome for this purpose two treatment options were compared to rule out the best option of treatment in minimizing the pain, enhancing the cervical movement and in determining the pressure pain threshold of MTrp.

Methodology

It was a comparative study after taking approval from the ethical committee. Study duration was six month. Patients were selected who were determined to have MPS in the upper trapezius muscle from the Department of Physical therapy at Madinah Teaching Hospital. Total 60 patients were randomly allocated to each group of treatment. We compared two treatments, treatment A of 30 patients was physical therapy and 30 patients of treatment B was diclofenac patch. For seven days, these patches were applied three times per day to the MTrP area of the upper trapezius muscle. The fix's sufficiency and security boundaries were evaluated before it was used (day 0), three days later (day 3), and six days later (day 6). The emergency clinic's morals board of trustees endorsed the research proposal and the consent structure, and all patients gave informed consent before the examination began. The criteria for inclusion are as follows:

1. Patients included form age of 25 year to 40 years
2. Tender, allergenic, and palpable nodules are clearly delineated in the upper trapezius tension band.
3. Continuous, repeatable unrestricted agony after 10-20 seconds of uninterrupted pressure.
4. Patients must be at least 18 years old at the time of investment and clinically active to qualify.

Exclusion criteria

The rejection rules are as per the following:

1. Previous medical procedure in a similar bodily area.
2. A history of poor dietary habits, hypothyroidism, or other serious illnesses.

3. A cognitive deficiency or psychological adversity.
4. Any oral NSAIDs or skin medications taken after an injury in the problematic territory.

All of the patients who were enrolled in the study took part in it and completed it. The MPS of the upper trapezius was originally assessed using the criteria, and patients with a history of gastrointestinal draining or a documented hypersensitivity to diclofenac were also excluded. a clinical meeting The doctor evaluated the patient's analytic reason during the underlying clinical gathering and asked him to fill out a clinical history and segment poll. During the assessment, the patient was urged to do as many daily living exercises as his or her MPS condition permitted, and the research would be halted promptly if damage to the study area occurred. The clinical sessions on days 0, 3, and 6 of the one-week treatment comprised regular checks of sufficiency and wellbeing criteria by research associates who were unaware of the investigation plan or the creation of patient journals.

Treatment

Diclofenac sodium fix, a dynamic drug, is made with 60 mg diclofenac sodium in a hydrophilic glue used for the non-woven polyester felt backing. Each fix is 10-14 cm in length. Gelatin, polyvinylpyrrolidone, disodium edetate, kaolin, sodium polyacrylate, methyl paraben, propyl paraben, tartaric corrosive, D-sorbitol, and titanium dioxide make up the hydrophilic folio. Only menthol and a hydrophilic cement are used in the fake treatment control fix. Three times a day for seven days, the fix was applied to the skin surface of the effected region in a direction similar to the filaments of the upper trapezius muscle. We provide extending works out, which are perhaps the most commonly acknowledged tactics for treating myofascial anguish, 5 to treat control group patients because we need to treat them (for moral reasons). A similar exploration collaborator who played out the viability and security controls recommended extending procedures for the patient's neck muscles (counting upper trapezius, spleen, long muscles, and scalene muscles on both sides). It is permissible to use acetaminophen as a salvage prescription. When the patient returns all used and unused test fixes and gives their use records to the patient journal at the end of the inquiry, the total sum assigned is noted.

Statistical analysis

Data was analyzed in SPSS version 22. Descriptive statistics represented in the form of Mean \pm S.D. independent t test was used for comparing both group's results and check the significance at P-value less than 0.05. chi square test was used for checking association of treatments and different attributes of patients.

Results

There is significance association was found between demographic characteristics and treatments groups with p-values less than 0.05 (Table 1). There is significance difference effect between both treatments using VAS pain scale



and cervical active Rom and PPT of MTRP using p-value less 0.05. These results shows that physical therapy treatment effects are batter as compare to diclofenac patch (Table 2).

Discussion

The purpose of this study was to assess the efficacy of physical therapy techniques and the diclofenac patch on trigger points of upper trapezius. A numeric pain rating scale was utilized to assess pain intensity, an algometer to assess pain pressure threshold, and an inclinometer to assess range of motion in cervical region.

In 2015, Liu et al. conducted a randomized study that demonstrated the efficacy of Physical therapy techniques (dry needling) in myofascial trigger points [16]. They discovered that both medium and short-term dry needling had positive effects on trigger sites, although the benefits of short-term dry needling are deeper (p-value = 0.002) than long-term dry needling (p-value 0.009) [17]. Results of current studies shows that effects of physical therapy techniques are more significant and helped in reducing pain and there is an increase in cervical range of motion [18].

Another study on muscular pain and aging conducted by Leonardo Vecchiet showed that with advanced age, complaints of musculoskeletal discomfort increased, which might be attributed to the physiologic aging process, which appears to exacerbate muscle degeneration and hypersensitivity [19].

Esenyel M conducted a study and concluded that anxiety was greater in patients with myofascial pain syndrome than depression. Ultrasound therapy and trigger point injections

were shown to be equally beneficial when coupled with neck stretching exercises [20]. The present study also concluded that physical therapy techniques are best in treating myofascial syndrome.

Conclusion

Physical therapy techniques and the diclofenac patch have both been shown to be helpful but significant results are shown by Group A in treating trigger points of upper trapezius by normalizing the pathophysiological reasons of trigger points of this region. Physical therapy techniques are more helpful in reducing pain and in achieving cervical movement.

Limitation

After three follow-ups, this research discovered effects. More study is needed to determine the long-term impact of these therapies.

Recommendation

1. Further studies are needed to compare the impact of both treatments as well as some other additional interventions
2. The effects of both therapies should be investigated using a wider and more precise sample size

References

1. Travell JG, Simons DG (1983) Myofascial pain and dysfunction: the trigger point manual. Lippincott Williams Wilkins. [Link: https://bit.ly/3C105YB](https://bit.ly/3C105YB)
2. Alvarez DJ, Rockwell PG (2002) Trigger points: diagnosis and management. American family physician Lavelle ED Lavelle W 65 653-62.
3. Chen CK (2011) Myofascial pain syndrome in chronic back pain patients. Korean J Pain 24:100-104. [Link: https://bit.ly/3kIKKYL](https://bit.ly/3kIKKYL)
4. jump sign [Internet] TheFreeDictionary.com. 2020 [cited 24 February 2020]. Available from: <https://medical-dictionary.thefreedictionary.com/jump+sign> Dommerholt J, Bron C, Franssen J. Myofascial trigger points: an evidence-informed review. Journal of Manual & Manipulative Therapy. 2006;14(4):203-21. [Link: https://bit.ly/3C5IAYK](https://bit.ly/3C5IAYK)
5. Vecchiet L (2002) Muscle pain and aging. Journal musculoskeletal Pain 10: 5-22. [Link: https://bit.ly/3C8HSu4](https://bit.ly/3C8HSu4)
6. Esenyel M, Caglar N, Aldemir T (2000) Treatment of myofascial pain. American journal of physical medicine & rehabilitation 79: 48-52. [Link: https://bit.ly/3D5aWnc](https://bit.ly/3D5aWnc)
7. Kołodziejka J, Kołodziejczyk M (2018) Diclofenac in the treatment of pain in patients with rheumatic diseases. Reumatologia 56: 174-183. [Link: https://bit.ly/3qCujY](https://bit.ly/3qCujY)
8. Urits I, Charipova K, Gress K, Schaaf AL, Gupta S, et al. (2020) Treatment and management of myofascial pain syndrome. Best Pract Res Clin Anaesthesiol 34: 427-448. [Link: https://bit.ly/3bVDR1p](https://bit.ly/3bVDR1p)
9. Galasso A, Urits I, An D, Nguyen D, Borchart M, et al. (2020) A Comprehensive Review of the Treatment and Management of Myofascial Pain Syndrome. Curr Pain Headache Rep 24: 43. [Link: https://bit.ly/3EZ00x5](https://bit.ly/3EZ00x5)
10. Chou Y, Chiou HJ, Wang HK, Lai YC (2020) Ultrasound-guided dextrose injection treatment for chronic myofascial pain syndrome: A retrospective case series. J Chin Med Assoc 83: 876-879. [Link: https://bit.ly/3EZ00x5](https://bit.ly/3EZ00x5)

Table 1: Demographic Characteristics of Patients.

Gender		Physical therapy (n=30)	diclofenac patch(n=30)	Total	p-value
	Male	19	21	40	0.002
	Female	11	9	20	
	Total	30	30	60	
	Age	37.84±2.74	39.19±3.74	36.11±1.84	0.006
Medical history					
	Yes	25	20	45	0.000
	No	5	10	15	
	Total	30	30	60	
Side of pain					
	Right	15	20	35	0.000
	Left	15	10	25	
	Total	30	30	60	

Table 2: Efficacy outcome for physical therapy and diclofenac patch.

		Physical therapy (n=30)	diclofenac patch(n=30)	p-value
VAS	Day 0	8.12±1.34	8.78±1.64	0.001
	Day 3	5.98±1.11	6.87±1.44	
	Day 6	1.57±0.21	3.24±1.09	
Cervical active ROM	Day 0	37.19±1.57	38.81±1.74	0.000
	Day 3	40.25±2.87	39.44±2.57	
	Day 6	45.70±1.25	42.35±2.48	
PPT of MTRP	Day 0	5.11±1.24	5.20±1.11	0.000
	Day 3	5.31±1.10	5.34±1.21	
	Day 6	5.92±1.01	5.89±1.12	



11. Salunke N, Kumar MK, Tabassum M, Pravallika P, Sampoorna M, et al. (2019) Randomized Placebo Controlled Open Labelled Comparison of Efficacy of Diclofenac Transdermal Patch in Post Operative Pain. *Research Journal of Pharmacy and Technology* 12: 1119-1121.
12. Gil-Martínez A, Paris-Alemany A, López-de-Uralde-Villanueva I, La Touche R (2018) Management of pain in patients with temporomandibular disorder (TMD): challenges and solutions. *J Pain Res* 11: 571-587. [Link: https://bit.ly/3wElyfN](https://bit.ly/3wElyfN)
13. LaPietra AM, Motov S (2019) A Country in Crisis: Opioid Sparing Solutions for Acute Pain Management. *Missouri medicine* 116: 140-145. [Link: https://bit.ly/30aL9Mu](https://bit.ly/30aL9Mu)
14. Przkora R, Balduyev P, Trescot A (2019) Muscle and Myofascial Pain 35. *Academic Pain Medicine: A Practical Guide Rotations Fellowship Beyond 1: 277.*
15. Mena M, Dalbah L, Levi L, Padilla M, Enciso R (2020) Efficacy of topical interventions for temporomandibular disorders compared to placebo or control therapy: a systematic review with meta-analysis. *J Dent Anesth Pain Med* 20: 337-356. [Link: https://bit.ly/3oevunl](https://bit.ly/3oevunl)
16. Liu L, Huang Q-M, Liu Q-G, Ye G, Bo C-Z, et al. (2015) Effectiveness of dry needling for myofascial trigger points associated with neck and shoulder pain: a systematic review and meta-analysis. *Archives of physical medicine and rehabilitation* 96: 944-955. [Link: https://bit.ly/3C5KHMa](https://bit.ly/3C5KHMa)
17. Huang-Lionnet JH, Hameed H, Cohen SP (2018) Pharmacologic Management of Myofascial Pain. In *Essentials of Pain Medicine* Elsevier 475-484.
18. Vasylieva N (2020) Experience with the application of complex treatment in cervical-thoracic myofascial dysfunction. *Sciences Europe*.
19. Çifter Ed, Yengin E, Özel Yıldız Se, Usta A (2018) Miyofasiyal Ağrıda Oklüzal Splint, Akupunktur ve Farmakolojik Tedavinin Etkinliklerinin Araştırılması. *Geleneksel ve Tamamlayıcı Tıp Dergisi* 1: 115-126. [Link: https://bit.ly/3D2lbt](https://bit.ly/3D2lbt)
20. Wisuitiprot V, Bumrungrachana W, Kaewtai N, Rawangking A, Saiphanit S, et al. (2019) Effectiveness of a Plai Oil Prepared by Thai Traditional Medicine Process in the Treatment of Myofascial Pain Syndrome: A Randomized Placebo Controlled Trial. *Journal of Health Science and Medical Research*. 37: 207-215. [Link: https://bit.ly/3n1eLo7](https://bit.ly/3n1eLo7)

Discover a bigger Impact and Visibility of your article publication with Peertechz Publications

Highlights

- ❖ Signatory publisher of ORCID
- ❖ Signatory Publisher of DORA (San Francisco Declaration on Research Assessment)
- ❖ Articles archived in worlds' renowned service providers such as Portico, CNKI, AGRIS, TDNet, Base (Bielefeld University Library), CrossRef, Scilit, J-Gate etc.
- ❖ Journals indexed in ICMJE, SHERPA/ROMEO, Google Scholar etc.
- ❖ OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting)
- ❖ Dedicated Editorial Board for every journal
- ❖ Accurate and rapid peer-review process
- ❖ Increased citations of published articles through promotions
- ❖ Reduced timeline for article publication

Submit your articles and experience a new surge in publication services (<https://www.peertechz.com/submission>).

Peertechz journals wishes everlasting success in your every endeavours.