Print ISSN: 2321-6379
Online ISSN: 2321-595X
DOI: 10.17354/ijss/2017/183

Original Article

Revalidation of Trigger Point Injection in Myofascial Pain Syndrome, Assessed by Pain Disability Score

Manisha Jaiswal[1], R P Sanyal[2], S Goswami[3]

[1]Fellow, Department of Pain, ESI Institute of Pain Management, Sealdah, Kolkata, West Bengal, India, [2]Associate Professor, Department of Anaesthesiology and Pain, KPC Medical College, Kolkata, West Bengal, India, [3]Course Director, Department of Pain, ESI Institute of Pain Management, Sealdah, Kolkata, West Bengal, India

Abstract

Background: Myofascial pain syndrome (MFPS) is defined as the "sensory, motor, and autonomic symptoms caused by myofascial trigger points (MTrPs)" and is a recognized medical diagnosis among pain specialists. MFPS continues to be one of the most commonly missed diagnoses. It has been estimated that some 44 million Americans have myofascial pain problems. Local anesthetic is the most common drug effectively used for injection into trigger points. The tool for assessment is usually the pain score (either visual analog scale or numerical rating scale). However, the patients with MFPS suffer from pain, depression, and other psychosocial factors, which contribute to their disability.

Materials and Methods: In this prospective, sequential study, 30 patients were selected for the study. The pain disability questionnaire was filled up on the first visit and was used as control. Patients were then given trigger point injections on 1st, 7th, and 30th day, and the questionnaire was again filled up at 1 month from the day of 3rd injection. All the data were analyzed by using student's paired *t*-test, and $P < 0.05$ was considered significant.

Result: Significant reduction in pain disability score was noted. On comparing both the groups, it was found statistically significant ($P < 0.01$).

Conclusion: Trigger point injections with lignocaine 1% were shown to be an effective therapy for trigger point in MFPS, when assessed by the pain disability score. The improvement was not only in terms of intensity but also from the psychosocial aspect as well.

Key words: Myofascial pain syndrome, Myofascial trigger points, Pain disability score, Trigger point injections

INTRODUCTION

Myofascial pain syndrome (MFPS) is a widely recognized phenomenon in clinical practice, in which widespread or regional muscular pain is associated with hyperalgesia, psychological disturbance, and significant restriction of daily functioning.[1] It has been estimated that some 44 million Americans have myofascial pain problems.[2] Trigger points are the hallmark of MFPS. Active myofascial trigger points often play a role in the symptoms of patients with tension headaches,[3] low back pain,[4,5] neck pain,[6] temporomandibular pain, forearm and hand pain, postural pain,[7] and pelvic/urogenital pain syndromes.[8] There remains much to be elucidated with regards to their pathophysiology,[9] mechanisms of pain referral,[10] and treatment of choice.[11] The diagnosis of trigger points relies on finding a local tender spot within a taut muscle band.[12] However, there is a lack of a gold standard for assessment of trigger points.[12,13] The common treatments for trigger points are physical modalities, manual therapy, non-steroidal anti-inflammatory drugs, topical analgesics, spray and stretch with vapocoolants, topical analgesic, local injections with a myriad of drugs including lidocaine, botox, steroids, normal saline, and dry needling.[11]

Major depression is present in 23% to 78% of the patients with chronic pain as against 5% to 17% in general

Access this article online

www.ijss-sn.com

Month of Submission : 02-2017
Month of Peer Review : 03-2017
Month of Acceptance : 03-2017
Month of Publishing : 04-2017

Corresponding Author: Manisha Jaiswal, 8/19, East Mall Road, Green Valley, Sealdah - 700 080, Kolkata, West Bengal, India. Phone: +91-9831230455. E-mail: drmjaiswal14@gmail.com

population.[14] Patients with MFPS has been shown to have a negative correlation of quality of life (QOL) with pain intensity.[15] Disability pain questionnaire (DPQ)[16,17] is a psychosocial yardstick for assessment of clinical outcomes in patients with chronic musculoskeletal disorders and focuses on function, disability, and activities of daily livings (ADLs). The score ranges from 0 (perfect function) to 150 (total disability).[16]

The aim of this study is to objectively revalidate treatment of trigger point injection with lignocaine 1% using pain disability score. Control group was not possible as even normal saline injection and dry needling have a therapeutic effect.

MATERIALS AND METHODS

The study was conducted at ESI Institute of Pain Medicine, ESI Hospital, Kolkata, between May 2014 and August 2014. Incidentally, most of our patients are industrial laborers.

After obtaining approval from the Institutional Ethics Committee, the patients were recruited according to the following inclusion and exclusion criteria:

Inclusion Criteria

- Patients in the age group of 30-60 years with MFPS.
- Patients on conservative therapy with drugs, e.g., gabapentin, amitryptiline, and paracetamol (as and when necessary basis), for a minimum period of 6 weeks.

Exclusion Criteria

- Patients with any systemic disease.
- Patients with bleeding diathesis or on anticoagulants.
- Patients on any other medications other than the ones specified in our study.
- Patients who do not fulfill the minimum diagnostic criteria of active trigger points.
- Patients not consenting to be part of the study.

All patients were explained the procedure in detail and were asked to fill the DPQ form[15] before the procedure. Patients were then put in a comfortable position, (depending on the target area) and the skin overlying the area to be injected was prepared with an antiseptic solution. The trigger point was then palpated within the taut muscle band and stabilized between two fingers of the non-dominant hand. A 26- gauge needle of ½ or 1½ -inch needle (depending on the depth to reach the trigger point) was quickly inserted through the skin and passed into the zone of trigger point. If a local twitch response was obtained, it confirmed the correct placement of the needle. After aspiration, 0.5 ml of injection. Lignocaine was injected. Lignocaine (1%) was injected into each trigger point. A sterile dressing was placed over the area, and the patient was monitored for about half an hour. The patient was then discharged with post-operative advice. Similar trigger point injections were given for three consecutive weeks and response noted. The patient was asked to report for follow-up after 1-month from the date of 3rd injection and the DPQ was filled up to compare the difference in scores.

Results were compared by paired *t*-test using SPSS 17 software. $P < 0.05$ was considered significant. Goodness of fit was assessed with Pearson's correlation coefficient and R^2 evaluation.

RESULTS

30 consenting patients (both male and female) were recruited for the study. The DPQ was filled up pre- and post-injection and the two scores were compared. Of the 30 patients included in the study, 26 patients showed improvement, 2 patients did not have much change in their disability score, and 2 patients had worsening of their disability.

The mean age of the sample was 44.8 ± 10.4 years with a range of 21-67 years.

There was a significant difference between the pre and post procedure scores with $P = 0.001$.

The coefficient of correlation was 0.671 with a $P = 0.001$ (one tailed).

R^2 value for the goodness of fit was 71.6%.

DISCUSSION

A total of 30 patients were selected for the study. The average age of the sample was 44.8 ± 10.4 years. The age range is between 21 and 67 years. Our sample conforms to the studies by Sahin *et al.*, where the median age was 40.4 years and the age range was 18-55 years.[18]

However, our studies showed that more males were affected, which is in contradiction to other studies.[19] This can be due to the fact that, our institute serves patients who are mostly manual laborers from low socioeconomic strata. The subjects are therefore more prone to develop repeated musculoskeletal injury. Since they are also the bread earner of the family, they are also under constant mental stress. Studies have also shown that men with fibromyalgia syndrome (seeking treatment) have shown more severe symptoms and poorer QOL.[19] The

socioeconomic structure also does not consider female's health a priority and less female member access the health system. The sample group was treated for trigger points in different parts of the body including neck and shoulders, lower back and sacroiliac joint and gluteal region. However, a specific patient was treated for one region only.

There was a significant improvement in pre- and post-procedure DPQ scores, ($P < 0.05$). This shows that there was not only a decrease in the intensity of pain with the above treatment[20] but there was also a significant improvement in the QOL.

Patients who have failed more conservative measures such as physiotherapy, manipulation, and pharmacotherapy are candidates for more invasive procedures like injection of lidocaine 0.5-1% into diagnosed trigger points.[20,21] Although visual analog scale (VAS) is a common yardstick to assess improvement, psychosocial scores (similar to) DPQ are Infrequently used, but have shown to reflect outcomes.[21] However, we have used DPQ as a primary measure to assess the outcome of trigger point injections, as MFPS have complex attributes apart from physical pain, which can be better addressed by such questionnaires. We have not found studies where DPQ has been used as a primary tool for revalidation of trigger point injection.

Revalidation of trigger point injection with DPQ shows that the above treatment is successful in decreasing pain and disability and improving the QOL in patients with MFPS.

The most common side effects of the procedure were pain and soreness at the site of the injection. The other side effects were bruises, muscle spasm and restriction of movement of the nearest joints for 1-2 days. Patients were advised paracetamol for pain and cold and hot fomentation for soreness.

The study has some drawbacks. The number of the sample is small. Larger studies with more number of patients and over extended period can yield better results. VAS score as a tool should be included so that the study can be better compared to other similar studies.

CONCLUSION

MFPS is a chronic painful condition of musculoskeletal system with high disability index. It is also associated with psychological attributes which need to be taken into consideration. Its pathophysiology is still to be fully elucidated. Trigger point is the pathognomonic lesion for MFPS. Different modes of treatment are advocated for the above condition. One of the common modes of treatment is trigger point injection with lignocaine. VAS is the usual assessment tool for assessing the improvement after treatment. However psychosocial attributes cannot be assessed by VAS. DPQ is a tool that assesses psychosocial and ADL in chronic pain conditions. This study shows that DPQ can evaluate and reflect improvement in psychosocial and ADL attributes after trigger point injection, with 1% lignocaine, revalidating the above treatment.

ACKNOWLEDGMENT

The authors would like to thank Mr. Gopesh Talukdar (Statistician).

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How to cite this article: Jaiswal M, Sanyal RP, Goswami S. Revalidation of Trigger Point Injection in Myofascial Pain Syndrome, Assessed by Pain Disability Score. Int J Sci Stud 2017;5(1):172-175.

Source of Support: Nil, **Conflict of Interest:** None declared.