

Acupuncture and Trigger Point Injections for Fibromyalgia: East-West Medicine Case Report

Lawrence B. Taw, MD, FACP; Eve Henry, MD

ABSTRACT

Fibromyalgia is a clinical syndrome characterized by chronic widespread pain that is often accompanied by ≥ 1 concomitant symptoms (eg, fatigue, poor sleep, cognitive alterations, and mood disturbances). In 2005, an estimated 5 million people in the United States suffered from fibromyalgia, and its growing effect on health-related quality of life is substantial. An increasingly popular hypothesis proposes that noxious, peripheral sensory input might contribute to the initiation and perpetuation of the diffuse pain seen in patients with

fibromyalgia. That theory has led to the evaluation of multiple interventions to stimulate distal areas as a means to modulate the peripheral and central nervous systems. It has been the authors' experiences that the combination of trigger point injections and acupuncture provides improved clinical outcomes. In the current article, the authors present a case report of a patient with fibromyalgia who was successfully treated with an integrative approach that combined acupuncture with trigger point injections. (*Altern Ther Health Med.* 2016;22(1):58-61.)

Lawrence B. Taw, MD, FACP, is an assistant clinical professor; and Eve Henry, MD, is a clinical instructor. Both are in the Department of Medicine at the University of California, Los Angeles (UCLA) Center for East-West Medicine, UCLA David Geffen School of Medicine.

Corresponding author: Lawrence B. Taw, MD, FACP
E-mail address: Ltaw@mednet.ucla.edu

Fibromyalgia is a chronic pain condition that is challenging to treat and increasing in prevalence. It is a clinical syndrome characterized by chronic widespread pain that is often accompanied by 1 or more concomitant symptoms, including fatigue, poor sleep, cognitive alterations, and mood disturbances.^{1,2} In 2005, an estimated 5 million people in the United States suffered from fibromyalgia,³ and its growing effect on health-related quality of life is substantial.^{4,5}

Because the exact etiology of fibromyalgia is unknown, treatment is often directed at symptom control. Medications are commonly used first; however, their use is often limited by adverse effects, which has led many medical practitioners to consider employing a more comprehensive, multidisciplinary approach to improve outcomes.

Although the underlying pathophysiology of fibromyalgia has yet to be completely elucidated, a rising consensus exists that fibromyalgia is the result of aberrant pain sensitization.⁶ Functional magnetic resonance imaging (MRI) studies have demonstrated that patients with fibromyalgia have increased neuronal activation of the pain processing regions of the cerebral cortex after the application of otherwise innocuous stimuli.^{7,8}

Considerable evidence suggests that peripheral nociceptive input may be involved in the initiation and maintenance of the sensitization of the central nervous system (CNS) that is seen in patients with fibromyalgia.^{9,10} Resolution of peripheral pain has also been documented to have widespread, systemic effects in fibromyalgia patients. Studies have demonstrated that deactivation of a local tender point not only significantly increased local pain thresholds but also decreased heat and pain sensitivity at distant anatomical sites in patients with fibromyalgia.¹¹

The increasingly popular hypothesis that noxious, peripheral sensory input may contribute to the initiation and perpetuation of the diffuse pain seen in patients with fibromyalgia has led to the evaluation of multiple interventions, such as trigger point injections and acupuncture to stimulate distal areas as a means to modulate the peripheral and central nervous systems.⁶

FIBROMYALGIA AND TRIGGER POINTS

Myofascial trigger points are small regions of intense tenderness and hyperirritability in muscles or their fascia.¹² Multiple studies have documented the presence of active trigger points in patients with fibromyalgia, consistent with the idea that those patients have coexisting myofascial pain syndrome.^{13,14} A recent study described how manual manipulation of active trigger points reproduced the overall, spontaneous pain pattern experienced by patients with fibromyalgia, suggesting that referred pain from trigger points may account for a significant portion of the widespread pain in patients.¹⁵

Trigger point injections are often used in patients with fibromyalgia to deactivate trigger points, which may be indicated by a local twitch response, and the injections are associated with a decrease in pain symptoms and localized hypersensitivity.¹⁶ A prospective study has demonstrated that fibromyalgia patients who received trigger point injections had significant improvement in experienced pain intensity, higher pain thresholds, and improved ranges of motion at 2 weeks after the injections.¹⁷

FIBROMYALGIA AND ACUPUNCTURE

A significant anatomical correlation exists between musculoskeletal trigger points and acupuncture points. Melzack et al¹⁸ reported more than a 70% correspondence between acupuncture points and trigger points. Further analysis has suggested that many of the trigger points identified in fibromyalgia patients could be considered to be *ah-shi* points (ie, tender and clinically relevant acupuncture points), bringing the correlation closer to 100%.¹⁹ This overlapping relationship suggests that the benefit observed with trigger point injections may be related to the selection and stimulation of points using the concepts of acupuncture.

Numerous research studies have demonstrated the profound analgesic effect that acupuncture can have for patients with pain symptoms.^{20,21} Indications of the involvement of the peripheral and central nervous systems in the underlying mechanism of acupuncture have been present since the mid- to late-20th century.²² A growing body of evidence suggests that neuropeptides, such as endorphins in the CNS, may be mobilized by stimulation of the peripheral nervous system through acupuncture.^{23,24} Further studies have demonstrated that the analgesic effects of acupuncture can be transferred between animals through cross-infusion of cerebrospinal fluid (CSF) into the third ventricle, and acupuncture induced analgesia can be reliably

negated through infusion of the opiate antagonist naloxone.²⁵

Although research on the efficacy of acupuncture in patients with fibromyalgia has been mixed, a number of studies have demonstrated decreased pain and improved quality of life after multiple acupuncture treatments. A recent case series established that acupuncture performed specifically at tender points, significantly decreased pain and improved quality of life, as measured by the Fibromyalgia Impact Questionnaire, the Beck Depression Inventory, and the Beck Anxiety Inventory.²⁶ One recent systematic review²⁷ of published data found 3 randomized clinical trials that demonstrated a positive clinical effect for acupuncture with fibromyalgia patients.²⁸⁻³⁰

In the current article, the authors present a case report of a patient with fibromyalgia who was successfully treated with an integrative approach that combined acupuncture with trigger point injections.

CASE REPORT

A 54-year-old female visited the authors' clinic with a 14-month history of diffuse body aches that extended from her neck down to her feet, extreme fatigue, insomnia, a sensation of lightheadedness, and multiple chemical sensitivities. Her symptoms had led her to visit 3 academic institutions and 12 medical specialists. She had been given a diagnosis of fibromyalgia by her rheumatologist based on the 1990 American College of Rheumatology (ACR) criteria for the classification.³¹

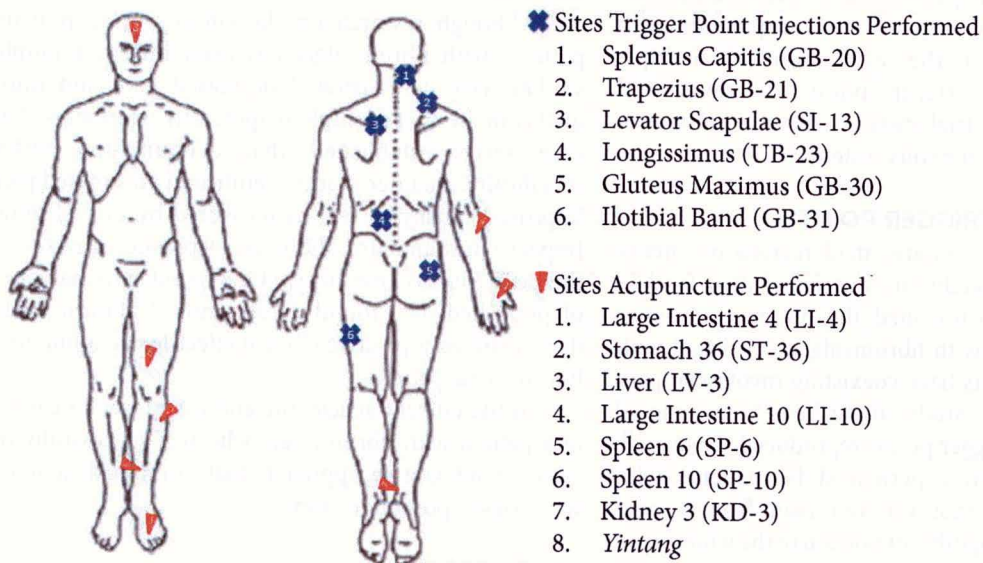
The woman was initially given venlafaxine and acetaminophen to help manage her symptoms from fibromyalgia. Because she had poor-quality sleep and was not able to perform aerobic or aquatic exercises due to severe fatigue, she was also advised to start sodium oxybate. Unfortunately, with the new medication, she experienced significant adverse effects that required hospitalization. Hypersensitivity to pharmaceutical agents prompted her to avoid use of further medications for fibromyalgia and to pursue a holistic approach that incorporated more natural therapies. She then visited the authors' clinic.

At the time of her evaluation, she was markedly stressed by her prolonged illness. A detailed history was obtained, and the patient's prior evaluations and work-ups, including blood tests and imaging studies, were reviewed with her. No structural or biochemical abnormalities were identified as the source of her prolonged symptoms.

A complete physical exam was then performed, which revealed tight, palpable muscle bands along her neck, back, and gluteal regions and thighs bilaterally. A combination of trigger point injections and acupuncture was performed on a weekly basis for 8 visits. After palpation for active trigger points, treatment was initiated with trigger point injections into the various local muscle groups (Figure 1).

The areas to be injected were prepared with alcohol using a sterile technique. A 23-gauge, 2.5-cm needle was

Figure 1. Sites used for trigger point injections and acupuncture.



Note: Points may be bilateral.

introduced into the taut muscle bands, often provoking a twitch response. Then 0.3 to 0.5 cm³ of 1% lidocaine was injected into each active trigger point. After the injection, the needle was removed while pressure was applied to minimize the risk for bruising.

The patient was then placed in a comfortable resting position to allow acupuncture to be performed on points that had not yet been deactivated by the trigger point injections. Point prescriptions varied with each visit but often incorporated key distal points, such as Large Intestine 4 (LI-4) and Large Intestine 10 (LI-10), Liver 3 (LIV-3), Stomach 36 (ST-36), Spleen 6 (SP-6) and Spleen 10 (SP-10), Kidney 3 (KD-3), and *Yintang* (Figure 1). Each point was manually stimulated until the *deqi* sensation was elicited. Needles were left in place for 20 minutes and then removed.

In the course of her treatments, the patient experienced significant improvement in sleep quality, together with decreased pain, fatigue, and lightheadedness. She discontinued use of venlafaxine and acetaminophen, and, further, was able to work full time as a business analyst, exercise, travel regularly, and resume her active lifestyle. At a recent visit to the authors' clinic 4 years after initiation of treatment, she reported being able to maintain her desired level of activity and was receiving regular maintenance treatments once or twice per month.

DISCUSSION

As in the case with the patient described in the aforementioned report, a significant number of patients with fibromyalgia pursue complementary and alternative medicine as part of their comprehensive treatment program due to an inadequate response to allopathic medicine, adverse effects from conventional care, or patient preference for more natural therapies.³² Consistent with the 1990 ACR criteria for

classification of fibromyalgia, this patient had multiple active trigger points. Based on the common features of point location and pain modulation through its proposed effects on the peripheral and central nervous systems, these points were readily identified and effectively deactivated using a combination of acupuncture and trigger point injections.

CONCLUSIONS

The authors' clinical model uses the novel approach of integrating acupuncture with trigger point injections for patients with fibromyalgia. As trigger point injections and acupuncture have been shown to modulate both the peripheral and central nervous systems, it is possible that the combination of the 2 procedures may have a synergistic effect. It has been the authors' experiences, both in the current case and in other cases, that the combination of the 2 interventions, which use the concepts of acupuncture, provides improved clinical outcomes. This result is noteworthy because fibromyalgia is associated with significant morbidity and limited treatment options. Further research is warranted to examine whether the combination of acupuncture and trigger point injections provides an enhanced clinical benefit in patients with fibromyalgia when compared with either intervention alone.

ACKNOWLEDGEMENTS

The authors would like to acknowledge Sandi Chiu, LAc, a clinical specialist at the UCLA Center for East-West Medicine, for her assistance in designing the figure.

AUTHOR DISCLOSURE STATEMENT

The authors declare no conflicts of interest.

REFERENCES

1. Smith HS, Harris R, Clauw D. Fibromyalgia: an afferent processing disorder leading to a complex pain generalized syndrome. *Pain Physician*. 2011;14(2):E217-E245.
2. Wolfe F, Clauw DJ, Fitzcharles MA, et al. The American College of Rheumatology preliminary diagnostic criteria for fibromyalgia and measurement of symptom severity. *Arthritis Care Res (Hoboken)*. 2010;62(5):600-610.
3. Lawrence RC, Felson DT, Helmick CG, et al; National Arthritis Data Workgroup. Estimates of the prevalence of arthritis and other rheumatic conditions in the United States, II. *Arthritis Rheum*. 2008;58(1):26-35.
4. Schlenk EA, Erlen JA, Dunbar-Jacob J, et al. Health-related quality of life in chronic disorders: a comparison across studies using the MOS SF-36. *Qual Life Res*. 1998;7(1):57-65.
5. Picavet HS, Hoeymans N. Health related quality of life in multiple musculoskeletal diseases: SF-36 and EQ-5D in the DMC3 study. *Ann Rheum Dis*. 2004;63(6):723-729.
6. Schmidt-Wilcke T, Clauw DJ. Fibromyalgia: from pathophysiology to therapy. *Nat Rev Rheumatol*. 2011;7(9):518-527.
7. Cook DB, Lange G, Ciccone DS, Liu WC, Steffener J, Natelson BH. Functional imaging of pain in patients with primary fibromyalgia. *J Rheumatol*. 2004;31(2):364-378.
8. Gracely RH, Petzke F, Wolf JM, Clauw DJ. Functional magnetic resonance imaging evidence of augmented pain processing in fibromyalgia. *Arthritis Rheum*. 2002;46(5):1333-1343.
9. Borg-Stein J. Management of peripheral pain generators in fibromyalgia. *Rheum Dis Clin North Am*. 2002;28(2):305-317.
10. Staud R. Is it all central sensitization? Role of peripheral tissue nociception in chronic musculoskeletal pain. *Curr Rheumatol Rep*. 2010;12(6):448-454.
11. Staud R, Nagel S, Robinson ME, Price DD. Enhanced central pain processing of fibromyalgia patients is maintained by muscle afferent input: a randomized, double-blind, placebo-controlled study. *Pain*. 2009;145(1-2):96-104.
12. Simons DG, Travell JG, Simons LS. *Myofascial Pain and Dysfunction: The Trigger Point Manual*. 2nd ed. Baltimore, MD: Lippincott Williams & Wilkins; 1998:1038.
13. Ge HY. Prevalence of myofascial trigger points in fibromyalgia: the overlap of two common problems. *Curr Pain Headache Rep*. 2010;14(5):339-345.
14. Wolfe F, Simons DG, Friction J, et al. The fibromyalgia and myofascial pain syndromes: a preliminary study of tender points and trigger points in persons with fibromyalgia, myofascial pain syndrome and no disease. *J Rheumatol*. 1992;19(6):944-951.
15. Ge HY, Nie H, Madeleine P, Danneskiold-Samsøe B, Graven-Nielsen T, Arendt-Nielsen L. Contribution of the local and referred pain from active myofascial trigger points in fibromyalgia syndrome. *Pain*. 2009;147(1-3):233-240.
16. Hong CZ. Lidocaine injection versus dry needling to myofascial trigger point: the importance of the local twitch response. *Am J Phys Med Rehabil*. 1994;73(4):256-263.
17. Hong CZ, Hsueh TC. Difference in pain relief after trigger point injections in myofascial pain patients with and without fibromyalgia. *Arch Phys Med Rehabil*. 1996;77(11):1161-1166.
18. Melzack R, Stillwell DM, Fox EJ. Trigger points and acupuncture points for pain: correlations and implications. *Pain*. 1977;3(1):3-23.
19. Hong CZ. Myofascial trigger points: pathophysiology and correlation with acupuncture points. *Acupunct Med*. 2000;18(1):41-47.
20. NIH Consensus Conference. Acupuncture. *JAMA*. 1998;280(17):1518-1524.
21. Vickers AJ, Cronin AM, Maschino AC, et al; Acupuncture Trialists' Collaboration. Acupuncture for chronic pain: individual patient data meta-analysis. *Arch Intern Med*. 2012;172(19):1444-1453.
22. Research Group of Acupuncture Anaesthesia. The role of some neurotransmitters of brain in finger-acupuncture analgesia. *Sci Sin*. 1974;17(1):112-130.
23. Pomeranz B, Chiu D. Naloxone blockade of acupuncture analgesia: endorphin implicated. *Life Sci*. 1976;19(11):1757-1762.
24. Han JS. Acupuncture and endorphins. *Neurosci Lett*. 2004;361(1-3):258-261.
25. Mayer DJ, Price DD, Rafii A. Antagonism of acupuncture analgesia in man by the narcotic antagonist naloxone. *Brain Res*. 1977;121(2):368-372.
26. Bastos JL, Pires ED, Silva ML, de Araújo FL, Silva JR. Effect of acupuncture at tender points for the management of fibromyalgia syndrome: a case series. *J Acupunct Meridian Stud*. 2013;6(3):163-168.
27. Mayhew E, Ernst E. Acupuncture for fibromyalgia--a systematic review of randomized clinical trials. *Rheumatology (Oxford)*. 2007;46(5):801-804.
28. Deluze C, Bosia L, Zirbs A, Chantraine A, Vischer TL. Electroacupuncture in fibromyalgia: results of a controlled trial. *BMJ*. 1992;305(6864):1249-1252.
29. Martin DP, Sletten CD, Williams BA, Berger IH. Improvement in fibromyalgia symptoms with acupuncture: results of a randomized controlled trial. *Mayo Clin Proc*. 2006;81(6):749-757.
30. Assefi NP, Sherman KJ, Jacobsen C, Goldberg J, Smith WR, Buchwald D. A randomized clinical trial of acupuncture compared with sham acupuncture in fibromyalgia. *Ann Intern Med*. 2005;143(1):10-19.
31. Wolfe F, Smythe HA, Yunus MB, et al. The American College of Rheumatology 1990 Criteria for the Classification of Fibromyalgia: report of the Multicenter Criteria Committee. *Arthritis Rheum*. 1990;33(2):160-172.
32. Wahner-Roedler DL, Elkin PL, Vincent A, et al. Use of complementary and alternative medical therapies by patients referred to a fibromyalgia treatment program at a tertiary care center. *Mayo Clin Proc*. 2005;80(1):55-60.

Copyright of Alternative Therapies in Health & Medicine is the property of PH Innovisions Journal Operating LLC and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.