Journal of Pain & Palliative Care Pharmacotherapy

ISSN: 1536-0288 (Print) 1536-0539 (Online) Journal homepage: http://www.tandfonline.com/loi/ippc20

Pathophysiology of Trigger Points in Myofascial Pain Syndrome

Sarah Money

To cite this article: Sarah Money (2017): Pathophysiology of Trigger Points in Myofascial Pain Syndrome, Journal of Pain & Palliative Care Pharmacotherapy, DOI: 10.1080/15360288.2017.1298688

To link to this article: http://dx.doi.org/10.1080/15360288.2017.1298688

JOURNAL OF PAIN & PALLIATIVE CARE PHARMACOTHERAPY
http://dx.doi.org/10.1080/15360288.2017.1298688

Taylor & Francis
Taylor & Francis Group

PATIENT EDUCATION AND SELF-ADVOCACY: QUESTIONS AND RESPONSES ON PAIN MANAGEMENT

Edited by Yvette Colón

Pathophysiology of Trigger Points in Myofascial Pain Syndrome

Sarah Money

ABSTRACT

Questions from patients about pain conditions and analgesic pharmacotherapy and responses from authors are presented to help educate patients and make them more effective self-advocates. Trigger point pathophysiology in myofascial pain syndrome, which involves muscle stiffness, tenderness, and pain that radiates to other areas of the body, is considered. The causes of trigger points and several theories about how they develop are reviewed, and treatment approaches, including stretching, physical therapy, dry needling, and injections, are offered.

ARTICLE HISTORY
Received 16 January 2017
Accepted 17 January 2017

KEYWORDS
muscle stiffness; myofascial pain syndrome; referred pain; trigger point pathophysiology; trigger points; workplace

Question from a patient

I work in an office, and I have neck and shoulder pain and stiffness. I have had massages to try to get some relief, but these cause me to have headaches. I went to my doctor who told me I had trigger points in my shoulders. What are these, and why are they causing headaches?

Answer

Trigger points are specific tender areas in a muscle. They are part of a condition called myofascial pain syndrome, which involves muscle stiffness, tenderness, and pain that radiates to other areas, also known as referred pain.[1] Trigger points can develop in the shoulders and neck after sitting at a computer because improper posture can cause stiffness in those areas. They can also develop as a result of athletic training and muscle strain, or they may be related to an underlying physical condition such as a herniated disk or arthritis. Trigger points typically occur on the trunk, most commonly in the shoulders and neck, and do not develop in the arms or legs.[2] There are two different kinds of trigger points: active and latent. Active trigger points cause pain in the muscle all the time, and latent trigger points are painful only when they are pressed or irritated. Trigger points are associated with muscle dysfunction and weakness and decreased range of motion. When activated, trigger points exhibit a local "twitch" response, or a small, fast muscle contraction and pain radiating to other areas.[3] In your case, it seems your pain is primarily in the neck and shoulders, but you have headaches that are reproduced by pressing on certain areas of the neck. Athletes who are undergoing preseason training can suffer muscle overload injuries and develop trigger points as well. There are several theories about how trigger points develop. One theory is that trigger points are the result of muscle injury, overuse, and spasm. Another theory is that trigger points are actually related to nerve pain from the spine, and another theory is that holding improper posture chronically is what causes trigger points to develop.

There are no laboratory tests or imaging studies (e.g., magnetic resonance imaging [MRI], computed tomography [CT] scan, or x-ray) to diagnose trigger points; they are typically identified by feeling the muscle for knots, or small areas of muscle spasm within a taut or tense band of muscle, which are tender and cause referred pain, which can then be treated.

There are many ways to treat trigger points. Stretching the muscle can help to treat trigger points, and using a cooling spray on the skin before stretching the muscle can be helpful as well.[4] One can also receive massage and pressure to the muscle prior to stretching through physical therapy, and this may provide additional benefit. Transcutaneous electrical nerve

Sarah Money, MD, is a pain medicine fellow, Department of Anesthesiology and Pain Medicine, University of California Davis Medical Center, Sacramento, California, USA.

CONTACT Sarah Money PainFellowship@ucdmc.ucdavis.edu Department of Anesthesiology and Pain Medicine, University of California Davis Medical Center, Lawrence J. Ellison Ambulatory Care Center, 4860 Y Street, Suite 3020, Sacramento, CA 95817, USA.

stimulation (TENS) is a machine that administers electricity via pads applied to the skin to treat trigger points and other muscle conditions. Acupuncture is also used to treat trigger points. Ultrasound and infrared lasers have been used to treat trigger points as well, but these are not commonly used and it can be difficult to find a facility that offers this treatment. Dry needling is a more common treatment that involves placing a small needle into the trigger point multiple times in order to cause the "twitch" response, with the goal of relieving muscle tension and pain. Trigger points can also be injected with medication, e.g., a local anesthetic such as lidocaine, or with a steroid, or with botulinum toxin. Typically, trigger points require multiple treatments spaced over several weeks.[5]

It is important to remember that although there are many treatments available for trigger points, you must treat the underlying cause in order to have lasting relief. It seems that your posture at work may be contributing to your pain and trigger points and you may benefit from changes to your work space. There are many work space modifications available, such as an ergonomic chair, a specialized keyboard, a sit-stand work station, or an adjustable computer screen, among others. You should talk with your doctor and employer about options to improve your comfort and minimize injuries at work.

Declaration of interest

The author reports no conflicts of interest. The author alone is responsible for the content and writing of this article.

References

1. Melzack R, Stillwell DM, Fox EJ. Trigger points and acupuncture points for pain: correlations and implications. Pain. 1977;3:3–23.
2. Shah JP, Thaker N, Heimur J, Aredo JV, Sikdar S, Gerber L. Myofascial trigger points then and now: a historical and scientific perspective. PM R. 2015;7;746–761.
3. Akamatsu FE, Ayres BR, Saleh SO, et al. Trigger points: an anatomical substratum. BioMed Res Int. 2015;2015:623287. doi: 10.1155/2015/623287.
4. Huguenin LK. Myofascial trigger points: the current evidence. Phys Ther Sport. 2004;5:2–12. doi: 10.1016/j.ptsp.2003.11.002.
5. Simons DG, Travell JG, Cumin LS. Myofascial Pain and Dysfunction: The Trigger Point Manual. 2nd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 1998.