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Dry needling as one of the methods of eliminating myofascial trigger points

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Abstract

Dry needling is one of the methods used to treat myofascial pain syndrome. The treatment involves the use of disposable acupuncture needles but dry needling and acupuncture are not the same. In most cases, the treatment includes myofascial trigger point puncturing. The desired effect to be achieved during the procedure is eliciting a local muscle contraction. The most common response after treatment is pain in the needled area.

Keywords: dry needling, trigger points, myofascial trigger points

Introduction

Dry needling is a form of treatment, in which disposable acupuncture needles are used to treat pain and discomfort in the locomotor system. The premises and objectives of treatment are by no means similar to acupuncture, even though the same type of needles is used for this procedure. Dry needling predominantly employs the needling of myofascial trigger points [1,2].

Aim of the paper

The effectiveness of treating myofascial trigger points with dry needling was assessed based on the available references.

Trigger points

Trigger points are defined as hyperirritable spots that react with hyperaesthesia when subjected to mechanical stimulation, such as application of pressure or stretching. Trigger points are usually located in muscles and, if irritated, they can give:

- a local response within the area of the muscle in which the point is located,
- a radiating pain reaction,
- a pain reaction in a location distant from the irritated point.

Trigger points can be identified as myofascial, tendinous, ligamentous, subcutaneous, and periosteal TrPs [3]. Primary myofascial trigger points are activated as a result of acute or chronic overstraining caused by excessive use of the muscle. If such a point is not eliminated

by means of therapeutic techniques, its activity induces creation of a secondary point occupying space in both synergist and antagonist muscles in relation to the muscle being the primary location of the condition. Secondary, TrPs are therefore created as a result of straining an agonist or as a consequence of synergistic action of muscles in the kinematic chain [2]. Myofascial trigger points are defined as trigger points (TrPs) located within the area of a muscle or its fascia. Irritation of such a point by palpation across the fibres is characterised by overresponse in the form of pain, tactile dysfunction, or an autonomic reaction. The entirety of all symptoms caused by trigger points is often called the myofascial pain syndrome. Local muscle contraction, also referred to as a twitch response in the referenced literature, is a very common result of subjecting the excessively tense fibre to palpation. This action can repeat as long as the active trigger point is not eliminated. Persistent trigger points will lead to points emerging in other muscles – this reaction follows the same kinematic chains [4].

Premises of dry needling

Travell and Simons [1,2] were treating myofascial trigger points using intramuscular injections. Steinbrocker [5] and then Travell [1] came to the conclusion that successful outcomes of treatment are achieved by means of puncturing the taut muscle band, irrespective of the substance administered thereby. Karel Lewit suggested that needling is a method of alleviating myofascial pain as early as in 1979 [6]. Hong [7] and then Cummings and White [8] proved that mechanical action of the needle in the myofascial trigger point region is of greater importance than the substance used in this procedure. Researchers also emphasised the significance of eliciting a local twitch response in the taut muscle band – an important event that should take place in the course of treatment. Due to the fact that the substance used during treatment does not affect the final outcome of the therapy and release of the trigger point takes place after puncturing, needles without additions began to be used [3,7,8]. Treatment success rate depends on the precision with which the trigger point is found. Analgesia of the pain spot has been called the needle effect [6].

Indications for treatment

Dry needling is used for treating cervical spine and sacrum disorders, tension-type headaches [9], pain in the lumbosacral region, upper body quadrant disorders, the painful shoulder syndrome, and any other disorder that can be induced by the presence of trigger

points [10, 11]. Sukumar Shanmugam and Lawrence Mathias described a case of a 49-year-old patient receiving dry needling treatment for 5 weeks for a headache caused by cervical spine disorders. After 5 weeks, the patient claimed that the pain had been alleviated and that stability in the cervical region and mobility of the cervical spine had been improved. After 24 months, the effects of treatment were persisting and the quality of life was significantly improved [12]. Dry needling is also one of the means of treating fibromyalgia (FMS). The aetiology of this illness has not been fully known. FMS is characterised by the presence of a great number of myofascial trigger points that are likely to exert an effect on occurrence of this syndrome [13].

Treatment contraindications

The dry needling procedure has a typical two types contraindications. High risk contraindications that may be performed on patients suffering from: fever, patients with cardiac pacemakers, Low risk cotraindications may be performed with patients suffering from: needle phobia, pregnant women, children, patients with a history of pneumothorax, patients suffering from tactile disorders, blood thinning, blood coagulability, lymphedema, skin lesions, neoplasms, vicinity, prostheses and haematomas. We do not perform dryneedling therapy on unconscious and mentally ill patients, due to lack of feedback from the patient. Contraindications have to be considered as a potential ban to the therapy, we always should look at the potential goals that could be achieved risking the possibility of risk factor [14, 15].

Reactions of the patient treated with dry needling and complications after the procedure

Severe complications after the procedure are rare. Dry needling is usually accompanied by painfulness upon piercing of the skin and during manipulations [14]. The procedure is quite often followed by bruising and blood outflow upon removal of the needle; pain after the procedure is also quite common, especially if the trapezius muscle is treated. In general, pain after the procedure is persisting for less than two days and, in some cases where the descending part of the trapezius muscle is treated, for up to 5 days. Increased sweating in the needled region or fainting can also occur from time to time [16, 17]. A very rare complication is the occurrence of pneumothorax. The references describe a case in which the pleural sac was pierced as a result of improper performance of the procedure, i.e. selection of an overgauged needle or guiding the needle in a wrong direction. In one 36-year-old patient

dry needling had been used as a means of treating myofascial pain. Two hours after the needling procedure had been performed on the spinal erector, spine muscles, and muscles located between spinal processes of the thoracic vertebrae and the scapula, bilateral pneumothorax ensued [18].

List of references:

1. Simons D, Travell, J. Travell and Simons myofascial pain and dysfunction; The trigger point manual. Baltimore, Williams & Wilkins; 1992.
2. Simons D, Travell, J. Travell and Simons myofascial pain and dysfunction; The trigger point manual. Baltimore, Williams & Wilkins; 1999.
3. Chochowska M, et al. Syndrome myofascial pain. *Physiotherapy* 2012; 20 (2): 89-96.
4. Tanno H. Rast Myofascial trigger points. Diagnostics, therapy, operation. Edra Urban & Partner, Munchen; 2014.
5. Steinbrocker A. Therapeutic injections in painful musculoskeletal disorders. *Jama* 1944; 125: 397-401.
6. Lewit K. The needle effect in the relief of myofascial pain. *Pain* 1979; 6: 83-90
7. Hong C. Lidocaine injection versus dry needling a myofascial trigger point. The importance of the local twitch response. *Am J Phys Med Rehabil* 1994; 73 (4): 256-63.
8. T. Cummings A. White Needling therapies in the management of myofascial trigger point pain: a systematic review. *Arch Phys Med Rehabil* 2001; 82 (7): 986-92.
9. Chochowska M. Ogrodowczyk R. et all. Tension headache and myofascial pain syndrome. Part II. Drug-free treatment- trigger point release (manual therapy). *Pain Ther* 2013; 2 (1): 21-36.
10. Kietrys D, K Palombaro, Mannheimer J. Dry needling for management of pain in the upper quarter and Craniofacial region. *Curr Pain Headache Rep* 2014; 18: 437.
11. Liu L, Q, Huang, et al. Effectiveness of dry needling for myofascial trigger points associated with neck and shoulder pain: a systematic review and meta-analysis. *Arch Phys Med Rehabil* 2015; 96: 944-55.
12. S Shanmugam, Lawrence M. 24 months' follow-up of dry needling effects in a patient with bilateral cervicogenic headache: a case report. *IJTRR* 2017; 6 (1): 60:65.
13. Castro-Sanchez A, Garcia-Lopez, H. et al. Effects of Dry Needling on Spinal Mobility and Trigger Points in Patients with Fibromyalgia Syndrome *Pain Physician* 2017; 20: 37-52.
14. Martin-Pintado Zugasti-A, Rodríguez-Fernández, A. et al. Postneedling soreness after deep dry needling of a latent myofascial trigger point in the upper trapezius muscle: Characteristics, sex differences and associated factors. *A Journal of Back and Musculoskeletal Rehabilitation* 2016; 29: 301-308.
15. Bachmann S, F. Coll Swiss guidelines for safe operation Igłoterapii Dry trigger points.

http://ortokursy.pl/wp-content/uploads/2016/06/DVS_CH-Bezpieczenstwo_Igloterapii-Sucej-Punktow-Spustowych.pdf

16. Ga H H Koh et al. Intramuscular and nerve root stimulation vs lidocaine injection of trigger points in myofascial pain syndrome. *J Med Rehabil* 2007; 39 (5): 374-8.
17. Torres R, Mayoral O, et al. Pain and tenderness after deep dry needling. *Musculoskelet J Pain* 2004; 12 (9): 40.
18. Nalan K Yalçın N. A rare complication deedling Caused by dry method: tension pneumothorax. *Respir Case Rep* 2017; 6 (3): 145-148.