

Current strategies for the management of physiotherapeutic treatment of myofascial pain in the elderly

Aktualne strategie postępowania fizjoterapeutycznego w bólu mięśniowo-powięziowym u osób w wieku podeszłym

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Abstract

Background. Myofascial pain is a pain that frequently appears in present-day literature. Considerations on this subject began in the 1960s. Since then, there have been many reports of treating myofascial pain, which is rated as dull and deep pain. It is often a symptom or result of other conditions that bother both adults and the elderly. **Aim of the study.** The aim of the study was to present the methods, techniques, and effective application of physiotherapeutic interventions in myofascial pain in the elderly. **Material and methods.** The authors reviewed available research over the past 20 years (2000-2020) using leading electronic databases and search engines such as Medline, Cochrane Library, ResearchGate, and Google Scholar. There were used keywords such as myofascial pain, physiotherapy, myofascial treatment, trigger points, the elderly. From the available materials, there were chosen the most up-to-date articles. **Results.** There are many different physiotherapeutic techniques to combat myofascial pain, but studies show that the greatest effectiveness is found in the use of correlated therapy, in which the components are exercises, specialized techniques, as well as myofascial release or point therapy triggers in combination with physical medicine therapy. However, the effectiveness of each method individually is not denied. **Conclusion.** The phenomenon of myofascial pain is common among geriatric patients, both in the chronically ill and those not burdened with concomitant diseases. Despite the frequency of the problem, there is still a lack of studies confirming the effectiveness of specific methods of treatment of myofascial pain as independent therapeutic techniques. (Gerontol Pol 2020; 28; 142-147)

Keywords: myofascial pain, physiotherapy, myofascial treatment, myofascial trigger points, the elderly

Streszczenie

Wstęp. Ból mięśniowo-powięziowy to ból często pojawiający się we współczesnej literaturze. Rozważania na ten temat rozpoczęły się w latach 60. XX wieku. Od tego czasu powstało wiele doniesień na temat leczenia bólu mięśniowo-powięziowego, który jest oceniany jako ból tępy i głęboki. Często jest objawem bądź skutkiem innych schorzeń, które dokuczają zarówno dorosłym, jak i osobom starszym. **Cel pracy.** Celem pracy było przedstawienie metod, technik oraz skutecznego zastosowania interwencji fizjoterapeutycznych w bólu mięśniowo-powięziowym u osób w wieku podeszłym. **Materiał i metody.** Autorzy dokonali przeglądu dostępnych badań na przestrzeni ostatnich 20 lat (lata 2000-2020), korzystając z przodujących elektronicznych baz danych i wyszukiwarek typu Medline, Cochrane Library, Research Gate oraz Google Scholar. Wykorzystując słowa kluczowe takie jak: ból mięśniowo-powięziowy, leczenie mięśniowo-powięziowe, techniki mięśniowo-powięziowe, punkty spustowe, osoby starsze. Z dostępnych materiałów wybrali najbardziej aktualne. **Wyniki.** Istnieje wiele różnorodnych technik fizjoterapeutycznych umożliwiających walkę z bólem mięśniowo-powięziowym, jednak badania wykazują, iż największą skuteczność stwierdza się w przypadku stosowania terapii skorelowanej, w której to elementami składowymi są ćwiczenia, techniki specjalistyczne, jak i mięśniowo-powięziowe uwalnianie czy terapia punktów spustowych w połączeniu z terapią medycyny fizykalnej. Nie neguje się jednak skuteczności w działaniu każdej z metod z osobna. **Wnioski.** Zjawisko bólu mięśniowo-powięziowego jest powszechne wśród pacjentów geriatrycznych zarówno u osób przewlekłe chorych, jak i nieobciążonych chorobami towarzyszącymi. Pomimo częstotliwości występowania problemu nadal brakuje badań potwierdzających skuteczność specyficznych metod terapii bólu mięśniowo-powięziowego jako niezależnych działających technik terapeutycznych. (Gerontol Pol 2020; 28; 142-147)

Słowa kluczowe: ból mięśniowo-powięziowy, leczenie mięśniowo-powięziowe, techniki mięśniowo-powięziowe, punkty spustowe, osoby starsze

Introduction

Myofascial pain is a type of soft tissue pain that is characterized by local and synalgic pain felt as deep and dull pain. It is distinguished by the presence of myofascial trigger points. This type of pain is often a symptom of diseases of the soft tissues of the locomotor system that result from inflammatory and non-inflammatory diseases, both general and local [1]. Myofascial pain can also occur with cancer, although cancer may not be the immediate cause of it. Often this type of pain occurs in women after breast surgery and is caused by surgical damage to the sensory nerves, e.g. the brachial plexus, neurological complications (including after radiotherapy or chemotherapy), or activation of the so-called myofascial trigger points [1,2]. In the elderly or patients undergoing palliative treatment, myofascial pain is one of the most common reported symptoms and it is caused by immobilization, limited physical activity, and in the latter group of people also by high levels of stress-related to cancer [3, 4]. Also, myofascial pain is often associated with the existence of other diseases. They are often diseases related to joint and muscle disorders, tendinitis or rheumatic and neurological diseases, as well as pain syndromes, e.g. carpal tunnel syndrome or painful shoulder syndrome [4].

The pathophysiology of myofascial trigger points is not fully understood and involves numerous morphological changes, neurotransmitters, as well as neurosensory, electrophysiological, and motor disorders. At the same time, there are no laboratory or imaging tests to thoroughly investigate the existence of myofascial pain [4]. For these reasons, myofascial pain is perceived differently by rheumatologists, orthopedists, and surgeons, and pharmacological treatment is a big challenge [5]. Physiotherapy, on the other hand, focuses on non-pharmacological treatment. Among the methods, there are mainly manual treatment methods and physical therapy. Manual treatment includes manual therapy, massage, positional relaxation, and myofascial relaxation [6]. Physiotherapeutic treatments, in turn, include laser therapy, magnetotherapy, electrotherapy, ultrasounds, and a shock wave. Other methods helpful in the fight against myofascial pain include kinesiotaping and dry needling [7]. The article below presents modern methods of treating myofascial pain, based on a systematic review of scientific databases such as Medline, PubMed, Cochrane and ResearchGate, and Google Scholar.

Material and methods

The authors reviewed available research over the past 20 years (2000-2020) using leading electronic databases and search engines such as Medline, Cochrane Library, ResearchGate, and Google Scholar. There were used keywords such as myofascial pain, physiotherapy, myofascial treatment, trigger points, the elderly. From the available materials, there were chosen the most up-to-date articles.

Results

Manual treatment methods

All manual techniques have a common purpose: to reduce pain, increase the smoothness of movement in the tissues and make the tissues more flexible. Compression, which is also often used to treat myofascial trigger points, aims to induce local ischemia that relaxes sarcomere tension in the muscles. Compression is most often performed with the thumb, the pressure is kept for 5 seconds, with a 2-3 second pause, and then the procedure is repeated, which lasts up to 2 minutes [8]. The same works for myofascial relaxation and deep tissue massage. They also apply pressure to the so-called "resistance" of tissues, but it is held until the tense structure under the fingers is relaxed. An interesting fact is that in deep tissue massage, it is not preferable to use thumbs, but bent phalanges can be used and it is possible to use them during therapy, e.g. so-called the hook-stretch technique [9].

Another type of manual treatment is classic massage, Thai massage, or the so-called deep rubbing massage. The latter consists of the transverse grinding of the entire muscle part at a constant speed. This technique is also performed until the pain is relieved. All these types of massage are effective in obtaining immediate pain relief for the patient [10]. In addition, the massage is described in scientific sources as effective and uncomplicated for the person performing it, especially for myofascial pain occurring around the head and neck [10,11].

Another method is positional relaxation, also called the tension-relax technique. During its performance, the patient's position must be properly selected to enable the "reset" of soft tissues and maximum relaxation. Some studies have shown that this type of technique is effective in positions similar to those in which damage or overload has occurred [7].

Physiotherapeutic and other methods

Physical therapy includes a large number of treatments that help to heal myofascial pain. For example, laser therapy improves microcirculation, speeds up the metabolism of tissues, thanks to which metabolic products residing in the tissues are removed faster [7]. Laser therapy increases the amount of oxygen in the tissues and has a proven analgesic effect in myofascial pain. The same involves magnetotherapy. The analgesic effect is achieved by increasing the pain threshold, thanks to which it is possible to reduce chronic pain [12].

Electrotherapy is also useful in treating myofascial pain. For example, TENS currents and alternating diadynamic currents can be used. In these currents, the increased intensity of the current causes gentle, yet rapid muscle contractions, which causes the muscle tissue to become tired, after which it is possible to relax [7]. Therapy with the use of electric current allows for the reduction of pain intensity in the case of chronic myofascial pain [13]. On the other hand, ultrasounds - due to the athermal effects resulting from changing pressure - have an analgesic and anti-inflammatory effect, as they accelerate the repair processes in tissues [7].

Among other forms of treatment, kinesioteaping can be an interesting method for myofascial pain. This therapy shows, above all, a sensory and proprioceptive effect, and its effect on the fascia is to relieve it. As a result of the application of the patch, the surface of the skin is folded and lifted, which increases the space between the surface layer of the skin and the deeper layers (including the fascia). This supports blood microcirculation and allows to relax tense tissues [14,15].

Another method of treating myofascial pain is also dry needling, which also has pain threshold lowering properties. The application of small needles allows for the accurate reduction of pain arising at a given trigger point. The therapy is often combined with stretching exercises or compression discussed in the previous section [12,16]. Additionally, the size of the needle, its type, angle of inclination, and the depth of its application are important during the therapy [17].

Efficacy and application of myofascial techniques in elderly patients

The first study to document the effectiveness of combined myofascial techniques with core stability exercises in nonspecific lower back pain (LBP) in the elderly is an intervention published in 2019. It has been proven that the combination of core stability exercises with myofascial techniques brings greater results in increasing the mobility and stability of the spine. It has also been

documented that the combination of both techniques increases the Oswestry Disability Index (ODI), which is significantly related to the degree of pain, but it has not been proven that both techniques have a significant effect on the reduction of pain itself. The studied indicators allow suggesting a significant improvement in the quality of life of people with LBP (low back pain) after using both techniques, which is a component of both ranges of motion, mobility, pain level, and kinesiophobia, however, the authors of the study report evident effectiveness only in the first two components. It was also suggested that the myofascial technique may have a significant effect on the increase of the pressure pain threshold, however, the study itself did not show this fact [18].

The publication that showed an increase in pressure pain threshold is a study on the effectiveness of dry needling, which is one of the techniques of myofascial trigger points for elderly people with nonspecific shoulder pain. The effectiveness of the use of dry needling on trigger points was proven after the first application, and also after a week of treatments, however, compared to the control sample, the effects were not spectacular, which could be the result of a small sample of the subjects. Although the pressure threshold of pain decreases significantly with age, the therapeutic intervention brought positive results, which, according to the researchers, can be considered a success. As for the grip strength after the application of the therapy, the authors of the study did not notice any significant changes that would indicate the effectiveness of dry needling on trigger points to improve muscle strength [19].

Another study carried out in terms of the effectiveness of myofascial techniques among the elderly is the self-therapy trial with an inflatable therapeutic ball, used to massage the fascial points that affect the activity and function of the trapezius muscle. The control sample was ultrasound therapy, which has been recognized as the most common therapeutic intervention in the treatment of myofascial pain. The authors conducted a study of the effectiveness of the therapy in terms of general myofascial pain, the level of the pressure pain threshold, and the mobility of the lateral flexion in the cervical spine. In all categories, a significant improvement was recognized both in the use of self-therapy with a therapeutic ball and after ultrasound procedures. Comparing the two groups, the researchers found that myofascial autotherapy is certainly not a worse therapeutic technique, and may even turn out to be more advantageous due to the availability and simplicity of use. The authors, when comparing the study to other previously performed interventions in the field of myofascial thera-

py, correctly noticed the fact that the use of mechanical compression-massage of the fascial points has a certain therapeutic advantage over other techniques. First of all, effective self-therapy allows the patient to intervene quickly, effectively, and independently, without the need to use specialized devices. Self-therapy consisting of myofascial release with a therapeutic ball brings both an analgesic effect, increasing the mobility of the surrounding joints and results in an increase in the pressure pain threshold, which in the case of dry needling techniques is impossible to achieve, because, as observed, dry needling of trigger points brings improvement only in the sphere of patient's pain [20].

It should be noted that also in non-specific studies qualifying myofascial therapy as a component of the rehabilitation of the elderly, positive results were obtained in the treatment of lumbosacral pain, both in terms of pain, mobility, kinesophobia, and overall quality of life. Considering the fact that nonspecific lower back pain can potentially result from persistent myofascial tensions, the inclusion of myofascial techniques in the therapy seems to be an indispensable element of comprehensive and effective therapy of this problem. The effectiveness of correlated physiotherapy suggests the actual importance of myofascial techniques in rehabilitation [21].

Discussion

Among the many available studies on the effectiveness of the use of myofascial pain relief techniques, a small number concerns the elderly, which proves that the subject, although so common in the elderly, still requires further study and research [20].

Besides, when considering studies on the elderly, the greatest correlation can be noticed between the use of myofascial techniques and an increase in joint mobility in the area that has been subjected to therapeutic intervention, which significantly affects the patient's quality of life [18,20,21]. On the other hand, when it comes to the treatment of pain of myofascial origin, studies show discrepancies in effectiveness depending on the use of a precise technique [19]. So far, it has been shown that one of the most effective methods is myofascial release by self-massage and pressure on trigger points, but the best results are achieved by correlating specialized techniques with movement in the form of exercises [18,20].

Myofascial techniques are rarely studied separately, usually, researchers investigate the effectiveness of tech-

niques combined with exercise or other physical procedures, such as ultrasound, laser therapy, and therefore it is difficult to conclude the effectiveness of independent myofascial techniques, both in terms of improving joint mobility, the severity of pain or kinesophobia. All these components significantly affect the patient's quality of life [21-23].

In clinical practice, it is common to combine pharmacotherapy with physical therapy, functional rehabilitation, and unconventional methods [24]. Among the last group is acupuncture, the use of which has brought about similar analgesic effects as lidocaine injections, which proves the thesis that the techniques can be used interchangeably depending on the individual tolerance and will of the patient [25]. A similar analgesic effect was obtained after treatment with botulinum toxin for myofascial pain [26]. It is also proved by the fact that therapeutic procedures should not be limited only to known and commonly used methods [25,26]. Acupuncture is a scientifically proven method of treatment because the tendon-muscle meridians defined in Chinese medicine work similarly to trigger points, often differing only in terms and names [27].

Conclusions

Myofascial pain is a socially significant topic, and at the same time difficult to analyze scientifically. It affects people of practically all ages, and at the same time, its pathophysiology and mechanisms of its formation are still unknown. There are many physiotherapeutic methods helpful in treating myofascial pain, thanks to which physiotherapists can choose a treatment that is convenient for them and the patient, which will be tailored to the individual needs of the person. However, it should be remembered not to limit the treatment methods to one of them. The variety of sites of myofascial pain appearance makes it important to combine different physiotherapeutic methods. It is principal to learn about the most effective treatments for myofascial pain because it is a common problem that affects a large part of society. Another major finding is that there are few randomized, EBM-compliant research studies conducted on elderly people with chronic myofascial pain syndrome. There is a clear need to implement this topic in future research.

Conflict of interest

None

References

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