

Original Article

The effectiveness of massage and muscle energy techniques in treating the myofascial syndrome in the back

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Abstract

The Myofascial Syndrome is characterized by a chronic, local, irradiating or reflex muscle pain, caused by myofascial trigger points determining a persisting contraction in the injured muscle and a limitation of the range of motion. The purpose of this paper is to particularize certain methods and techniques to diminish the symptoms of the myofascial syndrome. Thus, this article promotes a series of extremely effective methods and techniques that recorded beneficial long-term effects. The group of subjects consisted of 6 patients, divided in two, one experimental and one control group, the study being conducted over a period of 7 months. The experimental group benefited from multiple types, such as: myofascial, shiatsu, deep tissue (Cyriax) combined with muscle energy techniques, while the control group benefited from physiotherapy. This study used the following research methods: the theoretical documentation method, the observation, the inquiry, the experiment, methods of measuring, recording, analyzing and graphically representing the data. The assessment methods were complex, consisting in tests for the assessment of pain, contractures, and mobility, because knowing this data conducted the study toward adapting the rehabilitation program according to the subjects' particularities, from multiple points of view. At the end of the study, the data was presented and interpreted, with a global analysis of the group of subjects. The results show that the individualization of the treatment leads to an improvement of the symptoms by shortening the rehabilitation period and maintaining the beneficial effects on the muscle fiber for a long time.

Key Words: pain, pain reflex contracture, trigger points, massage.

Introduction

The myofascial pain syndrome (MPS) represents a substantial part of acute or chronic pain manifested by overcoming the limitations of the normal physiological reaction to certain stress factors, characterized by pain, caused by the presence of multiple trigger points (Starlanyl, Sharkey, 2013).

Pain causes muscle tension, which in turn intensifies stress, the latter increasing the physiological answer through muscle tension, thus forming a vicious circle: stress - spasm (muscle tension) - pain - spasm (Simons, Mense, 2003:419-424). Clinically, trigger points (TP) divide into: active, latent, central, attached, satellite, with a local spasmodic response, with radiating pain, etc. The first ones are rarer and are characterized by spontaneous pain that is intensified during muscle stretches, while the others are very common and can be identified only through palpation, causing the myofascial pain syndrome (<http://emedicine.medscape.com/article/313007>, <http://emedicine.medscape.com/article/305937>). The contraction nodules compress the capillaries accompanying each muscle fiber, determining ischemia or focal hypoxia areas (Davies Clair et al., 2001:15-35).

Central trigger points (CTP) always emerge from the middle of the muscle fiber, where there is a synaptic connection between the motor neuron and the muscle fiber (Mense S., Gerwin R.D., 2010:86-100). Histologically, in the TP one can see dystrophic changes in the muscle tissue; muscle fiber edema with an increase in the extracellular space; edema and constriction in the sarcomeres, tense stretch of the ones near the fiber; structural changes in the myofibril and a knitting of the sarcomeres with the connective tissue in a fan shape where there are more collagen fibers than elastic ones. When a hypertonic muscle is sectioned transversally, one can observe that some muscle fibers are larger, with a significant increase in their diameter, compared to other muscle fibers in the same muscle.

The mentioned substances contribute to the increase of the capillary wall permeability, and as a result the plasma proteins extravasate. Palpatory, the TP present themselves as solid nodules in the edema area (Resteghini, 2016).

Materials and methods

This study started from the *hypothesis* stating that the application of multiple types of massage could have an increased effectiveness in diminishing the symptoms caused by the myofascial pain syndrome and could shorten the rehabilitation period, thus contributing to maintaining certain beneficial effects on the muscle fiber

for a longer period of time. The study was performed on a group of 6 female subjects, diagnosed with myofascial pain syndrome, divided into two groups, an experimental and a control one. The experimental group received multiple types of massage, such as: myofascial release, deep tissue massage, shiatsu, combined with Muscle Energy Techniques, applied on the injured muscles. Each patient benefited from 10 sessions, conducted three times per week, with one or two days break, in order to prevent muscle inflammation. The techniques applied during the treatment were carefully particularized and individualized according to the subjects' symptoms, both during and over the course of the treatment or sessions.

Table 1. Experimental group

<i>Initials</i>	<i>Gender</i>	<i>Age</i>	<i>Diagnosis</i>
B.S.	F	36	Cervicalgia; neurovegetative disorder; myofascial pain syndrome
C.L.	F	42	Cervicalgia; persistent somatoform pain disorder
B.E.	F	28	Cervicalgia; neurovegetative disorder; persistent myofascial pain syndrome

Table 2. Control group

<i>Initials</i>	<i>Gender</i>	<i>Age</i>	<i>Diagnosis</i>
I.I.	F	48	Cervicalgia; neurovegetative disorder; persistent myofascial pain syndrome
B.S.	F	43	Neurovegetative somatoform disorder; persistent somatoform pain disorder
A.S.	F	32	Neurovegetative disorder; persistent myofascial pain syndrome

The selection criteria were: the absence of contraindications such as: infections diseases, phlebitides, major dermatoses, malign dyskeratoses, inflammatory rheumatism in the acute phase, vascular fragility, cutaneous disorders; the presence of clinical manifestations of MPS, such as: pain, muscle contractures and indurations, muscle stiffness; the patients' agreement; being over the age of 18.

The assessment used: the Visual Analog Scale (Mungiu, 2007, p.143) for the longitudinal and transverse palpation of the cervical-dorsal muscles (muscle insertions in the occipital area, upper trapezius, scalenus muscles, supraspinatus, infraspinatus, subscapularis, rhomboid muscles, latissimus dorsi), the contracture test (in the upper trapezius, supraspinatus, scalenus muscles), functional tests (Schober, Ott, the chin-sternum distance, occiput-wall distance, acromion-tragicus distance) (Balint, 2007). Based on the assessment, the functional diagnosis was established for each patient, however the general symptoms observed in the group of subjects were: pain during the muscle palpation, presence of trigger points, pain reflex contractures, muscle indurations, limitation of cervical motions. To achieve the desired goals (diminished pain, reduced muscle contractions and indurations, improved joint mobility and activated local circulation), the myofascial release, the deep tissue massage, shiatsu and Muscle Energy Techniques were used in an individualized manner.

The treatment sessions started with the myofascial release, because the slow performance rhythm and low tissue pressure helped decongest the fascias, at the same time producing an intense activation of blood and lymphatic circulation. After that, the effects were completed with shiatsu techniques, mobilizing the muscle mass every way, using the palms, the heel of the hand, and the thumb (according to how much the patients can stand, and the state of their tissue), and the deep tissue massage where needed, at the insertions of the following muscles: upper trapezius, neck, scalenus, sternocleidomastoid, supraspinatus, infraspinatus, subscapularis, rhomboid muscles, latissimus dorsi, and the intertransversarii and interspinales ligaments. The Muscle Energy Techniques were aimed to increase suppleness in the periarticular elements, especially in the muscles, because during the contraction the Golgi tendon organs send a signal to the central nervous system, which will dictate the relaxation of the muscle, protecting it against injury (Mârza Dănilă, Popa, 2015). For this, the muscles acted upon were: upper trapezius, scalenus, sternocleidomastoid, supraspinatus, infraspinatus, levator scapulae, subscapularis, rhomboid muscles, latissimus dorsi, etc. The control group benefited from pain management physical therapy, such as: electrotherapy using TENS currents, ultrasound and laser, for 10 sessions.

Results and Discussions

Visual Analog Scale results

This sub-chapter analyzes the results recorded by both groups of subjects, and calculates the averages of the results recorded during the initial and final assessments

Although the VAS assessment is considered to be subjective, because the patients must communicate from their perspective the intensity of their pain, a decrease in pain perception was observed in the entire group, after the massage, from values between 8 and 9, signifying an exacerbation of sensations with 5 active myofascial trigger points, to values between 0 and 2, representing a lack of pain, or a mild discomfort during palpation.

