

Efficacy of Myofascial Release Method on Pain and Disease Severity in Patients with Fibromyalgia

Ozlem Altindag* and Sahin Ozaslan

Gaziantep University Research Hospital, Department of Physical Medicine and Rehabilitation, Gaziantep-Turkey

*Corresponding author: Altindag O, Gaziantep University Research Hospital, Physical Medicine and Rehabilitation, Gaziantep-Turkey; Tel: +90 0342 3606060/76222; E-mail: ozaltindag@yahoo.com

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Abstract

Fibromyalgia (FM) is a poorly understood chronic condition characterized by widespread muscle pain and tender points. Aerobic exercises, antidepressants, electrotherapy, acupuncture, psychotherapy, behavior therapy, massage used alone or in conjunction with one another, may provide some relief of clinical features. The study was aimed to evaluate the efficacy of Myofascial release (MFR) method on pain and disability level in patients with fibromyalgia.

Thirty-six fibromyalgia patients who applied MFR were scrutinized for pain intensity, disability and level of depressive symptoms. Pain intensity, disability and depressive symptoms were evaluated by Visual Analogue Scale (VAS), Fibromyalgia Impact Questionnaire (FIQ), and Hamilton Depression Rating Scale (HDRS) respectively. Fibromyalgia is considered as neuropathic pain in recent years. Therefore, Leeds assessment of neuropathic symptoms and signs (LANSS) was used for evaluating the neuropathic pain.

All subjects were evaluated at pre-intervention and post-intervention. Senior physiotherapist who experienced treating soft tissue rheumatism and advanced training in MFR delivered the therapy. MFR therapy consisted of prolonged assisted stretching of painful areas of soft tissue of the neck, back, arms, and legs.

The subjects were 37.5 ± 4.5 years of age, with fibromyalgia for 3.4 ± 1.9 years. There were no adverse events or early discontinuations. Recruitment was completed in three weeks. There were significant improvements in the mean score of VAS, FIQ total and HDRS scales after MFR therapy ($p < 0.001$). There were no adverse effects seen during maintenance treatment.

MFR therapy may shed light on the management of FM as an effective and reliable method.

Keywords: Fibromyalgia; Exercise; Myofascial Release Therapy

Introduction

Fibromyalgia (FM) is a syndrome characterized by widespread pain combined with tenderness at multiple tender points. Associated features often include fatigue, unrefreshing sleep, psychological distress, irritable bowel, headaches, paraesthesia, and morning stiffness [1].

A wide variety of intervention is used in the management of fibromyalgia. Aerobic exercises, antidepressants, physical therapy, acupuncture, psychotherapy, behavior therapy, massage used alone or in conjunction with one another, may provide some relief of clinical features [2,3]. However, none of these interventions are completely effective [4].

There is no evidence of muscle disease in FM but there are reports of dysfunction in intramuscular connective tissue or fascia; fascial inflammation triggers a peripheral nociceptive stimulus that leads to central sensitization in FM [5]. The fascia surrounding skeletal muscle is a highly innervated connective tissue [6] Localized muscle and fascia generates the central sensitization. Recently the pain-generating role of fascia in maintaining FM symptoms have been suggested, raising the possibility that manual therapy that specifically target the fascia may

provide more effective for pain reduction [7]. In a healthy body myofascia helps to maintain good posture, range of motion and flexibility. It also gives to body tremendous strength and helps us deal with excessive stress and injuries [8]. Myofascial Release (MFR) is a massage technique in which the therapist uses gentle, sustained pressure on the problem areas to release adhesions and smooth out the fascia.

MFR is an effective hands-on therapy which can directly change and improve health of the fascia. The purpose of MFR is to break down scar tissue, relax the muscle and myofascia and restore good posture. MFR technics focus on relaxing the deep tissue of the body providing lasting and effective relief to patient [6,8]. Fascial entrapment patterns can appear when a body segment stops receiving appropriate stimuli, establishing a pathological process with deficient circulation and limitation in nutrient supply to the fundamental substance of connective tissue, with its consequent densification. Because dense tissue is hypomobile, this situation leads to movement limitations. Massage and releasing technics may provide a healing on pain and disability [9-10].

MFR therapy is a combination of manual traction and prolonged assisted stretching maneuvers designed to break up fascial adhesions. MFR reduce the tension in muscles with secondary increased circulation, pain relief, and increased mobility by inducing segmental

and suprasegmental reflex. Stimulation of the mechanoreceptors by MFR may also close the “pain gate” via pre- and postsynaptic inhibition. Moreover, it has been found to induce release of endogenous opiates. [11,12]. Castro-Sánchez, et al. [13] found that MFR was effective in reducing muscle pain in FM. Since MFR more directly targets the proposed peripheral pain generators residing in the fascia. With this in mind, we evaluated the benefits of MFR on pain, and disease severity in patients with FM.

Subjects and Methods

A total of 36 women who were admitted to Department of Physical Therapy and Rehabilitation of Gaziantep University Research Hospital and diagnosed with fibromyalgia syndrome according to 1990 and 2010 American College of Rheumatology (ACR) criteria [14].

FM is more common in women than in men [15]. Patients had an identified systemic, metabolic, endocrinological, tumoral, infectious, neurologic disease, were addicted to alcohol or drug, were pregnant, had not been diagnosed with fibromyalgia syndrome and received antidepressants, pregabalin, gabapentine, and were not volunteers for participation or if they stated an intolerance to touch were excluded from the study.

All cases were questioned about widespread pain according to 1990 ACR criteria and assessment of 18 tender points was done with palpation. 2010 ACR criteria were questioned. Study subjects were between the ages of 18 and 55 years.

MFR therapy consisted of prolonged assisted stretching of painful areas of soft tissue of the neck, back, arms, and legs. The protocol was as follows: myofascial release at insertion of the trapezius assisted release of cervical fascia, release of anterior thoracic wall, release of pectoral region, lumbosacral decompression, release of gluteal fascia, transversal sliding of wrist flexors and fingers, and release of quadriceps fascia [16]. All of the patients been treated from the neck to legs. As fascia forms a continuous sheath throughout the body, each treatment addresses the whole body, not just the area of the pain. Patients were taking any medication during the study period. All subjects were evaluated at pre-intervention and at three weeks post-intervention. The study groups underwent a protocol which was modified from **Castro-Sánchez’s method** [16]. All subjects received 45 min of therapy 5 times per week for three consecutive weeks. Senior physiotherapist delivered the intervention. A signed consent form was obtained from all subjects. Study was approved by the local ethics committee.

Assessments at initially and after treatment were made by a physiatrist who carried out all the measurements and tests. Visual Analogue Scale (VAS), Leeds assessment of neuropathic symptoms and signs (LANSS), Fibromyalgia Impact Questionnaire (FIQ), and Hamilton Depression Rating Scale (HDRS) [17] were performed for evaluating the disease and pain severity, sleep disorder, and depressive mood to 36 patients. Subjective complaints of pain were measured using a Visual Analog Scale (VAS) [18] which assesses the pain intensity and degree of relief experienced by the patient (score of 0 = no pain; 10 = unbearable pain). FIQ is a ten-item, self-administered instrument which measures physical functioning, work status, depression, anxiety, sleep, pain, stiffness, fatigue, and well-being [19]. The HDRS is a 24-item inventory for depressive symptoms.

Statistical Analysis

The Statistical Package for Social Sciences (SPSS 11.5, SPSS Inc, Chicago, IL) was used for all statistical analyses. A paired sample t-test is used to determine the difference between the average values of the clinical parameters in baseline and after treatment. $p < 0.05$ was considered significant.

Results

Demographic data was shown in Table 1. As shown in Table 1 total LANSS point was higher than 12 in all fibromyalgia patients.

| | Ort ± Ss n=36 |
|---|---------------|
| Age | 37.5 ± 4.5 |
| Body mass index | 28.3 ± 2.5 |
| Disease duration (years) | 3.4 ± 1.9 |
| LANSS | 12.9 ± 1.12 |
| LANSS: Leeds assessment of neuropathic symptoms and signs | |

Table 1: Demographic data of patients with FMS

The mean VAS score was decreased significantly for the patients when compared to the baseline and after treatment (8.4 ± 0.7 vs. 2.5 ± 1.1 ; $p < 0.001$). Disability level as measured by FIQ, were significantly improved in after treatment with the baseline (63.4 ± 5.2 vs 16.4 ± 2.4 ; $p < 0.001$). The mean HDRS scores were 10.0 ± 2.2 and 4.8 ± 0.7 in patients at baseline and post intervention, respectively ($p < 0.001$) (Table 2).

| | Baseline Mean ± S.D | After treatment Mean ± S.D | p |
|--|------------------------|-------------------------------|-------------|
| VAS | 7.0 ± 1.2 | 4.8 ± 1.2 | $p < 0.001$ |
| FIQ total | 6.7 ± 0.7 | 3.4 ± 1.5 | $p < 0.001$ |
| HDRS | 9.0 ± 1.2 | 5.8 ± 0.7 | $p < 0.001$ |
| VAS: Visual Analogue Scale; FIQ: Fibromyalgia Impact Questionnaire; HDRS: The Hamilton Depression Rating Scale | | | |

Table 2: The comparison of clinical parameters at initial assessment and postintervention in patients with FMS

There was significant improvement in the subscales of FIQ after treatment sessions ($p < 0.001$) (Table 3).

| | Baseline Mean ± S.D | After treatment Mean ± S.D | p |
|---------------------|------------------------|-------------------------------|-----------|
| Physical impairment | 15.4 ± 2.5 | 7.5 ± 2.2 | < 0.001 |
| Feeling good | 4.4 ± 2.2 | 3.1 ± 2.2 | < 0.001 |
| Unable to work | 4.2 ± 2.3 | 2.2 ± 0.2 | < 0.001 |
| Able to work | 7.3 ± 1.8 | 4.3 ± 1.2 | < 0.001 |
| Pain | 7.2 ± 1.5 | 3.6 ± 0.2 | < 0.001 |
| Fatigue | 7.4 ± 2.6 | 4.1 ± 1.7 | < 0.001 |
| Rested | 7.5 ± 1.2 | 4.3 ± 2.5 | < 0.001 |

| | | | |
|--|-----------|-----------|---------|
| Stiffness | 7.1 ± 1.3 | 4.0 ± 2.7 | < 0.001 |
| Anxiety | 6.1 ± 0.6 | 2.5 ± 1.2 | < 0.001 |
| Depression | 6.9 ± 0.4 | 2.5 ± 0.2 | < 0.001 |
| FIQ: Fibromyalgia Impact Questionnaire | | | |

Table 3: The comparison of FIQ subscales at initial assessment and postintervention in patients with FMS

Discussion

Fibromyalgia is a chronic musculoskeletal disease leads to disability, impaired quality of life and increased health care utilization [20]. Because of too difficult to manage, treatments for FM are focused on symptom relief with different approach. We thought that MFR therapy can contribute to different approach in management of FM. In our study, we showed that MFR program significantly improved the pain severity, depression level and functional capacity in patients with FM.

We observed that MFR technic was strongly effective on pain, disability and emotional status, especially in a short period of treatment. Myofascial Release was specifically designed to relax the fascia throughout the whole body. This is the benefit of a whole body approach that makes MFR such an effective treatment [21]. Multiple studies show that myofascial release can result in decreased pain, better posture, reduced symptoms, increased range of motion and improved quality of life.

This study has demonstrated that fibromyalgia patients can benefit from myofascial technics. MFR therapy significantly improves several clinical dimensions of the fibromyalgia syndrome, with an important and consistent improvement.

It has been discussed in literature that medications and non-pharmacologic treatments have shown promising effects in FM [22]. Non-pharmacological treatment modalities, including aerobic exercises, physical therapy, cognitive behavioural therapy, massage and acupuncture can be helpful. Evidence has shown that multi-disciplinary rehabilitation helps to clinical features. Generally, incorporation of some physical fitness program as a part of FM treatment is considered essential. Submaximal aerobic exercise, along with strengthening and stretching elements, is beneficial in reducing symptoms and hyperalgesic response [23-24]. Noehren et al. [25] have suggested that TENS was strongly effective on pain and quality of life in FM.

Studies suggested that MFR was more benefit for treating fibromyalgia at the muscles with active pain. Previous study showed that 20 weeks of myofascial release improved sleep, pain, anxiety levels and quality of life in people with fibromyalgia for at least a month after the treatment ended [26].

Fibromyalgia makes the patients so sensitive to touch and pressure, some people are reluctant to try massage [27]. The gentleness of myofascial release may make it easier for many to tolerate than deeper forms of massage [28]. With any form of hands-on therapy, it's crucial to communicate with the therapists about how much pressure the patients can tolerate.

Pain, morning stiffness, fatigue and many other fibromyalgia symptoms are associated with deconditioning. Stretching, pressure and massage can reduce tenderness, sleep disturbance and pain but we don't know if these benefits long lasting. In our results presented in

this study, patients who received MFR therapy showed significant improvements in pain compared before therapy.

There are several limitations to our study. Inclusion criteria selected only primer adult FM patients our results may not be generalizable to secondary FM. We have found that our patients improved with this treatment protocol. However, we can't recommend that this protocol for every FM patients. When we do this study, we only enroll women, because 80-90 percent of FM occurs in women. Although double-blind would be more appropriate for clinical parameters but we could not find this opportunity in study period. Further, the comparatively sample size, and homogeneity of the sample limit the generalizability of this study.

To our knowledge, this is the important report to assess the efficacy of MFR on pain, physical activities, disability and emotional status in patients with FM.

There is no standard regimen for this technique we applied as commonly recommended version. We thought that treatment alternatives should be individualized for patients based on target symptoms and impairment in functioning. Another important point was that our patients never complained the pain during therapy in fact massage is not contraindicated except locally on active trigger points.

Further double-blind, placebo controlled and long term follow-up studies are needed to determine the effect of MFR in fibromyalgia. Future randomized controlled trials of MFR powered for efficacy are needed to determine; if selected patient characteristics can be applied to select the most efficacious therapy technique, or determine the ideal dose of therapy.

This study suggests that MFR method provides relief from the symptoms of fibromyalgia and could be an important therapeutic tool to lessen the impact of the disease, decrease pain, and improve emotional condition for patients. MFR program can be considered as a complementary therapy in addition to other therapies that can achieve transient improvements in the symptoms of these patients.

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