Efficacy of Myofascial Release in Fibromyalgia

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Abstract

Fibromyalgia is a syndrome of widespread pain, decreased pain threshold and other characteristic symptoms. These other symptoms include undue fatigue, insomnia, joint pain, headache, chest pain, irritable bowel syndrome, jerky leg movements, numbness and tingling in various body parts. For the management of these symptoms many medical and physiotherapeutic interventions are used. Myofascial release is an important technique which is used to reduce these symptoms. Previous studies have been done to find out the effect of myofascial release in fibromyalgia. But there are not much studies which elucidate how myofascial release is effective in reducing these symptoms. The present study made an effort to find out the efficacy of myofascial release on patients with fibromyalgia and how its influence on VAS scale, Epworth Sleepiness Scale (ESS), Self Trait Anxiety Inventory (STAI) and Fibromyalgia Impact Questionnaire. (FIQ). The mean, standard deviation, t value and t test for all the variables were calculated. It was concluded that myofascial release has a significant effect on VAS scale however there is reduction in ESS, STAI, FIQ but not upto significant level.

Keywords: Fibromyalgia, Fatigue, Myofascial Release.

Introduction

Fibromyalgia is defined as "non articular rheumatism characterized by musculoskeletal pain, spasm, stiffness, fatigue and severe sleep disturbances". It is a syndrome of widespread pain, decrease pain threshold and other characteristic symptoms *(Wolfe, 1996)*. These other symptoms include chronic soft tissue neck and back muscle pain that is aching, throbbing or burning in nature usually accompanied by neck, shoulder, spine, shoulder or hip stiffness *(Gray et al., 1997)*. Fibromyalgia patients may also experience undue fatigue, insomnia, joint pain, headache, chest pain, irritable bowel syndrome, jerky leg movements, numbness and tingling in various body parts *(Gray et al., 1997)*. It is estimated to affect approximately 3 to 6 million people and is the third most prevalent rheumatologic disorder. The majority of the affected patients are women in the age range of 30 to 60 years *(Goldenburg, 1998)*. It affects women (3.4%) more frequently than men *(Wolfe et al., 1995)*. The cause of fibromyalgia is unknown.

No evidence of an underlying cause or pathophysiologic basis for fibromyalgia currently exists although myriad of mechanisms have been proposed. Among the list of proposed mechanisms include lack of physical

fitness, sleep deprivation, chronic muscle spasm with ischemia, adenosine monophosphate and creatine level imbalances, neurohormonal imbalances *(Goldenberg, 1989)*. Genetic abnormalities in the serotonin transporter promoter gene have also been noted *(Neumann et al., 2002)*. There is an increased association of catecholamine-o-methyltransferase deficiency in fibromyalgia *(Gursoy et al., 2003)*.

Infectious agents have also been linked to the development of fibromyalgia as well as to that of the closely related Chronic Fatigue Syndrome (CFS). Viral agents, including hepatitis C *(Buskila et al., 1997)*, HIV *(Simms et al., 1992)* and hepatitis B *(Adak et al., 2005)* have been associated with fibromyalgia on epidemiological and clinical grounds. Besides this the etiology is also linked to the levels of both serotonin and norepinephrine. These were found to be decreased in levels in the CerebroSpinal Fluid (CSF) of fibromyalgia patients *(Russell et al., 1992)*. The cerebrospinal fluid levels of the excitatory amino acid neurotransmitters aspartate and glutamate, which are involved in pain transmission through the spinal cord, have been shown to correlate with levels of pain in patients with fibromyalgia, although absolute levels were normal *(Larson et al., 2000)*. These etiological reasons produce various symptoms of pain, sleep disturbances and anxiety in the fibromyalgia patients. Optimal management of these symptoms is thus required to manage these.

Management can be done by conventional treatment ae well. It consists of use of heat and cold, TENS, Ultrasound, breathing exercises, aerobic exercises in the form of cycling, walking. Electrotherapy, including transcutaneous electrical stimulation (TENS), electro-acupuncture, functional electrical stimulation, iontophoresis, laser interferential therapy and ultrasound, has been used in musculoskeletal pain conditions. Interferential electrotherapy with amplitude modulated at low frequencies reaches deep muscles and nerves, stimulates voluntary muscles, promotes an increase in peripheral blood flow, accelerate bone healing and reduces pain. Besides different sites of action, the combination of electrical therapy and ultrasound is more effective than each of them separately because it provides localized analgesia on previous detected painful areas *(Almeida et al., 2003)*. Among other techniques of management includes the use of myofascial release.

Myofascial release is defined as 'the facilitation of mechanical, neural and psychopysiological adaptive potential as interfaced via the myofascial system'. It is a highly interactive stretching technique that requires feedback from the patient's body to determine the direction, force and duration of stretch and to facilitate maximum relaxation of tight tissues. The benefits of massage-myofascial release therapy on pain, anxiety, quality of sleep, depression and quality of life in patients with fibromyalgia were studied by *Castro et al. (2010)*. Their study demonstrated that myofascial release therapy reduces the sensitivity to pain at tender points in patients with fibromyalgia, improving their pain perception. Release of fascial restrictions in these patients also reduce anxiety levels and improves sleep quality,

physical function and physical role. Myofascial programme can be considered as an alternative and complimentary therapy that can achieve transient improvements in the symptoms of these patients. This study has used myofascial release for achieving reduction in various symptoms of pain, sleep disturbances and anxiety in patients of fibromyalgia.

The interest in chronic pain has increased considerably in the past decade. Evaluation of the prevalence of pain in populations has clinical and economic relevance. Pain often is associated with disability and is a major factor affecting quality of life. Chronic musculoskeletal pain is common in the general population, with a prevalence of 35% to 50% according to several studies from the United States and Western Europe *(Brattberb et al*., 1989). Chronic Widespread Pain (CWP) is the cardinal symptom of fibromyalgia (FM) syndrome. It was given a standard definition by the American College of Rheumatology (ACR) committee. This definition emphasized that axial pain was a constant feature and that pain had to be present in the upper and lower quadrants and the right and left sides of the body *(Croft et al*. *1993)*.

A constellation of ancillary symptoms may be present, including headache, fatigue, sleep disturbances, Irritable Bowel Syndrome (IBS), paresthesias, fluctuation of symptoms in response to changes in weather or stress level, and other manifestations *(White and Harth 2001)*. Various treatment approaches have evolved so far for the effective management of the patients with fibromyalgia. These approaches aim at managing the different aspects of the condition.

Because of the chronic and multi-symptom character of FMS, the recommended treatment for its patients is based on the interdisciplinary approach, with physical, pharmacologic, cognitive-behavioral and educational interventions. In the sphere of physical intervention, physical therapy offers a great variety of therapeutic modalities (i.e. kinesiotherapy, hydrotherapy, electrothermal and phototherapy, relaxation techniques, massage therapy, and acupuncture) that can be used to control FMS.

Materials & Methods

The present study is a randomized control trial (RCT). The variables for the study were the questionnaires including Epworth Sleepiness Scale, Self Trait Anxiety Inventory, Fibromyalgia Impact Questionnaire and VAS scale. In this RCT 52 patients were randomly selected between the age group of 25- 65 years and were randomly divided into two groups. Group 1 was designated as the conventional group and received conventional treatment, group 2 was named as the experimental group as it was administered the myofascial treatment prgram. The study was performed in the Out Patient Department (OPD) Of Punjabi University, Patiala and various hospitals of Patiala and Ludhiana. The patients of the conventional group were given hot packs, Interferential therapy, Ultrasound, kneading free active exercises of neck, shoulder and arm, breathing exercises. Patients were asked to do 30 minutes walk daily and were also asked to do cycling.

The treatment was continued for 2 weeks. The patients of the experimental group were given myofascial release techniques including that for the posterior cervical musculature, sternocleidomastoid, upper trapezius, cranial base release, cross hand release for back (erector spinae) and J stroke. The same treatment was continued for 2 weeks and the questionnaires were got filled on 0 day, day 7 and day 14 of the program. The data was analyzed using t test. The results of the study have been projected in the form of tables and graphs.

Results & Discussion

Significant changes were seen in the VAS in the mean difference between 0-14th days in the experimental group. However no significant changes were seen in Epworth Sleepiness Scale, Self Trait Anxiety Inventory and Fibromyalgia Impact Questionnaire when the conventional group was compared with the experimental group. The changes in the values of VAS, ESS, STAI, and FIQ have been shown in the graphs

Table 1.1: Mean and Standard deviation of age for the subjects of the group A and group B

DEMOGRAPHIC	GROUP A		GROUP B	
	Mean	SD	Mean	SD
AGE	38.91	9.78	40.36	13.40

Table 1.2: Comparison of mean value for VAS at 0 day, 7th day, 14th day and MD (0 – 14th) day between Group A and Group B

VAS	GROUP A Vs GROUP B	
	t value	P value
0 day	-0.366	> 0.05
7th day	0.964	> 0.05
14th day	2.362	< 0.05
MD (0 – 14th) day	-2.823	< 0.05

Table 1.3 Mean and SD of ESS at 0 day, 7th day, 14th day and MD (0 – 14th) day for the subjects of Group A and Group B and Comparison of mean value for ESS at 0 day, 7th day, 14th day and MD (0 – 14th) day between Group A and Group B

ESS	Group A		Group B		Group A vs Group B	
	Mean	SD	Mean	SD	t	P
0 Day	12.36	0.67	11.73	0.65	2.26	0.05
7 Day	11.91	0.30	10.82	0.60	5.37	0.05
14 Day	11.18	0.60	10.18	0.40	4.57	0.05
MD (0-14)	1.18	0.60	1.55	0.69	-1.32	0.05

Table 1.4 Mean and SD of STAI at 0 day, 7th day, 14th day and MD (0 – 14th) day for the subjects of Group A and Group B and Comparison of mean value for STAI at 0 day, 7th day, 14th day and MD (0 – 14th) day between Group A and Group B

STAI	Group A		Group B		Group A vs Group B	
	Mean	SD	Mean	SD	t	P
0 Day	52.55	1.97	52.09	2.17	0.515	0.05
7 Day	51.91	2.39	51.36	2.38	0.537	0.05
14 Day	50.91	2.43	49.91	3.11	0.840	0.05
MD (0-14)	1.64	1.03	2.18	2.36	-0.703	0.05

Table 1.5 Mean and SD of STAI(y-2) at 0 day, 7th day, 14th day and MD (0 – 14th) day for the subjects of Group A and Group B and Comparison of mean value for STAI(y-2) at 0 day, 7th day, 14th day and MD (0 – 14th) day between Group A and Group B

STAI (Y-2)	Group A		Group B		Group A vs Group B	
	Mean	SD	Mean	SD	t	P
0 Day	48.27	6.10	48.27	6.21	0.00	0.05
7 Day	47.36	6.55	47.36	6.68	0.00	0.05
Day 14	46.27	6.66	45.73	6.62	0.19	0.05
MD (0-14)	2.00	1.00	2.55	1.29	-1.11	0.05

Table 1.6 Mean and SD of FIQ (y-2) at 0 day, 7th day, 14th day and MD (0 – 14th) day for the subjects of Group A and Group B and Comparison of mean value for STAI(y-2) at 0 day, 7th day, 14th day and MD (0 – 14th) day between Group A and Group B

FIQ	Group A		Group B		Group A vs Group B	
	Mean	SD	Mean	SD	t	P
0 Day	77.91	10.96	77.82	13.41	0.02	0.05
7 Day	74.55	10.61	68.18	10.42	1.42	0.05
14 Day	68.91	13.06	62.64	12.48	1.15	0.05
Mean Dev. (0-14)	9.00	9.54	15.18	7.82	-1.71	0.05

In the present study myofascial release was given at the sites of tender points including posterior cervical musculature, trapezius, pectoral region, sternocleidomastoid, cranial base release, gluteal fascia including J stroke as explained by *Castro et al. (2011)*. Various questionnaires including Fibromyalgia Impact Questionnaire, Epworth Sleepiness Scale, Self Trait Anxiety Trait and Visual Analogue scale were used. In order to find out effect of myofascial release on these scales an experiment was conducted on 22 subjects of age group 25-65 years. *Lofgren and Norrbrink (2009)* in their study included the women of 18-60 years in his study. The present study took the age group upto 65 years of age.

Conclusion

The present study concludes that both the conventional and myofascial treatments are helpful in reducing the symptoms of pain, sleep disturbances and anxiety in case of fibromyalgia. However significant effects of myofascial release were seen on pain and hence it is also a reliable method for reducing pain in case of fibromyalgia.

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