

Pain Management: Multidisciplinary Approach in Management of Fibromyalgia

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Abstract

Fibromyalgia is located in muscle, tendon, ligament and joint. Fibromyalgia is a condition that is characterized by a widespread of musculoskeletal pain that is accompanied by joint pain, fatigue, tenderness in localized areas. Other symptoms include headache, sleep disturbance, anxiety, depression and mood issues. Some studies suggest that people with fibromyalgia perceive pain different from Non-Fibromyalgia individuals. This condition is difficult to assess and manage due to its complexity and relation to other conditions. Part of Management of Fibromyalgia includes thorough assessment which includes patient history and physical examination. Multidisciplinary approach to treatment of Fibromyalgia includes Chiropractic, Manual therapy, Massage, Exercises, Acupuncture.

This is a literature review that examines different non Pharmaceutical methods of managing Fibromyalgia, effectiveness and the limitations of the individual disciplinary management. The review will comment on the recommendations for further treatments including outcome measures and Multidisciplinary approach to management.

Keywords: *Fibromyalgia; Chronic Pain; Myofascial Pain Multidisciplinary Approach; Exercises, Massage; Manual Therapy; Outcome Measure*

Introduction

Fibromyalgia is located in muscle, tendon, ligament and joint. It is "a chronic disorder characterized by widespread pain, tenderness, and stiffness of muscles and associated connective tissue structures that is typically accompanied by fatigue, headache, and sleep disturbances" [1]. The widespread musculoskeletal tenderness is in a localized areas. Other symptoms include headache, sleep disturbance, anxiety, depression and mood issues. Some studies suggest that people with fibromyalgia perceive pain different from Non-Fibromyalgia individuals. This condition is difficult to assess and manage due to its complexity and relation to other conditions. Part of Management of Fibromyalgia includes thorough assessment which includes patient history and physical examination. Fibromyalgia is derived from Fibro: Latin word for Fibrous tissue(Tendons and ligaments), Myos: Greek word for Muscles and Algos: Greek word for Pain [2].

Fibromyalgia is a complex chronic pain disorder that affects people physically, and psychologically. It is a neurological condition associated with chronic widespread pain (CWP) and tenderness [3]. A Central sensitization amplified pain perception that results from dysfunction in the CNS [3] (Exaggeration/Amplification of pain). Patients with Fibromyalgia shows low pain thresholds and high Pain Rating [4,5].

Fibromyalgia (FM) is a pain syndrome due to tissue damage or inflammation and not a disease. Fibromyalgia is fundamentally different from rheumatic disorders and many other pain conditions. It is defined by subjective symptoms. It lacks unique pathophysiological characteristics Heterogeneous and not homogenous symptoms. In addition to widespread pain it is associated with a range of other symptoms such as sleep disturbance, fatigue, cognitive disturbance, stiffness and depressive symptoms [6].

History

Table 1 is the studies that showed Fibromyalgia as a real medical condition.

Source: FibroCenter: <http://fibrocenter.com/fibromyalgia-disease>

Year	Event
1824	A physician in Edinburgh described tender points [7].
1880	"A psychiatrist in the United States wrote about a group of symptoms including widespread pain, fatigue and psychological problems. He called it neurasthenia and believed it to be the result of stress" [8].
1904	Gower's coined the term "fibrositis" [9].
1950	Graham who introduced the modern concept of fibromyalgia as "pain syndrome" [10].
1970	Smythe and Moldofsky coined the new term "fibromyalgia" [11].
1976,	The name of the condition was changed to "fibromyalgia". Swelling in the body was no longer believed to be the cause of pain.
1987	The American Medical Association (AMA) acknowledged fibromyalgia as a true illness and a potential cause of disability.
1990	Guideline for diagnosis of FM was written by American college of Rheumatology [12].

Table 1: Fibromyalgia Time Line.

Year	Event
1981	The first scientific study confirmed that symptoms and tender points could be found in the body.
1990	The American College of Rheumatology wrote the first set of guidelines to help diagnose fibromyalgia.
2005	The first guidelines for treating fibromyalgia pain were published by the American Pain Society.
2007	The first prescription medication was FDA-approved to manage fibromyalgia.

Table 2: Fibromyalgia Studies [7].

Fibromyalgia Symptoms

Three Core symptoms of Fibromyalgia are chronic Wide spread pain, Insomnia (sleep disturbance) and Excessive Fatigue (Worse in the morning). Other symptoms of Fibromyalgia include: Restless legs syndrome, Cognitive difficulties (brain fog), Anxiety and/or depression, Headaches, Irritable bowel syndrome, TMJ and Functional impairment of activities of daily living (ADLs) [13].

Fibromyalgia affects Women (7x more than men) and develops between ages 25 - 88 [14]. Fibromyalgia occurs in all ages, sexes and cultures and affects 2 - 5% of the adult USA population. It takes an average of 5 years to diagnose and is highly underdiagnosed [15]. Risk factors include Physical trauma (Post-Traumatic stress disorder), Sleep disorders, Genetic: Familial pattern- Relatives such as siblings, mother, and daughter are at higher risk 8.5 times [16].

<p>Physical</p> <ul style="list-style-type: none"> • Pain • Fatigue • Disturbed Sleep 	<p>Emotional/Cognitive</p> <ul style="list-style-type: none"> • Depression, Anxiety • Cognitive Impairment • Decreased Concentration • Disorganization • Memory Problems
<p>Social</p> <ul style="list-style-type: none"> • Disrupted family relationships • Social isolation • Disrupted relationships with friends 	<p>Work/Activity</p> <ul style="list-style-type: none"> • ctivities of daily living • Reduced leisure activities • Avoidance of physical activity • Career Impacted • Education affected

Table 3: Impact of FM on patient's life.

Diagnosis

Fibromyalgia is diagnosed using American College of Rheumatology (ACR) criteria for diagnosis and updated clinical criteria that do not depend only on Trigger point examination. This new criteria includes lab test to rule out other conditions such as Rheumatoid Arthritis, Sleep Disorders, Irritable Bowel Syndrome, Cancer, Chronic Fatigue Syndrome, Hypothyroidism. Patients with fibromyalgia should be evaluated for comorbid functional pain syndromes and mood disorders.

<p>American College of Rheumatology (ACR) criteria for the diagnosis of FM</p> <ul style="list-style-type: none"> • Chronic widespread pain <ul style="list-style-type: none"> ○ Pain for ≥ 3 months ○ Pain above and below the waist ○ Pain on left and right sides of body and axial skeleton ○ Pain at ≥ 11 of 18 tender points when palpated with 4 kg of digital pressure • ACR criteria are Sensitive (88.4 %) and Specific (81.1%)
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Table 4: ACR criteria for diagnosis of FM [12].

ACR 1990 has limitations because it fails to capture other clinical features, i.e. fatigue and sleep disturbance. It relies on number of Tender points equating to severity and not monitoring individual tender points. It does not account for the possibility of trigger points not being reproduced and errors by health care practitioner [17].

<p>Widespread pain [12]</p> <ul style="list-style-type: none"> • Constant dull achy pain for 3 months • All 4 quadrants • Bilateral • Upper and lower body • Bilateral lower body • Presence of excessive tenderness upon light palpation • Pressure to 11 of 18 specific muscle-tendon sites.

Table 5: Widespread pain pattern.

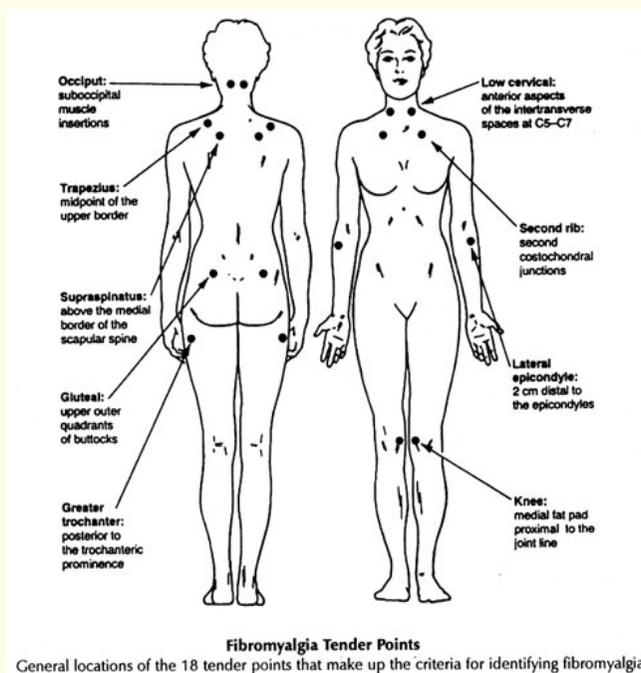


Figure 1: ACR tender point's location [18].

Management of Fibromyalgia

The goal of FM management is to decrease pain and inflammation; mood issues, stress improve sleeping, manage other symptoms, and promote self-efficacy and self-management.

Fibromyalgia patients can represent a diagnostic challenge for the healthcare practitioners due to the uncertainty that it generates and the potential frustration that healthcare practitioners feel in the management. Recent studies and interest in the Fibromyalgia syndrome is shining light to the understanding and effective management of the syndrome by healthcare practitioners [19].

The overall approach for chronic pain in fibromyalgia involves a multifaceted treatment plan. This plan uses multidisciplinary approach to management of FM using treatment plans that incorporates all required healthcare practitioners, Patient education Lifestyle adjustment and Management, Inter-discipline/Practitioner referral and Co-management. Multidisciplinary therapeutic programmes involving education, exercise and cognitive therapy have been shown to be effective in bringing relief.

The complex symptomatology of fibromyalgia will not work using one disciplinary approach but will rather require a multidisciplinary approach. The most efficient management for fibromyalgia using Multidisciplinary approach is to include education, exercise, manual therapy, massage and medication. Goldenberg and Carol Burckhardt did a research on Evidence for efficacy on FM even though not conclusive gives hope of positive result with multidisciplinary approach in the management.

<p>Strong evidence for efficacy</p> <ul style="list-style-type: none"> • Multidisciplinary therapy, Combining <ul style="list-style-type: none"> ○ Exercise, Cognitive behavioural therapy (CBT), Education and Exercise. • Cardiovascular exercise: <ul style="list-style-type: none"> ○ Efficacy not maintained if exercise stops. 	<p>Moderate evidence for efficacy</p> <ul style="list-style-type: none"> • Strength training, Acupuncture Hypnotherapy Biofeedback • Balneotherapy • Transcranial electrical stimulation
<p>Weak evidence for efficacy</p> <ul style="list-style-type: none"> • Chiropractic • Manual therapy • Massage therapy • Electrotherapy • Ultrasound 	<p>No evidence for efficacy</p> <ul style="list-style-type: none"> • Opioids • Corticosteroids • Nonsteroidal anti-inflammatory drugs • Tender (trigger) point injections, • Flexibility exercise.

Table 6: Evidence for efficacy on FM [20].

Patient Education

Education is an essential element in fibromyalgia management. Patients need to understand their symptoms so that they can begin to take control and manage their pain. Education of FM pain circle is very important in the management as it helps patients understand how to break the FM pain circle. It encourages patients to foster on self-efficacy and diminish dependence over time on healthcare providers. Education also helps patients to Identify triggers of flare-ups, its avoidance and/management. Since FM has no cure. It is important to confirm the diagnosis and explain the condition to the patient. This alone has positive impact on the patient who may feel that their condition has a cause and not something in their head [21]. Education should continue throughout the treatment period helping patient understand the treatment, lifestyle adjustment and management.

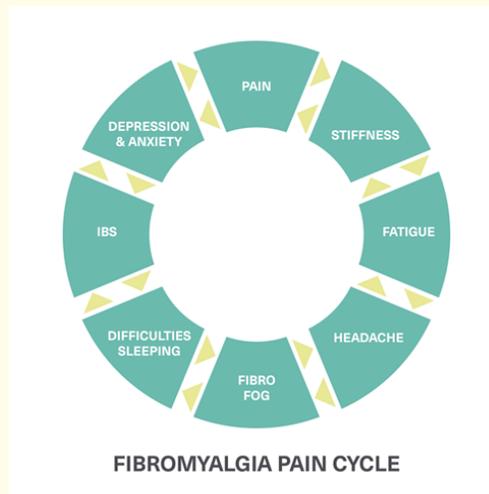


Figure 2: FM PAIN CYCLE [22]: Reprinted with permission from GrowWise Health.

Exercise

Pain and functionality are improved with regular exercise of moderate intensity in patients with fibromyalgia. Regular physical activity is an important part of fibromyalgia management. Although aerobic exercise has the strongest evidence of effectiveness, stretching or flexibility exercises, strengthening exercises, yoga, and tai chi seem to improve symptoms as well.

Research shows that Aerobic exercise (moderate intensity, for 20 to 30 minutes two or three days per week) has the most consistent evidence for improvement in pain and mood symptoms, and in overall functional status [23]. There is limited evidence on improvement of pain for FM patients using strengthening, stretching and flexibility exercises [24]. Some studies has shown improvement in the overall health status of FM patients with yoga and meditation in symptoms such as stiffness, anxiety, and depression of FM patients [25]. Some “randomized, controlled trial shows that tai chi is potentially a useful therapy for patients with fibromyalgia” [26] Tai chi involves deep breathing, meditation, and controlled movements. It helps FM patients to improve muscle strength, balance, and stamina.

It is very important that the patient understands the exercise prescription and adherence of the treatment. Patients should be counselled about the effectiveness of exercise and given specific instructions for exercise type, frequency (at least two or three days per week), and duration (20 to 30 minutes at a time). Patient interest and ability to continue the activity should guide the type of exercise. Frequent supportive reinforcement may be necessary to maximize adherence to exercise regimens.

Exercise is also an effective way to combat tiredness and improve your energy levels. Exercise increases the brain’s production of endorphins, improves sleep, and reduces depression. Suggested activities for people with FM include walking, biking, and swimming. For some, getting started is difficult with widespread pain; slow start and gradual increase might be the solution.

Massage and Manual Therapy

Massages and Manual therapy can relax your muscles, improve range of motion, and reduce stress and anxiety. Physical therapy techniques aim to improve your range of motion and strengthen the muscles. This can also help reduce FM pain. The goal of CBT is to help people set realistic goals. The techniques learnt through CBT help to reduce or minimize FM pain.

There is moderate evidence that myofascial release is beneficial for fibromyalgia symptoms [27]. Myofascia release improves fatigue, stiffness and quality of life; connective tissue massage improves depression and quality of life; manual lymphatic drainage is superior to connective tissue massage regarding stiffness, depression and quality of life; Shiatsu improves pain, pressure pain threshold, fatigue, sleep and quality of life; and Swedish massage does not improve outcomes.

Acupuncture Increase blood flow to areas that are inflamed, it holds the most promise for the fibromyalgia symptoms of stiffness or tension headaches. While studies show that acupuncture can relieve fibromyalgia pain, the relief may not be too long lasting [28].

Medication

Fibromyalgia medications include Antidepressant: Relieve sleep problem and depression, reduce pain, Aspirin: Relief pain and stiffness, Trigger point injections: Local Aesthetic injection (To decrease blood flow) on TP areas followed by stretching. Corticosteroids decreases inflammation, Pregabalin or Lyrica: Decrease things going to the brain Medication help to tone down the CNS. There is no evidence that anti-inflammatory medication or sleeping pills help patients with fibromyalgia and no Evidence that it decreases pain instead make things worse in the long term, opioid-induced hypoalgesia occur causing increased pain. Some studies show that a “drugs that inhibits the reuptake of serotonin and norepinephrine is efficacious in fibromyalgia” [29].

Conclusion

Despite the chronicity and complexity of FM, there are pharmacological and nonpharmacological approaches to help manage FM. No one physician can hope to understand all the complexities of Fibromyalgia. There is strong evidence that multidisciplinary treatment is effective in treating FM.

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