Rehabilitation of Adults with Fibromyalgia

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Abstract

Fibromyalgia syndrome is an increasingly recognized chronic musculoskeletal disorder, involving widespread pain, soft tissue tenderness, other somatic complaints, physical deconditioning, cognitive impairment, psychological issues and disability. It adversely impacts mobility, activities of daily living, work productivity, societal participation and quality of life. Multidisciplinary rehabilitation approaches are often required for prompt recognition of impairments related to fibromyalgia and formulation of an individualized rehabilitation plan to assist patients in relieving symptoms, improve mobility, daily and psychosocial functioning, as well as quality of life. To date, there appears to be little scientific evidence for the effectiveness of rehabilitation interventions for fibromyalgia. However, rehabilitation strategies remain commonly used as an approach for this condition, which causes much personal and substantial economic loss to society. We aim to summarize the current evidence for the effectiveness of rehabilitation interventions used for fibromyalgia among working age adults, including pharmacological and non-pharmacological management approaches.

Keywords: Fibromyalgia, rehabilitation, treatment, intervention, evidence-based, medication.

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Introduction

Fibromyalgia (FM) is a condition of chronic, persistent, widespread pain, and reduced pain thresholds to palpation, associated with fatigue, joint stiffness, sleep disturbances, cognitive difficulties, impaired physical function and psychological distress.[1] It is the third most frequent musculoskeletal condition, with prevalence between 2-4% of general populations. FM increases with age and is more common in women compared to men, with an all-age prevalence in women of 12%, and a female to male ratio of 6:1.[2] FM syndrome can result in significant disabilities, associated with substantial personal losses, healthcare costs and economic burden to society.[2]

The pathophysiology of FM is still not completely understood.[2] Genetic, environmental, peripheral and central sensitization factors, and psychosocial variables are thought to be involved in causing widespread pain sensitivity in individuals with FM.[3] The diagnosis of FM remains clinical and should ideally be identified early for patients who meet the diagnostic criteria. The American College of Rheumatologists (ACR) 2010 diagnostic criteria defines FM as widespread pain lasting for longer than three months with tenderness on palpation at 11 or more of 18 specified tender points.[1,3] FM symptoms can be wide-ranging and often overlap; hence it is important to exclude other conditions presenting similarly such as rheumatoid arthritis, depression, myofascial pain syndrome etc.[3]

To date, current treatments for FM are not curative, with the management of FM continuing to evolve with time, shifting from a classic biomedical approach to a multidisciplinary rehabilitation model approach.[1,4] Rehabilitation is increasingly recognized as an integral component of care in addressing the symptom burden and issues experienced by patients with FM. Empirical research for various rehabilitation interventions commonly trialed in patients with FM is notably active, consistent with numerous systematic reviews published in this area, although there continues to be lack of strong quality evidence for the effectiveness of rehabilitation interventions for FM. Despite this, multidisciplinary rehabilitation strategies remain commonly used as an approach for this condition, showing positive improvements in symptoms, daily functioning and QoL.[4] We aim to summarize the current evidence for the effectiveness of rehabilitation interventions used for fibromyalgia among working age adults, including pharmacological and non-pharmacological management approaches.

Non-pharmacological interventions

1. Exercise interventions

Exercise interventions may contribute to reduction in pain through improving the body's response to muscle microtrauma, physiological alterations and psychological

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experiences of anxiety, depression, sleep quality and for improved overall health in FM. There is low to moderate quality evidence for aerobic exercise interventions such as walking, cycling, running, aerobics and aquatic therapy towards improved health-related QoL, reduced pain intensity, less fatigue and stiffness, as well as improved physical function in patients with FM.[5] Studies found that most aerobic exercise sessions were usually supervised and provided two to three times per week for 35 minutes with intensity progressing from light to vigorous and provided for 15 weeks.[5]

Moderate-intensity resistance training, including lifting weights, machines or elastic resistance bands exercises, have shown positive outcomes towards improved daily functioning, overall well-being, symptoms and muscle strength in patients with FM.[6] Muscle strengthening exercises usually comprised of 16 to 21 weeks of moderate-high intensity supervised group resistance training.[6] Evidence remains limited for mixed exercise interventions (two or more types of exercise involving aerobic, strengthening, flexibility) in patients with FM, although results suggest improved health-related QoL, physical function and fatigue.[7]

Aquatic exercise has been found to be beneficial for patients with FM compared to people who did not exercise, with evidence showing improved overall well-being, self-reported physical function, symptoms (pain, stiffness), muscle strength and cardiovascular fitness.[8] The benefits of both aquatic and land-based exercises when compared are similar, although the land-based group demonstrated higher muscle strength outcomes than those who did aquatic training.[8] There is currently lack of evidence for whole body vibration (WBV) exercise either alone or in addition to mixed exercise in patients with FM.[9]

2. Complementary interventions

The use of psychological and complementary interventions such as cognitive behavioural therapies (CBTs), mindfulness-based therapies, acupuncture and transcutaneous electrical nerve stimulation (TENS) are increasingly used in patients with FM.

CBTs are widely used psychological treatments for a number of health conditions including chronic pain. Patients with FM often have co-existing issues such as sleep disturbances, cognitive dysfunction and fatigue. CBTs aim to attempt to change negative thoughts about pain, and introduce behaviour modification including self-management educational and acceptance strategies to improve function and coping skills.[10] Although evidence remains low quality, CBTs have demonstrated a small benefit in patients with FM compared to control interventions in reducing pain, negative mood and disability and at long-term 6-month follow up.[10] The effectiveness of other psychological interventions such as mind-body biofeedback, mindfulness, relaxation and stress management are still lacking, although widely used.

Complementary interventions evaluated in FM include acupuncture and transcutaneous electrical nerve stimulation (TENS).[11,12] There is low to moderate level evidence that acupuncture improves pain, stiffness, overall well-being and fatigue in FM, with additional benefits when combined with electrical stimulation.[11] There is limited data supporting the use of TENS in FM.[12]

Pharmacological interventions

1. Antiepileptics

Antiepileptic agents are commonly used for treatment of chronic neuropathic pain and can be effective in some patients with FM where there may be nerve damage. Current evidence from clinical trials supports the use of only pregabalin and gabapentin in the management of FM. Only a minority of patients achieved significant pain relief with either medication, however QoL and function improved significantly with at least 50 percent in pain intensity reduction.[2] Other antiepileptic drugs such as carbamazepine, lamotrigine, oxcarbazepine, topiramate, lacosamide, clonazepam, phenytoin, and valproic acid demonstrated no evidence, insufficient evidence, or lacked effect in symptom improvement in FM.[2]

2. Antidepressants

Studies have shown that serotonin and norepinephrine reuptake inhibitors (SNRIs) act on noradrenergic and serotonergic neurons in the nervous system, involved in the mediation of endogenous pain inhibitory mechanisms. SNRIs such as duloxetine and milnacipran are effective in reducing pain, improving fatigue and global well-being in FM. Milnacipran has shown to be effective in providing moderate levels of pain relief, with at least 30 percent reduction in pain intensity, although only in a minority of patients with FM.[3] Selective serotonin reuptake inhibitors (SSRIs) such as citalopram, fluoxetine and paroxetine are not known to be superior to placebo in treating pain, fatigue and sleep difficulties in FM.[1] However, SSRIs may be considered for the treatment of depression in FM.[1]

Tricyclic antidepressants (TCAs) such as amitriptyline has proven effective in the treatment of FM, however, it should be recognized that amitriptyline is only effective in a minority of patients.[13] There is limited evidence to

support the use of mirtazapine or monoamine oxidase inhibitors (MAOIs) in patients with FM.

3. Antipsychotics

Antipsychotics have been used to treat FM symptoms as a new potential alternative as non-psychotic mental disorders are frequently associated with FM such as anxiety, depression and post-traumatic stress disorder. For instance, second-generation antipsychotics such as quetiapine have been used in treatment of depression. So far, there is very low quality evidence for the use of quetiapine in patients with FM although a time-limited trial (4 to 12 weeks) in those with major depression may be considered to reduce pain, sleep difficulties and psychological issues.[14]

4. Other pharmacological interventions

Common pain-relieving medications such as paracetamol and non-steroidal anti-inflammatory drugs (NSAIDS) (ibuprofen and diclofenac) are not usually considered effective for pain or other symptoms in patients with FM. The quality of evidence for oxycodone in the management of FM is also very low, with lack of randomized trials to support or refute the suggestion that oxycodone reduces pain in FM. Cannabinoids such as nabilone does not appear to have convincing evidence in the treatment of FM, with low tolerability.[15]

Conclusion

As an increasingly recognized chronic musculoskeletal disorder, FM causes significant disabilities for patients and adversely impacts mobility, activities of daily living, work productivity, societal participation and QoL. Multidisciplinary rehabilitation approaches are often required for prompt recognition of impairments related to fibromyalgia and formulation of an individualized management plan for patients with FM. The use of combined physical, psychological, behavioural and educational interventions is critical to avoid prolonged symptoms of FM developing into physical, psychological and social disabilities.

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