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Review

Prevalence, Diagnostic Challenges and Management of Fibromyalgia

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Abstract

Chronic pain is regarded as a global public health issue which significantly affects the quality of life. Fibromyalgia is the most widespread chronic pain condition. It has grown to alarming proportions in terms of impairment, use of health and social resources, and impact on general and specialty care systems. Fibromyalgia is characterized by persistent, widespread musculoskeletal pain that is frequently accompanied by additional signs and symptoms such exhaustion, gastrointestinal problems, and changes in mood and sleep. Fibromyalgia is thought to affect approximately 2%-8% of people worldwide. Diagnostic criteria for fibromyalgia include presence of pain on both sides of the body, above and below the waist, present for at least three months, the presence of at least 11 out of a possible 18 tender points, and the lack of any other condition that could explain the pain better. Fibromyalgia affects women more commonly than men. Diagnosis and treatment of fibromyalgia can be challenging due to its complexity and also due to the absence of specific markers and laboratory diagnostics. Fibromyalgia is a contentious illness. Multidisciplinary approach is best for the treatment and management of fibromyalgia. Antidepressants and neuromodulating antiepileptics, which only presently include duloxetine, milnacipran, and pregabalin, play a significant role in treating fibromyalgia while most nonsteroidal anti-inflammatory medications and opioids offer very modest benefits. Additionally, pharmacological therapy should be combined with nonpharmacological treatments including exercise and physiotherapy among others. The purpose of this research is to review the available information about prevalence, diagnostic challenges and management of fibromyalgia.

Keywords: *fibromyalgia, pain, diagnosis, treatment*

Introduction

Over the past ten years, there has been a significant increase in the interest of chronic pain. Pain is a significant element in determining quality of life and is frequently linked to disability. The prevalence of chronic musculoskeletal pain in the general population ranges from 35% to 50%. The idiopathic chronic pain syndrome known as fibromyalgia (FM) is characterized by extensive non-articular musculoskeletal discomfort and diffuse tender spots. Headache, tiredness and fatigue, sleep issues, irritable bowel syndrome, paresthesias, fluctuation of symptoms in reaction to changes in the weather or stress level, and other manifestations may be present in addition to the primary symptoms. FM is thought to affect 2% of the general population in the United States, with women being more likely to experience it than men. The predominance of the condition rises with age, from around 1% in women between the ages of 18 and 29 to about 7% in those between the ages of 70 and 79 (1). The definition of FM is constantly changing to reflect advancements in knowledge and modifications to diagnostic standards. As per the 1990 diagnostic criteria of the American College of Rheumatology (ACR) FM is the presence of pain on both sides of the body, above and below the waist, present for at least three months, the presence of at least 11 out of a possible 18 tender points, and the lack of any other condition that could explain the pain better (2).

Chronic, widespread musculoskeletal pain, along with exhaustion, sleep problems, and other physical and cognitive symptoms, are the hallmarks of FM. Many individuals experience long-lasting symptoms that necessitate frequent medical attention; in other cases, FM and associated symptoms can be incapacitating. There are various treatments available still the management remains difficult (3). Although FM has been recognized for many years, the diagnosis is still difficult and challenging because there is no clear-cut pathophysiological explanation of the disease. The ACR diagnostic criteria have changed from 1990 to 2016, yet clinical findings like the multisite pain index and the intensity of somatic symptoms still have a significant impact. As a result, a significant number of patients are not diagnosed timely. In addition, many clinicians do not completely meet the requirements. Lack of a trustworthy, objective indicator of disease activity has been the major obstacle to FM diagnosis. Underdiagnosis and late diagnosis continue to be problems without precise diagnostic tests. The incorrect diagnosis also results in unsuccessful treatment plans and a significant cost impact on the patient and the system. Therefore, identifying a reliable biomarker is crucial to the future of FM diagnosis (4).

Although the precise pathophysiology is yet unknown, it appears to entail cognitive dysfunction, impaired memory, and altered information processing, as well as neuronal over sensitization and impaired conditioned pain modulation. The syndrome has enhanced connectivity across brain regions involved in processing pain, alertness, and cognition, making pharmaceutical treatment for it challenging. Only three medications pregabalin, duloxetine, and milnacipran have food and drug authority approval to treat FM as of right now, but many other substances have been tried out over the years with varying degrees of success (5). Effective pharmaceutical and nonpharmacologic therapy are supported by newly published treatment guidelines and well-conducted clinical trials. The most convincing data points to duloxetine plus milnacipran as a successful FM treatment. Additionally, studies have shown that gabapentin, pramipexole, pregabalin, tramadol, and intravenous tropisetron are effective. Fitness and strength training exercises, warm-water therapy, and psychological pain management approaches should all be included as non-pharmacologic treatments (6). The purpose of this research is to review the available information about prevalence, diagnostic challenges and management of FM.

Methodology

This study is based on a comprehensive literature search conducted on November 4, 2022, in the Medline and Cochrane databases, utilizing the medical topic headings (MeSH) and a combination of all available related terms, according to the database. To prevent missing any possible research, a manual search for publications was conducted through Google Scholar, using the reference lists of the previously listed papers as a starting point. We looked for valuable information in papers that discussed the information about prevalence, diagnostic challenges and management of FM. There were no restrictions on date, language, participant age, or type of publication.

Discussion

FM's etiopathogenesis, diagnostic standards, and classification standards are still up for controversy, which has an impact on the approaches to treating this disorder. Third most common among musculoskeletal conditions, FM is more common as people get older. However, despite the development of more precise

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diagnostic criteria, a sizable minority of clinicians continue to fail to diagnose the illness. Genetic predisposition, individual experiences, emotional-cognitive elements, the mind-body connection, and a biopsychological capacity to handle stress are just a few of the many factors that contribute to the development of FM in a special way. A multi-modal therapy strategy is required due to the condition's complex pathophysiology. Given the growing understanding that there are various FM subgroups with various clinical traits, individually customized treatment is a crucial factor. Therefore, while an evidence-based strategy to managing FM is always preferred, the approach taken by clinicians is necessarily empirical and must have the objectives of forging a close bond with the patient and developing mutually agreeable treatment objectives (7).

Prevalence

On average, 2.10% of the world's population, 2.31% of Europe, 2.40% of Spain, and 3.69% of those living in Comunidad Valenciana are affected with FM. It implies a painful reduction in the quality of life of affected individuals, and the associated healthcare cost is extremely high (8). Marques et al. reported that the prevalence of FM ranges from 0.2% to 6.6% in the general population, from 2.4% to 6.8% in women, from 0.7% to 11.4% in urban regions, from 0.2% to 5.2% in rural areas, and from 0.6% to 15% in special populations (9). Findings from a meta-analysis showed that the estimated overall prevalence of FM was 1.78%, 3.98%, 0.01%, 15.2%, 12.9%, 6.3%, and 14.80%, respectively, among the general population, women, men, patients referred to rheumatology and internal clinics, irritable bowel syndrome patients, patients on haemodialysis and diabetes type 2 patients. Additionally, the prevalence of FM in the targeted categories ranged from 80% in Behcet illness patients to 3.90% in haemodialysis patients (10).

Vincent et al. revealed in their study findings that 1,115 of the 3,410 patients had a medical record diagnosis of FM confirmed by a medical professional. This retrospective review method yielded a 1.1% age- and sex-adjusted prevalence of FM diagnoses. By the second approach of the research survey, 830 (27.5%) of the 2,994 participants responded via mail, and 44 (5.3%) of them met the criteria for FM. This method estimated a 6.4% age- and sex-adjusted prevalence of FM in the general population of Minnesota (11). Results of a Spanish study showed that a positive FM screening result was reported in 602 participants (12.25%), of which 24 (3.99%) were missing. There were 141 FM cases reported in total, 2.45% was the predicted prevalence (95% Confidence Interval (CI): 2.06-2.90). The factor that was most strongly correlated with FM was female sex, with an odds ratio (OR) of 10.156 (95% CI, 5.068-20.352). Peak prevalence was between the ages of 60 and 69 (p=0.009, OR=6.962). Obese people had FM 68% more frequently (OR, 1.689; 95% CI, 1.036-2.755). Between 2000 and 2016, there was hardly any change in the prevalence of FM among adults in Spain, and it is comparable to that seen across all of Europe (12). Jones et al. revealed in their study among Scottish people that 31% met at least one set of FM criteria. The prevalence of FM was 1.7% 95% CI 0.7-2.8), 1.2% (95% CI 0.3-2.1), and 5.4% (95% CI 4.7-6.1), respectively, according to 1990, 2010, and modified 2010 definitions. There were 13.7:1, 4.8:1, and 2.3:1 more women than men among individuals who met each set of requirements. The prevalence of FM varies depending on the classification criteria used. Particularly, compared to criteria sets requiring physician input, prevalence is higher (13).

Diagnostic challenges and management

FM was initially described in the nineteenth century, yet it remains an illness that is very difficult to diagnose. This is because there are currently no known disease-specific biomarkers that may be utilized to diagnose the condition. Despite the fact that there are diagnostic standards for FM, it typically takes 6.5 years from the beginning of the first symptoms to a diagnosis. The majority of patients express persistent pain in their joints, muscles, head, and sacrum. Fatigue, difficulty falling asleep, and a decline in cognitive function are associated with these conditions. In addition to discomfort, patients frequently experience stiffness, leg cramps, hypersensitivity to pressure, tingling and/or numbness, and feelings of anxiety and sadness. Before being referred to a rheumatologist, the majority of patients receive treatment from specialists in a variety of medical specialties due to a wide range of symptoms (14). Kumbhare, Ahmed and Watter stated in their study that since the pathophysiology of FM is poorly known and its symptoms are vague and overlap with those of many other disorders, diagnosing the condition can be difficult for physicians and researchers. To create a set of diagnostic standards for this condition, efforts have been made. These criteria, however, provide a significant amount of variation within the diagnosed population because they mainly rely on expert physician opinion. Since there is currently no method that specifically reflects the pathophysiology of FM, a conclusive diagnosis of the condition is still difficult to make (15).

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The patient's symptoms, psychosocial variables, and external sociocultural issues all have an impact on how FM is diagnosed. It is important to apply diagnostic labelling in FM sparingly and carefully. This dual-edged sword can be used for good or for evil. On the one hand, a delay in diagnosis may lead to over testing and improper treatment, which would place a financial strain on the healthcare system and aggravate patients and their families. On the other hand, widespread use of the FM diagnosis to explain mild to moderate levels of symptoms or the effects of the condition has probably caused significant harm to patients and societal costs. Even within a single patient, the variety of symptoms and phenotypes might result in a variety of designations throughout time from healthcare professionals. It is typical to see people diagnose themselves with FM owing to the use of social media, electronic media, and support groups (16).

Like other functional disorders, the presence of organic diseases does not exclude FM as a diagnosis. A patient's medical history, physical examination, and laboratory tests can rule out rheumatic and systemic disorders. The 1990 ACR classification criteria have been utilized in clinical settings because there is no particular laboratory testing for FM; however, they are not suitable for a patient's individual diagnosis. The initial step in detecting functional diseases can be the screening questions based on published criteria. There is currently no gold standard for FM diagnosis (17). Up to 75% of individuals who have FM have an undiagnosed disease. The ACR proposed preliminary diagnostic criteria in 2010, replacing the tender point count with considerations for the number of painful body locations, the presence and severity of exhaustion, cognitive problems, unrefreshed sleep, and the number of somatic symptoms. The diagnostic criteria rely on the intensity of FM-like symptoms as measured by a 0–12 Symptom Severity Scale rather than laboratory or radiologic testing to identify FM. It was also suggested that the Widespread Pain Index and the Symptom Severity Scale be merged to create an FM Severity Scale that ranges from 0 to 31. A score of 13 for FM severity scale was able to correctly categorize 93% of patients who were determined to have FM based on the 1990 criteria, with a specificity of 96.6% and sensitivity of 91.8%. Alternative diagnostic criteria that include additional pain areas and a wide variety of symptoms than ACR 2010 have been created by certain practitioners in the USA in 2013. ACR changed its perspective on diagnostic criteria in 2015 by approving only classification criteria and no longer taking them into consideration, highlighting the distinction between the two types of criteria. The year 2018 opened a new door to a comprehensive and true understanding of FM diagnosis, beyond the current arbitrary and constructional scores, by taking into account significant but less obvious aspects that have a significant impact on under- or over-diagnosis of FM. As of 2019, FM has been classed as chronic primary pain in the International Classification of Diseases, separating it from pain that is secondary to an underlying condition (18).

The present FM diagnostic and treatment pathway is protracted, complicated, and characterized by several clinician visits with an average 2-year wait to diagnosis. It is evident that efficient FM detection and treatment remain difficult in modern clinical practice. FM management should ideally include a multidisciplinary approach, with the ideal patient pathway beginning in general care but supported by a variety of healthcare professionals, including specialist referrals where appropriate. FM treatments must adopt a more all-encompassing strategy that tackles issues other than pain. When evaluating the efficacy of FM therapy, consideration should also be given to the impact on the related symptoms of fatigue and cognitive impairment, sleep and mood abnormalities, and decreased functional status. The adoption of a symptom-based strategy to direct pharmacologic treatment is advised by recently released recommendations. It may be easiest to distinguish between new FM treatments based on how they affect comorbid symptoms, which are frequently accompanied by pain (19).

Various published guidelines propose different medications for the treatment of FM, however only three of them have received Food and Drug Authority approval for this use, and none have received approval from the European Medicines Agency. Pregabalin, duloxetine, and milnacipran should be the top medications used to treat this condition, followed by amitriptyline and cyclobenzaprine, according to the data now available. Some selective serotonin reuptake inhibitors, moclobemide, pirlindole, gabapentin, tramadol, tropisetron, sodium oxybate, and nabilone are additional medications with at least one successful clinical trial. The most important symptoms of FM, including pain, exhaustion, sleep difficulties, and depression, are not fully addressed by any of the medications now on the market (20). Khurshid et al. recommended in their study that medical cannabis is a safe and efficient way to treat FM pain, but there are several restrictions about dosage, duration of use, side

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effects, long-term monitoring, and reliance that need more research (21).

The first step in achieving optimal care should be educating patients about what is currently known about FM. The goal of management should be to improve the quality of life associated with health. The first priority should be to ensure that patients actively adopt healthy lifestyle habits. Exercises that are both aerobic and strengthening should form the cornerstone of nonpharmacologic therapy. For those who have mood disorders or insufficient coping mechanisms, cognitive behavioural therapy should be taken into consideration. For people with significant pain duloxetine, pregabalin, tramadol may be used or sleep issues, pharmaceutical treatments including amitriptyline, cyclobenzaprine, pregabalin may be tried. For those with severe disabilities, multimodal programming should be taken into consideration (22). Evidence suggests that self-management and medical interventions can help this patient population's symptoms, function, and overall health. Recent trials exploring the effectiveness of the anticonvulsant pregabalin and the two serotonin and norepinephrine-reuptake inhibitors duloxetine and milnacipran are encouraging. Increased physical activity should be a key part of any therapy strategy for FM patients, as per the studies examining various types of exercise (23). Further clinical research can be beneficial in defining evidence-based diagnostic criteria which can further aid in early diagnosis, and development of recommendations for the more effective management of FM.

Conclusion

FM is a complex syndrome, and due to the patients' diminished quality of life and the financial burden it places on the healthcare system, research for FM is becoming increasingly important. Since pharmacological treatment alone is ineffective, a multidisciplinary approach to care and treatment is required. There are currently no objective tests or biomarkers that are accurate enough for diagnosis of FM hence further research is essential.

Disclosure

Conflict of interest

There is no conflict of interest

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Ethical consideration

Non applicable

Data availability

Data that support the findings of this study are embedded within the manuscript.

Author contribution

All authors contributed to conceptualizing, data drafting, collection and final writing of the manuscript.

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