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REVIEW ARTICLE

Nutrition for fibromyalgia: diets and their impact on quality of life

Nutrición para la fibromialgia: dietas y su impacto en la calidad de vida

Alimentação na fibromialgia: dietas e seus impactos na qualidade de vida

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Abstract

This article aims to analyze the literary positions regarding dietary proposals aimed at fibromyalgia (FM). This integrative literature review analyzed systematic review articles published in English and Portuguese in the PUBMED and MEDLINE databases between the years 2019-2024, using the keywords: "Fibromyalgia AND Diet", "Fibromialgia AND Dieta". Through the evaluation of the articles selected for this study, it can be inferred that of all the dietary proposals for this select group of patients, those that have the greatest prominence in therapeutic assistance were the following diets: Hypocaloric diet, Fermentable oligo-di-monosaccharides and polyols (FODMAPs) diet, and Vegan/vegetarian diet. It is concluded that further studies on the topic are necessary to elucidate the pathophysiology of FM and the impacts of nutrition on the progression of the disease, given that practical observation of nutrition is one of the pillars in improving the patient's quality of life in the long term.

Descriptors: Fibromyalgia; Diet Therapy; Chronic Disease; Health-Related Quality of Life; Dysbiosis.

Resumén

El objetivo de este artículo es analizar las posiciones literarias respecto a las propuestas dietéticas dirigidas a la fibromialgia (FM). Esta revisión integradora de la literatura analizó artículos de revisión sistemática publicados en inglés y portugués en las bases de datos PUBMED y MEDLINE entre 2019 y 2024, utilizando las siguientes palabras clave: "Fibromyalgia AND Diet", "Fibromialgia AND Dieta". A través de la evaluación de los artículos seleccionados para este estudio, se puede inferir que, de todas las propuestas dietéticas para este selecto grupo de pacientes, las que más se destacan en términos de asistencia terapéutica fueron las siguientes dietas: Dieta hipocalórica, Dieta oligo-di - monosacáridos y polioles fermentables (FODMAPs), y dieta vegana/vegetariana. Se concluye que son necesarios más estudios sobre el tema para dilucidar la fisiopatología de la FM y los impactos de la nutrición en la evolución de la enfermedad, considerando que la observación práctica de la nutrición es uno de los pilares en la mejora de la calidad de vida del paciente a largo plazo.

Descriptores: Fibromialgia; Terapia Dietética; Enfermedad Crónica; Calidad de Vida Relacionada Con la Salud; Disbiosis.

Resumo

O objetivo deste artigo é analisar quais são os posicionamentos literários frente a propostas dietéticas voltadas para a fibromialgia (FM). Essa revisão integrativa da literatura analisou artigos de revisão sistemática publicados em inglês e em português nas bases de dados, PUBMED e na MEDLINE entre os anos de 2019-2024, tendo como palavras chaves: "*Fibromyalgia AND Diet*", "Fibromialgia *AND* Dieta". Por meio da avaliação dos artigos selecionados para este estudo, pode-se inferir que, de todas as propostas dietéticas à este grupo seleto de pacientes, as que possuem maior destaque no auxílio terapêutico foram as seguintes dietas: Dieta hipocalórica, Dieta oligo-di-monossacarídeos e polióis fermentáveis (FODMAPs), e Dieta vegana/ vegetariana. Conclui-se que se faz necessário maiores estudos sobre o tópico a fim de elucidar a fisiopatologia da FM e os impactos da nutrição na evolução da doença, tendo em vista a observação prática da alimentação sendo um dos pilares na melhora da qualidade de vida do paciente a longo prazo.

Descritores: Fibromialgia; Dietoterapia; Doença Crônica; Qualidade de Vida Relacionada à Saúde; Disbiose.

Introduction

Fibromyalgia (FM) is a chronic non-degenerative disease with an unclear etiology, which usually presents chronic fatigue and tiredness, sleep disorders, and gastric discomfort, among other symptoms, which end up negatively impacting the patient's quality of life. The worldwide prevalence of FM is estimated to be 1.78%, with a predominance in the female population. In addition to gender, obesity, and overweight are the factors most prevalently associated with FM when compared with the general population[1,2].

Even though it is not a crucially inflammatory disease, it has been found that the increase in the plasma level of pro-inflammatory cytokines directly impacts the worsening of symptoms and quality of life of patients with FM, with its relationship with intestinal inflammation caused by eating habits and changes in the gastrointestinal tract (GIT) being mainly investigated, which lead to changes in the microbiota and dysbiosis[2,3].

Furthermore, it is observed that overweight and obese patients tend to have worsening symptoms because, with excess weight and increased adipocytes, there is an amplification of the process of releasing chemoattractant proteins that favor the recruitment and differentiation of monocytes into pro-inflammatory macrophages, capable of producing a large amount of cytokines (TNF, IL-1b and IL-6) and thus, accentuating the process of sensitization of nociceptive neurons, contributing negatively to the patient's symptomatic perception[2,3].

The pain threshold of fibromyalgia patients can also be explained by other hypotheses not addressed in this article, such as oxidative stress promoting an inflammatory state in the Central Nervous System (CNS), and this theory also relates the overexpression of Tumor Necrosis Factor (TNF-α) and pro-inflammatory cytokines to their direct action in the central sensitization of patients with FM[3].

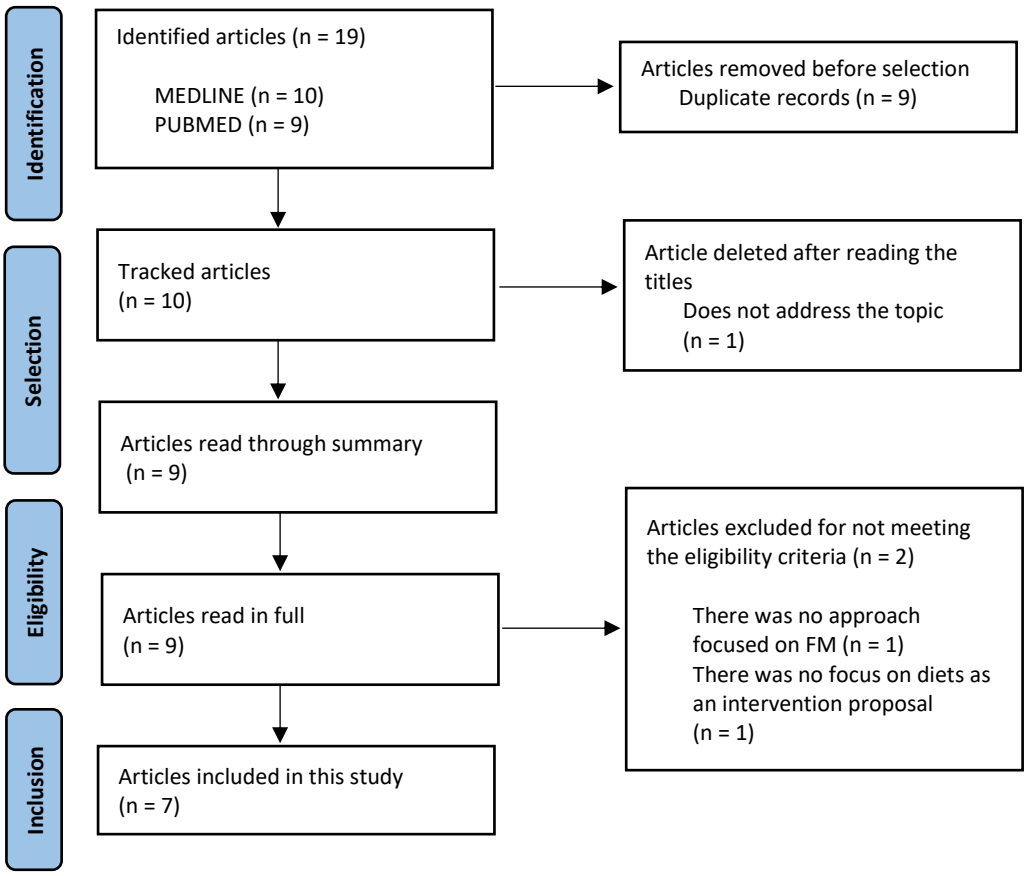
Thus, given the need to promote improvements in patients' quality of life, the objective of this study involved analyzing the diets proposed in the literature with therapeutic impact on patients with FM.

Methodology

This integrative literature review analyzed systematic review articles published in English and Portuguese in the PUBMED and MEDLINE databases between 2019 and 2024, using the following keywords: “Fibromyalgia AND Diet” and “Fibromialgia AND Dieta”. Articles focusing on diet therapy for fibromyalgia were used as eligibility criteria. Studies focusing on nutritional supplementation or articles written in any other language were not included in this review.

In the PUBMED platform, the initial search resulted in nine articles and, in MEDLINE, 10 articles. After the exclusion of duplicate articles, 10 articles were obtained, of which three articles were excluded because they did not meet the inclusion criteria. Thus, the final sample included seven articles (Figure 1).

Figure 1. Flowchart of articles included in the study. Indaiatuba, SP, Brazil, 2024



Results

The seven articles included were read in full and organized in a table that contains the title of each study and some of the variables present, such as article order number, title, authors according to bibliographic reference, year of publication, method, and objective (Chart 1). The analysis and interpretation of their results are part of the discussion of this publication.

Chart 1. Articles compiled according to order number, title, year of publication, method and general objectives. Indaiatuba, SP, Brazil, 2024

Title	Authors	Year of publication	Method	Objectives
Dietary interventions in the management of fibromyalgia: a systematic review and best-evidence synthesis	Lowry et al.	2020	Systematic Review	Evaluate the best evidence on dietary interventions in Fibromyalgia.
Fibromyalgia and obesity: a comprehensive systematic review and meta-analysis	D'Onghia et al.	2021	Systematic Review	Identify all available clinical evidence on the relationship between FM and obesity, including epidemiological association, impact of obesity on FM severity, and effect of weight loss strategies on FM symptoms.
Dietary interventions in fibromyalgia: a systematic review	Silva et al.	2019	Systematic Review	Synthesize knowledge about the effect of nutritional interventions on PRO and inflammation in patients with FM.
Nutritional interventions in the management of fibromyalgia syndrome	Pagliai et al.	2020	Systematic Review	Summarize the possible relationship between FM and nutrition, exploring the role of nutrients, foods, and dietary patterns in FM syndrome.
Dietary effects on pain symptoms in patients with fibromyalgia syndrome: systematic review and future directions	Maddox et al.	2023	Systematic Review	Investigate whether diet affects pain symptoms in individuals with fibromyalgia through a systematic literature review of published studies and summarize future research directions.
Vegetarian and vegan diet in fibromyalgia: a systematic review	Nadal-Nicolás et al.	2021	Systematic Review	Review the scientific evidence on the effect of following a vegetarian or vegan diet in patients with fibromyalgia.
Review of nutritional approaches to fibromyalgia	Kadayifci et al.	2022	Systematic Review	Review the most recent findings on nutritional approaches concerning FM to inform healthcare professionals, patients, and their families, and we discuss the potential benefits of using nutritional approaches to treat FM.

The chart above shows similarities between the objectives of each study, which are the dietary intervention proposals for FM. The only article that presented divergence was "Fibromyalgia and obesity: a comprehensive systematic review and meta-analysis", which associated FM with obesity, promoting reflections on dietary measures that seek weight adjustment and, consequently, improvement of the fibromyalgia condition. We also note that this topic is relevant to the academic community, but still lacks concrete answers, since we have publications annually in well-established databases, however, without a clear pathophysiology of FM, there is difficulty in developing an effective therapeutic plan.

Discussion

Considering that the worsening of symptoms in fibromyalgia is associated with severe metabolic alteration, alteration of the intestinal microbiota, and elevated inflammatory markers, during the analysis of the results it was noticed that the diets with the greatest potential to alter/modify such factors were: Hypocaloric, Fermentable oligo-di-monosaccharide and polyols (FODMAPs) and Vegan/vegetarian.

The low-calorie diet consists of ingesting 1200 kcal/day, distributed as 20% proteins, 50% carbohydrates, 30% fats, prioritizing vegetables, fruits, cereals, and light dairy products[3]. This type of diet is associated with a decrease in inflammatory markers (IL-6 and C-reactive protein), weight loss, decreased fatigue, and depressive symptoms, simultaneously contributing to a decrease in adipocytes and, consequently, in the inflammatory state, disposition, self-image, energy and quality of life[4].

Considering the frequent association between FM and obesity, counting calories as a dietary measure can make it difficult for patients to adhere to the plan, as they often seek psychological comfort in food to distract them from their pain. Therefore, when introducing this proposal as a therapeutic measure, the healthcare professional must be aware of the factors that may compromise the correct adherence to the plan.

The FODMAP diet corresponds to the elimination/restriction of highly fermentable foods, that is, poorly absorbed short-chain carbohydrates, including lactose, free fructose, polyols, fructans, and galacto-oligosaccharides[4-7]. This dietary proposal was attributed to the reduction of gastrointestinal symptoms, reduction of

abdominal circumference measurements, and the reduction of painful symptoms, reinforcing the hypothesis of a correlation between the intestinal microbiota and FM symptoms[3,4].

The vegan/vegetarian diet is based mainly on foods rich in fiber, vitamins, minerals, and antioxidant elements, such as fruits, vegetables, legumes, nuts, and plant-based products[4,6,7].

According to some studies[3,5], This plant-based diet was the one that showed the best results in reducing symptoms related to pain, gastrointestinal symptoms, inflammatory markers, depressive and anxiety symptoms, improving sleep quality, feeling of vitality, and quality of life. This result is possibly due to its anti-inflammatory properties[4], antioxidants[1,6] and in the regulation of prostaglandin synthesis[7], since individuals who consume more fruits, vegetables, teas and fruit juices tend to have a reduction in inflammatory markers, body mass percentage, abdominal circumference and oxidative stress; unlike individuals who have a diet rich in refined grains, red meat, butter, processed meat, derivatives rich in fats, sweets, eggs, hydrogenated fats and the like[1,6,7].

The FODMAPS and vegan/vegetarian diets are similar in that they restrict some food groups; however, they do not focus on calorie or portion control. In a way, this characteristic strengthens the possibility of adherence because the patient learns to make nutritional changes that bring satiety and provide pleasure in eating.

We see that the highlighted diets have in common the control of inflammatory markers and improvement of the intestinal microbiota. The exact explanation of how these mechanisms occur is still not entirely clear, since the pathophysiology of FM itself is also not fully understood.

Other diets such as the gluten-free diet, the monosodium glutamate-free diet, and the Mediterranean diet also appear to have beneficial effects for patients with FM, but their results are not clear and may be attributed to weight loss, so further studies are needed to evaluate their benefits[4].

Finally, it is worth remembering that when we approach concepts such as chronic pain in FM, these studies will have incomplete results, as subjective factors were not considered, such as mental health, medications, regional and social issues, support network, religiosity, physical activities and association of other therapeutic practices, such as Reiki, oxygen-ozone therapy, acupuncture, and the like[8].

Conclusion

Given the data presented, we see that adding balanced nutrition to the therapeutic plan for fibromyalgia patients can bring benefits that impact on improving quality of life, and sleep patterns, reducing depressive and anxiety symptoms, and reducing the sensation of pain and fatigue, among others[3-5]. However, the studies analyzed included a limited group of people and short-term evaluations of the results, thus showing that the literature lacks long-term dietary research that would help us determine more precisely the therapeutic potential of these changes in patients with FM. It is worth noting that the different diets highlighted present similar results, raising the hypothesis that the psychosomatic component should also be taken into consideration[3,4,7].

Remember that such diets fit into balanced eating regimes that tend to bring benefits to everyone, regardless of FM, as they are rich in fiber, antioxidants, minerals, and vitamins[4]. Furthermore, the formulation of a dietary plan should always be done on an individual basis, as FM does not exclude the possibility of the individual having other concomitant diseases.

Thus, when thinking about exclusive diets for FM, it is concluded that nutrition is one of the pillars that can help improve the patient's quality of life. However, it is appropriate to be cautious about this topic, since literature still needs more studies to elucidate the pathophysiology of FM and its long-term nutritional impacts.

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