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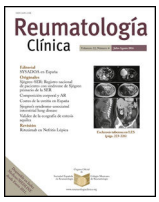

Editorial

Mediterranean Diet and Osteoarthritis☆

Dieta mediterránea y artrosis

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Today, the Mediterranean diet (Med diet) is possibly the best known dietary and nutritional concept among the scientific community, and consumers of the developed world. This is because the results of many basic, clinical and epidemiological studies have come to consider it as a protective factor against the development of multiple processes such as cardiovascular disease, different types of cancer, neurodegenerative diseases, and even ageing.[1] The term Med diet refers to the traditional nutrition patterns specific to Mediterranean countries for approximately 50 years. Although there are different varieties, the main components of this diet are: (a) high consumption of cereals, fruit, vegetables, nuts and pulses; (b) olive oil as the main source of fat; (c) moderate consumption of fish, chicken, milk and dairy products (particularly in the form of cheese and yoghurt); (d) low consumption of meat and meat products, along with e) a high level of physical activity, and daily consumption of wine.[2]

Arthrosis or osteoarthritis (OA) is the most common rheumatological disorder, and a cause of pain and disability in the general population. It affects 240 million people in the world, with a prevalence of 10% in males and 18% in females. In Spain it affects 10% of the population over the age of 20, and 19.6% of the population aged over 40.[3]

The risk factors for OA include age, gender, a history of trauma, excess weight, and obesity, mechanical factors, and genetic predisposition. Obesity is the most significant modifiable risk factor for OA. Obese men and women are 4–5 times more at risk of developing OA of the knee.[4]

The relationship between obesity and OA is multifactorial. Historically, obesity has been associated with joint wear, but the association between being overweight and osteoarthritis of the hands indicates that other factors, in addition to mechanical factors, might play a role.[5] Several studies show that obese patients have certain metabolic factors that induce the release of specific cytokines, such as IL-6, CCL2 and IL-8, proinflammatory adipokines, nitric oxide, and metalloproteinases that contribute to the degradation of joint cartilage.[6]

The prevalence of metabolic syndrome, characterised by hypercholesterolaemia, hypertension and insulin resistance is higher in patients with OA.[7] Patients with OA and metabolic syndrome have a higher incidence of inflammation and pain compared to those with OA without metabolic syndrome.[8]

The international recommendations for the treatment of OA are based on non-drug measures, pharmacological treatment, and surgical treatment. Physical activity and weight loss are recommended among the non-drug measures. Some studies have demonstrated that nutrition can play a beneficial role in the management of OA.[9] Some investigators have demonstrated that the Med diet can have a protective effect due to its anti-inflammatory properties, its antioxidant capacity, and its effect on obesity and metabolic syndrome. The Med diet, rich in polyphenols, prevents inflammation, destruction of cartilage, and induces a reduction of omega 6 (n-6) fatty acids in favour of omega 3 (n-3) fatty acids. A high intake of n-6 fatty acids causes synovial inflammation, and impaired joint cartilage. High-fat diets increase leptin levels in cartilage, contributing to accelerated progression of OA. In contrast, components deriving from n-3 fatty acids reduce the genetic expression of proteinases that are found in damaged joint cartilage, and inflammatory cytokines.[10] It has been observed in some studies that the intake of andioxidants, such as vitamin C, prevents the progression of OA.[11]

Olive oil is one of the most emblematic elements of this diet, and many of its beneficial effects have been related to its high monounsaturated fatty acid content (MFA), and phenolic compounds. Furthermore, olive oil has been demonstrated to reduce pain, and improve functionality and quality of life for patients with OA.[12]

Nuts are high in unsaturated fat (MFA in almonds and hazelnuts, and polyunsaturated fatty acids [PFA] in walnuts and pine nuts). In addition to containing abundant linoleic acid (PFA n-6) walnuts and pine nuts contain considerable amounts of alpha-linolenic acid (PFA n-3). Nuts are also rich in other components such as arginine (nitric oxide precursor), folic acid, vitamin E, and antioxidant polyphenols, phytosterols, and other phytochemical compounds. Clinical studies on short and medium-term dietary intervention for

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hypercholesterolaemic patients have demonstrated that the daily consumption of a reasonable amount of nuts has the effect of reducing total cholesterol and LDL-C, improving endothelial function, and reducing the systemic markers of inflammation in hypercholesterolaemic patients.[13] There is only one published study that examined the effect of nuts (a walnut preparation) and OA, and demonstrated clinical improvement in the patients studied.[14]

The relationship between the Med diet and OA is complex, and there are few studies that have examined it. In a systematic review that we undertook recently with the aim of analysing the evidence for the Med diet and OA, only 3 studies, of which 8 are identified, met the criteria for inclusion. The results showed a positive association between adherence to the Med diet, and a lower prevalence of OA. The participants also reported better quality of life. Of the biomarkers analysed, significant differences were only found with IL1-α, which reduced in the Med diet group.[15] However, the evidence is limited, and we believe that further intervention studies are required to assess the long-term efficacy of the Med diet in improving the symptoms of OA, and/or preventing the disorder.

We want to highlight that, to date, no randomised and controlled studies have been undertaken in our country to provide sufficient scientific evidence to make dietary recommendations to the population on the beneficial effects of the Med diet in the prevention of OA.

Therefore, we believe that a dietary intervention based on the traditional Med diet, supplemented with olive oil and nuts, is a sustainable and effective long-term approach for weight loss in patients with OA of the knees. It can bring about improved quality of life for the patient, improve joint mobility and reduce pain. The weight reduction and anti-inflammatory effect of the Med diet could be two mechanisms through which the Med diet reduces the progression of OA.

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