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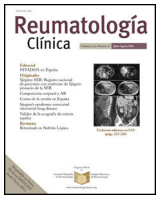

Letter to the Editor

Prolotherapy with dextrose to reduce pain in osteoarthritis of the knee☆

Proloterapia con dextrosa para reducir el dolor en la osteoartritis de rodilla

Dear Editor,

Osteoarthritis of the knee is a degenerative condition that causes pain, disability, and comorbidities. Injectable therapies are attracting attention due to their safer side effect profile and because they are less invasive than joint replacement. Recent studies have proposed dextrose prolotherapy as a therapy for patients with knee osteoarthritis.[1]

The study by Shan Sit et al.[2] conducted in 2020 in China and the United States examined the efficacy of intra-articular hypertonic dextrose (IHD) prolotherapy versus normal saline injection for knee osteoarthritis. Seventy-six patients were randomised (1:1) to either the IHD or saline group for injections at weeks 0, 4, 8 and 16. The WOMAC (Western Ontario and McMaster Universities Arthritis Index) pain and function score, and visual analogue pain intensity scale at 52 weeks showed significant improvement in the IHD group versus the saline group. IHD prolotherapy reduced pain and improved function and quality of life in patients with osteoarthritis compared to blinded saline injections. The procedure was simple and safe, and adherence and satisfaction were high.

The clinical trial by Sert et al.[3] conducted in 2020 in Turkey investigated the effects of dextrose prolotherapy in patients with osteoarthritis of the knee. A trial included 66 patients who were assigned to a prolotherapy with dextrose (PG; n = 22), saline (SG; n = 22) or control (CG; n = 22) group. PG and SG injections were administered at 0, 3 and 6 weeks. A home exercise programme was prescribed for all three groups. WOMAC scores for pain and activity and visual analogue scores decreased significantly in the PG compared to the SG and CG at 18 weeks. WOMAC scores for stiffness and physical functioning reduced in the PG compared to the CG. Therefore, dextrose prolotherapy is effective in reducing pain, improving functional status and quality of life in knee osteoarthritis.

The review by Arias-Vázquez et al.[4] conducted in 2019 in Mexico evaluated the efficacy and safety of dextrose prolotherapy in patients with knee osteoarthritis. Ten studies were included with 328 patients treated with dextrose prolotherapy versus 348 controls. In terms of pain reduction and improved function, dextrose prolotherapy was more effective than local anaesthetic infiltration, as effective as hyaluronic acid infiltration, ozone, or radiofrequency, and less effective than erythropoietin, with beneficial effects in the short, medium, and long term. In addition, there were no serious adverse reactions with prolotherapy.

The study by Farpour and Fereydooni[5] in Iran in 2017 compared the effectiveness of intra-articular injection of dextrose versus periarticular injection. Fifty-two patients were randomised to an intra-articular or to a periarticular injection group. Prolotherapy was performed twice at two-week intervals. The results showed that dextrose prolotherapy, either by intra-articular or periarticular injection, results in significant improvement and could be a cost-effective and economical treatment for osteoarthritis of the knee.

After examining the studies presented above, conducted in recent years in various countries (China, United States, Turkey, Mexico, Iran), the potential can be seen of dextrose prolotherapy in patients with osteoarthritis of the knee. This treatment, a priori, appears to reduce pain and improve functional status, quality of life and patient satisfaction.

Intra-articular drug delivery is an attractive approach to treating knee osteoarthritis, as it can reduce some of the serious side effects associated with systemic drugs, particularly in older patients. However, it should be noted that in different clinical studies, the apparent efficacy of these intra-articular therapies is mainly due to several factors, including the relevant placebo effect and methodological flaws.[6] High-quality clinical data are needed, therefore, before recommending these treatments.[7]

The limitations of the studies included are the small sample size of two clinical trials; Shan Sit et al.[2] and Sert et al.[3] The study by Shan Sit et al.[2] included more patients with normal body mass index in the normal saline group than in the dextrose prolotherapy group, and conversely, the dextrose prolotherapy group had more overweight and obese patients than those in the NS group. The lack of a control group (i.e., usual-care group) is another major design shortcoming. Furthermore, other factors such as over-the-counter medications, weight loss and amount of exercise during the study were not analysed; or that a high placebo effect weakens the quality of the data in the article by Shan Sit et al.[2] The 18-week follow-up study by Sert et al.[3] has similar methodological flaws. However, Arias-Vázquez et al.[4] conclude in their systematic review that "although HDP (hypertonic dextrose prolotherapy) seems to be a promising interventional treatment for knee OA, more studies with better methodological quality and low risk of bias are needed to confirm the efficacy and safety of this intervention". It would have been better to conduct a meta-analysis, but it is likely that the low quality and high variability of the data from the studies included did not allow this type of useful study to be conducted.

Recent studies have therefore suggested some clinical benefits of dextrose prolotherapy in the treatment of knee osteoarthritis, however, methodological shortcomings limit how useful they are for drawing valid conclusions. More high-quality research is needed to determine the efficacy and safety of dextrose prolotherapy in patients with knee osteoarthritis. Research will also be able to examine possible long-term complications, explore its possible synergistic effect with other therapies, assess the most appropriate number of sessions and analyse its cost-effectiveness. Thus, clini-

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cians will be able to offer patients the best care based on the latest evidence.

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