

Comparison between intrarticular injection of hyaluronic acid, medical ozone, and the combination of both in the treatment of knee osteoarthritis: A prospective randomized study

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Background : Medical injection of oxygen-ozone mixture (O₂ O₃) in therapeutic concentration gained popularity as an alternative therapy for relief of pain, stiffness and physical disability in various clinical conditions. Intra-articular injection of medical ozone (O₂-O₃) combined with viscosupplementation with hyaluronic acid (HA) has been suggested for the treatment of knee osteoarthritis symptoms and positive results have been reported in literature(1,2).**Study Design:** Prospective randomized trial; Level of evidence, 2. **Objective:** To compare short-term clinical outcomes between intraarticular injection of hyaluronic acid, O₂O₃ used alone or the combination of both in patients affected by OA of the knee. **Methods:** Fifty-two patients aged 45 to 75 years suffering from knee OA (stage II and III according to Lawrence and Kellgren) were randomized to a treatment by intra-articular injections of either HA 20 mg/2.0mL of Hyalgan® (Group I) , O₂O₃ (15 mL) with an O₃ concentration of 15 µg /mL (Group II) and HA+O₂O₃ (15 mL) with an O₃ concentration of 15 µg /mL (Group III).All patients, received 5 consecutive intra-articular one per week of therapeutic injections. They were administered with patient in a supine position using a lateral parapatellar approach. The efficacy of the injections in reducing pain and improving function was assessed using the KOOS questionnaire, a visual analog scale (VAS) and verbal rating scale(VRS), before treatment (T₀), at the end (T₁), at 1 month (T₂) and at 2 months after treatment ended (T₃).**Statistical analysis:** Data were analysed with a mixed repeated measures ANOVA, with treatment groups as between factor and time (pre, T₁, T₂ and T₃) as within factors. When significant interaction were observed pairwise comparison with Bonferroni correction were performed. Significance was set at with P≤0.05.**Results:** None patients reported severe pain and swelling after injections in the three groups. All treatments proved to be effective in improving knee functional status and reducing symptoms. The paired t test analysis of the 3 treatments showed no significant intergroup difference at post and follow-up evaluation in any of the clinical scores adopted but Group III displayed a better percentage of improvement in the outcomes both at T₁ and T₂.**Conclusion.** Treatment of knee OA is a major concern. The combination of O₂O₃ +HA treatment led to a significantly better outcome than HA and O₂O₃ used separately in patients affected by OA of the knee .It could be considered a valid therapeutic option in select patients with knee OA who have not responded to conventional treatment.