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Knee and hip osteoarthritis

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ABSTRACT

OPEN ACCESS

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INTRODUCTION

The use of ozone, intra or periarticular, for knee and hip joint osteoarthritis (KO / HO) is clearly justified by its anti-inflammatory and antioxidants properties, that should diminish the arthritic episodes of this disease [1]. Several papers have proved the safety and efficacy of this treatment for KO [2-12], comparable to other classical treatments (steroids or hyaluronic acid (HA)) [13-14]. However, there is no paper about HO yet.

STUDY DESIGN

This work is based on two open prospective studies started in February 2002 and stopped in February 2010, one group for each joint. Recruitment criteria for both groups were:

- Kellgren & Lawrence KO classification: any
- One/bilateral
 - No previous joint trauma
 - No rheumatic disorder
 - No previous surgery (but arthroscopic meniscectomy)
- NSAIDs for at least two months
- Promise to abandon any anti-inflammatory drugs during ozone treatment
- Informed consent

Clinical evaluation for KO was done using WOMAC questionnaire, pre-treatment and 1, 3, 6, 12 months after treatment. In case of HO, we used VAS for evaluation instead.

CLINICAL DATA

All patients have, at least, 12 months follow-up. For KO, we have compiled 199 patients (225 knees). There are two missing cases, not compiled, due to death at the 1 year revision. Age of sample ranged from 51 to 89 during the treatment. WOMAC pre-treatment was:

Pain 13.3

Stiffness 5.6

Function 46.2

Other data compiled, were: age, gender, BMI, Kellgren & Lawrence radiological scale (I to IV) and relapses (time free of symptoms). For HO, we have compiled 126 patients (133 hips). There are no missing cases at one year follow-up. Age ranged from 49 to 83. EVA pre-treatment was 7,33.

Other data compiled, were: age, gender, BMI, use of imaging, Kellgren & Lawrence radiological scale (I to IV) and relapses (time free of symptoms).

OZONE TECHNIQUE: All patients got one intrarticular injection of ozone, once a week; in case of associated tendinitis or bursitis, a second or third injection was done together the intrarticular one. Injections were performed under strict asepsy. For the knee, we used a 27G x 30 mm needle with a syliconized syringe and a supero-lateral approach and. Ozone dose for intrarticular injection was 15 mL at 20 mcg/mL.[15-16] Paratendon injection was performed with 5 mL at 20 mcg/mL. We always did a minimum of three intrarticular injections. Patients that did not improve were classified as failure. For the rest of the patients, the average number of injections was 4,8 (range 3 to 7). For the hip, we used a 25G x 90 mm needle with a syliconized syringe and a lateral approach. Ozone dose for intrarticular injection was 5-10 mL at 20 mcg/mL.[15-16] Paratendon injection was performed with 5 mL at 20 mcg/mL. 45 patients were injected with imaging guide due to severe obesity. In these patients we used a 22G x 205 mm needle. We always did a minimum of three intrarticular injections. Patients that did not improve were classified as failure. For the rest of the patients, the average number of injections was 5 (range 3 to 10).

RESULTS

From 225 knees, 44 (19.5% - the “bad result” group) did almost not improve at all; other rescue treatments were offered. The rest (80.5%) achieved a significant improvement, increasing WOMAC index over 25% of their basal level. The clinical improvement was obtained during the treatment or the first three months after treatment. WOMAC global improvement was 48%, including both groups. Relapses over the “good result” group have been of 8% at 1 year revision, and are statistically related just with Kellgren & Lawrence classification. We registered no side effect that needed further treatment. From 133 hips, 80% improved at least 2 points in VAS and 73% improved at least 3 points. The one month follow-up VAS score was 3,3 (improvement of 55%). From the patients that improved, 25% had a relapse at 1 year visit, and are statistically related just with Kellgren & Lawrence classification. The use of imaging support did not improved the results. We registered no side effect that needed further treatment.

DISCUSSION

Results for KO are similar to Moretti's paper [12] and similar to the ones published for HA papers [15]. These last papers are almost always referred to 6 month follow-up. Comparing our results with HA papers at one year follow-up, they are clearly better. Longer term results for HA are even worse. This study has flaws due to its design, but similar design has been used for reporting results about drugs, HA or surgery, so comparison can be done. For HO, the results are even better that the one published for steroids or HA injections [16-17]. We agree with the publication about the use of imaging [18].

CONCLUSION

Ozone treatment in KO improves clinical outcomes over 25% of its base level in more than 80% of the patients. Relapse rate is 8% and is related with advanced osteoarthritis (Kellgren & LAWrence grades III-IV); minimal time free of symptoms is almost one year. The similarity with Moretti's results in a double blind clinical trial strength the indication for ozone in patients with KO. No paper has been published yet about HA, but comparing the results with steroids or HA injections, this treatment option is promising.

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