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Efficacy of intra-articular hyaluronic acid injection in knee osteoarthritis in everyday life

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In an article published in *Seminars in Arthritis and Rheumatism*, Maheu et al reminded us that intra-articular hyaluronic acid (IAHA) injections should be considered a therapeutic option for treating knee osteoarthritis (KOA) [1]. In this letter, we contribute data to support that conclusion. As previously reported, the widespread use of IAHA injections differs from the guidelines, because the literature indicates that IAHA efficacy is weak and often short-lived [2]. However, it is difficult to draw strong conclusions from existing data, because patients included in clinical trials are completely different from those treated in real life. Therefore, we assessed the effects of IAHA in everyday patients.

Our group of rheumatologists recruited 166 inpatients and outpatients with KOA treated with IAHA through a website (www.reseau-viscouvergne.fr). Baseline and follow-up assessments at 3 and 6 months after injections were completed by patients online. Assessments included visual analogue scale (VAS) pain and functional scores (Lequesne and KOOS index [3]). Patients were defined as responders, when they reported more than 50% improvement in the global VAS.

To compare the evolution of parameters over time, we assessed between-group differences with a repeated-measure analysis of variance (ANOVA), or a Friedman's test, when

necessary, followed by a paired t-test or Wilcoxon test for within-group comparisons. Relationships between the proportion of responders and patient characteristics were tested with linear regression, logistic regression, or Chi2 tests, as appropriate, for quantitative and categorial parameters.

The mean age was 63.8 ± 11.2 years; the mean body mass index (BMI) was 30.0 ± 6.2 kg/m². Fifty-five patients had important (>50%) space narrowing. At baseline, the mean pain VAS was 56.0 ± 17.4 mm, and the mean Lequesne and KOOS indexes were 9.5 ± 4.2 and 54.5 ± 17.5 , respectively. Thirty per cent of patients received articular injections guided by radiography.

Three months after IAHA, 77 patients completed online surveys (Table 1). Compared to baseline, we found a significant improvement in the pain VAS, Lequesne index, and KOOS index. Of the 55 patients that reported improvement, 35 were considered responders. Responders were older than non-responders (66.5 years vs. 60.3 years; $p=0.01$), but they were similar in terms of sex ($p=0.41$), BMI ($p=0.66$), number of injections ($p=0.11$), and radiological severity ($p=0.52$). A radiographic-guided injection was associated with a higher proportion of responders (16/25 vs. 14/37, $p=0.03$).

We obtained 93 online surveys at 6 months. Compared to baseline, we found a significant improvement in all parameters, except for pain (Table 1). Responders and non-responders were similar in terms of age, sex, BMI, number of injections, radiological severity, and use of radiographic guidance.

Presumably, the questionnaire was easier to complete for patients that experienced an improvement. Therefore, our results might be overestimated. However, in the extreme hypothesis that all patients that dropped out of the survey failed to improve with IAHA, the 3-

month and 6-month improvement percentages would have been 33% (55/166) and 43% (72/166), respectively, which were acceptable improvement rates.

Our study results showed that IAHA injections seemed to be an efficient treatment for KOA, even in everyday practice, which reinforces the conclusion of Maheu et al.

Table 1. Evolution of parameters over time after intra-articular hyaluronic acid injections for treating knee osteoarthritis

| Parameters | 3 months: <u>77 survey</u> responses= 46.3% | | 6 months: <u>93 survey</u> responses =56% | |
|--------------------------|--|-------------------------|--|--------------------------|
| | Baseline | 3 months | Baseline | 6 months |
| VAS pain, (0-100) (mm) | 54.7 ± 15.7 | 46.1 ± 23.3 (p=0.02) | 45.8 ± 24.8 | 43.2 ± 24.5 (p=0.45) |
| Lequesne index | 9.7 ± 4.2 | 8.3 ± 3.5 (p=0.01) | 12.4 ± 13.2 | 8.3 ± 4.4 (p=0.008) |
| KOOS index | 53.7 ± 16.4 | 60.2 ± 17.9 (p=0.03) | 55.3 ± 18.0 | 62.7 ± 20.1 (p=0.003) |
| Self-defined improvement | n=55 (71.4%) | | n=72 (78.3%) | |
| Responders ^a | n=35 (45.4%) | | n=51 (54.8%) | |

Values represent the mean ±SD or number (%), as indicated. ^aResponders reported more than 50% improvement in the global VAS; VAS= visual analogic score; KOOS=Knee Injury and Osteoarthritis Outcome Score

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