Effect of an Oral Joint Supplement When Compared to Carprofen in the Management of Hip Osteoarthritis in Working Dogs

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The goal of this study was to evaluate the effectiveness of an oral joint supplement in working dogs with hip osteoarthritis compared to a positive control group (CG). Fifteen animals were divided into treatment group (TG; n = 10) and CG (n = 5). To TG a commercially available joint supplement, containing glucosamine HCl, chondroitin sulphate, and hyaluronic acid was given for 40 days and a 70-day course of a placebo, to be administered as if it was carprofen. The CG received carprofen for 70 days, and a placebo to be administered as the joint supplement. Response to treatment, measured by the canine brief pain inventory (CBPI) and the Hudson visual analog scale, was evaluated before treatment (T0), after 15 days (T1), 1 (T2), 2 (T3), 3 (T4), 4 (T5), and 5 (T6) months. With CBPI, no differences were found in pain interference score and pain severity score between TG and CG throughout or when comparing results within groups. Individual results were considered successful in a maximal of three dogs of the TG by T3 (30%) and 1 in CG (25%). With Hudson visual analog scale, improvements where registered with individual results, for 40%-50% of the animals in TG and 60%-80% of cases in CG. The oral joint supplement and carprofen produced some improvements in individual scores but where unable to do so when overall results were considered. Each of these options may not be able, by itself, to fully address the demands of a working dog with joint disease and related pain.

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Results of the animals enrolled in the study, one of the dogs in the CG was excluded after T4 due to a degradation of its condition, having started other treatments.

When comparing CBPI results of both groups, no differences were found in pain interference score (PIS) and pain severity score (PSS) between TG and CG throughout the study. Even when comparing results from each instant with T0 within each group, no significant differences were observed. Overall score evolution for PIS and PSS can be observed in Figs 1 and 2, respectively.

Individual treatment success, as measured by the CBPI, has been defined as a reduction of ≥1 in PSS and ≥2 in PIS. Treatment was successful in reducing PIS in 1 animal of the TG at T1 (10%) and 2 at T2 (20%). A reduction bellow 2 was registered in 3 other animals at T3-T5. This remained true until T6, and by T7 the treatment was considered successful only in 1 case. In the CG, treatment was not considered a success in any of the animals of the group.

When considering PSS, treatment was successful in one animal of the TG at T1 (10%), 2 at T2 (20%), and 3 at T3 (30%). From T4-T6, in only 2 cases (20%) was the treatment registered as successful, and this value was reduced to 1 at T7. A reduction bellow 1 point was registered on other animal at T4. In the CG, treatment was only classified as a success by this definition in one animal, and the results maintained up to T7. In 3 other, a reduction bellow 1 was also observed.

Trainers were also asked to classify the animals’ overall quality of live in a qualitative scale, that comprised 5 levels, bad, reasonable, good, very good and excellent. In the TG, 40% of animals was classified as having a reasonable quality of live at T0 60% as good. This distribution of classifications changed at T1, with 50% of animals classified as having a good quality of live and 50% as reasonable, and these results remained until to T3. From T4 on 60% of animals were classified as having a reasonable quality of live.

### Figure 1
Overall pain interference scores (PIS) scores by instant for treatment (TG) and control (CG) groups. Box plots represent median, 25th and 75th percentiles, and whiskers represent 10th and 90th percentiles.

### Figure 2
Overall pain severity scores (PSS) scores by instant for treatment (TG) and control (CG) groups. Box plots represent median, 25th and 75th percentiles, and whiskers represent 10th and 90th percentiles.

disease of the hip joint. Other illnesses were ruled out through physical examination, complete blood count, serum chemistry profile, and urinalyses. Animals that presented complaints compatible with osteoarthritis in any other joint were submitted to radiographic examination and, if it was verified, animals were excluded. Animals included in the study were not under any other treatment, making a washout period unnecessary.

Fifteen animals comprised the sample for this study. Ten animals were randomly assigned to the treatment group and provided with a commercially available joint supplement (Cosequin HA, Bioiberica), containing a combination of glucosamine HCl (purity > 99%) 400 mg, chondroitin sulphate (purity 100%) 300 mg, and hyaluronic acid 15 mg. The supplement was administered according to the manufacturer’s indication, at a dose adjusted to the animal’s weight for 40 days. They also received a 70-day course of a placebo, administered according the manufacturer’s indications for carprofen. Both carprofen and the placebo were packed in a similar fashion.

Five animals were randomly assigned to a positive CG that received carprofen (Rimadyl, Zoetis) for 70 days at a loading dose of 2 mg/kg (4.4 mg/lb) body weight twice daily for 7 days followed by a once daily maintenance dose of 2 mg/kg (4.4 mg/lb). As osteoarthritis is a painful condition, a positive control was elected instead of a placebo. Carprofen was chosen because it is a commonly prescribed NSAID for postoperative pain and osteoarthritis related pain and inflammation. From day 0, they were also be started on a placebo with the same physical appearance of the joint supplement and followed the treatment protocol for the treatment group (TG). The manufacturer of the chosen joint supplements indicates that it has an effect that lasts for 3 months with a 40 day course of treatment. To compare both treatments, a long period of carprofen administration is required.

The animals were rested for 3 days and resume normal activity over a period of 5 days. All animals were examined by the assisting veterinarian after the 3 days of rest and accompanied by the same veterinarian on the first 5 days of reintroduction of normal activity, point at which the animal were allowed to resume normal activity. Response to treatment, as measured by the CBPI and the HVAS (completed by the trainers, who were blinded to the dog’s assigned group and questionnaires were completed without possible confounding comments by the veterinarian), were evaluated before treatment (T0), after 15 days (T1) and 1 (T2), 2 (T3), 3 (T4), 4 (T5), 5 (T6), and 6 (T7) months after starting the treatment. Additional evaluations were to be performed as necessary, if the animal exhibited a decrease in performance, showed any sign of arthritis related pain and in 3 other animals at T3-T5. This remained true until T6, and by T7 the treatment was considered successful only in 1 case. In the TG, treatment was not considered a success in any of the animals of the group.

When considering PSS, treatment was successful in one animal of the TG at T1 (10%), 2 at T2 (20%), and 3 at T3 (30%). From T4-T6, in only 2 cases (20%) was the treatment registered as successful, and this value was reduced to 1 at T7. A reduction bellow 1 point was registered on other animal at T4. In the CG, treatment was only classified as a success by this definition in one animal, and the results maintained up to T7. In 3 other, a reduction bellow 1 was also observed.

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