August 10, 2012

Dear Dr. Hines,

I am happy to give you a short feedback on our study, which is conducted in a team of orthopedic surgeons and radiation oncologists.

Most of your questions are answered from the information of the below attached abstract (preliminary draft), that my colleagues from a collaborative facility in Italy submitted for presentation to a large orthopedic congress: The abstract will be presented in September, so please do not distribute it in this form before then.

Low Dose Radiation Therapy for Painful Degenerative Joint Disease

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Area di interesse: Ortopedia

Introduction

Degenerative joint disease is a benign albeit progressive disease for which low dose radiation therapy can provide significant aid to pain control.

The aim of this treatment is to reduce pain in the affected joints, which is most likely provided by a strong anti-inflammatory effect of the radiation. For three years we have been investigating a protocol for irradiation of chronic pain due to degenerative joint disease in dogs and the present data show our results from regular follow-up regarding pain status in these patients.

Materials and methods

Dogs with pain and lameness caused by degenerative joint disease, confirmed by X-rays, were included into the study. Classification of clinical overall lameness was performed by the same veterinarian according to fixed criteria. All dogs were
treated with low doses of megavoltage irradiation. Regular follow up was performed by either re-check of the patients or telephonic interview of the owners according to a questionnaire. Pain status before and after radiation, necessity of additional pain medication as well as duration of eventual changes were collected.

Results

Twenty dogs of several large breeds (Retrievers n=11, German sheperds n=5, others n=4) were included up to April 2012. At the time of presentation the dogs had a mean age of 9.1 years (range 2-15 years) and a mean weight of 34.1 kg (range 20-74 kg). Eleven cases initially presented with severe lameness, in 7 cases lameness was considered moderate, and 2 cases presented with mild lameness. The median applied dose of radiation was 6 Gy (3-6 Gy) with a median fraction size of 2 Gy (1.5-2 Gy). In 12 patients 1-2 joints were treated and in 8 cases 3-5 joints were irradiated in simultaneous treatments. In all cases, the dose was applied within a week (either on three consecutive or on alternate days). The median follow-up period up to April 2012 was 309 days (10.3 months).

In 18 cases an improvement of clinical signs was reported and in two cases no change in pain status before and after radiation therapy was observed. Fourteen dogs are still alive and seven dogs are still in the improved status after radiation therapy. Six of the dogs died or were euthanized due to unrelated disease. In one case we have repeated the same protocol four times in 32 months (at re-occurrence of pain) and the dog is again pain free at the moment. At the time of statistical evaluation, median time of clinical improvement was 308 days [95%CI: 246, 370 days]. Eighteen owners were happy to have opted for the treatment with low dose radiation because this treatment allowed their dogs to be without additional
medication for a long time and most of them would repeat the treatment if necessary.

Conclusion

Our protocol with low dose of radiation therapy can be considered an additional useful approach for treatment of chronic pain due to degenerative joint disease in dogs, in particular in patients with renal deficiency or other drug-related problems. Moreover, treatment can be safely repeated upon re-occurrence of pain. Finally, owner satisfaction with this treatment was high, because it can be applied in a short time, and there are no side effects. Most of the owners would repeat the treatment in case of clinical worsening.

References (selected)


Our study here at the Vetsuisse-Faculty has the same background and additionally includes gait analysis for objective quantification of response. The treatment is commonly used also in treatment refractory pain therapy in man, however, there are inter-country differences in philosophy about the potential risk of inducing a secondary cancer with low doses of radiation, that can be of relevance in people, that have a long life expectancy. However, the risk is less than 1% in 20 years and hence irrelevant for older animal patients.

I as a radiation oncologist have treated many of these cases (including my own dogs), usually with good results and we are convinced, that ionizing radiation is a valuable additional treatment option for dogs with painful DJD.
 Hopefully, this answers some of your questions, I will be happy to discuss further, and of course, our results will also be presented at an American congress in the future.

Greetings, Carla Rohrer Bley

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