

Palliative Orthovoltage Radiotherapy and Subcutaneous Infusion of Carboplatin for Treatment of Appendicular Osteosarcoma in Dogs

Authors : Kathryn L. Duncan, Charles A. Kuntz, Alessandra C. Santamaria, James O. Simcock

Abstract : Access to megavoltage radiation therapy for small animals is limited in many locations around the world. This can preclude the use of palliative radiation therapy for the treatment of appendicular osteosarcoma in dogs. The objective of this study was to retrospectively assess the adverse effects and survival times of dogs with appendicular osteosarcoma that were treated with hypofractionated orthovoltage radiation therapy and adjunctive carboplatin chemotherapy administered via a single subcutaneous infusion. Medical records were reviewed retrospectively to identify client-owned dogs with spontaneously occurring appendicular osteosarcoma that was treated with palliative orthovoltage radiation therapy and a single subcutaneous infusion of carboplatin. Data recorded included signalment, tumour location, results of diagnostic imaging, haematologic and serum biochemical analyses, adverse effects of radiation therapy and chemotherapy, and survival times. Kaplan-Meier survival analysis was performed, and log-rank analysis was used to determine the impact of specific patient variables on survival time. Twenty-three dogs were identified that met the inclusion criteria. Median survival time for dogs was 182 days. Eleven dogs had adverse haematologic effects, 3 had adverse gastrointestinal effects, 6 had adverse effects at the radiation site and 7 developed infections at the carboplatin infusion site. No statistically significant differences were identified in survival times based on sex, tumour location, development of infection, or pretreatment serum alkaline phosphatase. Median survival time and incidence of adverse effects were comparable to those previously reported in dogs undergoing palliative radiation therapy with megavoltage or cobalt radiation sources and conventional intravenous carboplatin chemotherapy. The use of orthovoltage palliative radiation therapy may be a reasonable alternative to megavoltage radiation in locations where access is limited.

Keywords : radiotherapy, veterinary oncology, chemotherapy, osteosarcoma

Conference Title : ICSAOR 2022 : International Conference on Small Animal Oncology and Radiotherapy

Conference Location : Prague, Czechia

Conference Dates : March 21-22, 2022