Canine Oral Tumors: Human Vaccine to the Rescue

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A human tyrosinase (huTyr) vaccine utilizing immunotherapy to target the melanoma differentiation antigen tyrosinase, which is essential for melanin synthesis, was conditionally licensed in 2007. This article reports on the safety and efficacy of the vaccine as adjunctive treatment for oral malignant melanoma (MM) in dogs.

Dogs with stage II or III oral MM for which locoregional control had been achieved were eligible. Treated dogs (n = 58) received an initial series of 4 injections of huTyr vaccine transdermally; booster injections were administered to surviving dogs at 6-month intervals thereafter. Median survival time (MST) for historical controls (n = 53) was 324 days; however, because fewer than 50% of the huTyr-vaccinated dogs died of MM before the end of the observation period, MST could not be determined for this group. Fifteen dogs in the vaccinated group died or were euthanized because of MM; 16 died of other causes, and only 3 of these had evidence of MM recurrence or metastasis. Ten dogs were lost to follow-up, and alternate treatments for oral MM or other primary tumors were pursued for 9 dogs; data for these were not included. Eight of the vaccinated dogs were still alive at the end of the study. Survival time was significantly improved for dogs that received the huTyr vaccine compared with that of historical controls, and results support previous findings regarding the safety and efficacy of the huTyr vaccine for this group of patients.

Commentary

This xenogeneic DNA vaccine has revolutionized the way we treat canine MM. While the article refers to oral melanoma, efficacy also has been demonstrated against canine digital melanoma[1] and anecdotally when treating malignant cutaneous melanoma. The vaccine is most effective when used after all locoregional disease has been surgically removed. While no statistical difference in survival was seen in dogs with completely excised tumors versus dogs with incompletely excised tumors, the author emphasized the importance of attaining adequate local control through complete surgical excision or a combination of surgery and radiation therapy. I agree. It can take several months for the immune system to mount an adequate response; during this time any cancer cells still in the patient will continue to divide and progress. This vaccine is commercially available in the United States, but because it is distributed only to board-certified oncologists, patients must be referred to a university or specialty hospital for treatment.—*Dennis Bailey, DVM, DACVIM (Oncology)*

Source

Safety and efficacy of a xenogeneic DNA vaccine encoding for human tyrosinase as adjunctive treatment for oral malignant melanoma in dogs following surgical excision of the primary tumor. Grosenbaugh DA, Leard AT, Bergman PJ, et al. ***AM J VET RES*** 72:1631-1638, 2011.

1. **Xenogenic murine tyrosinase DNA vaccine for malignant melanoma of the digit of dogs.** Manley CA, Leibman NF, Wolchok JD, et al. *J Vet Intern Med* 25:94-99, 2011.

Research Note

Alternative to Full-Limb Amputation

Intraosseous transcutaneous amputation prosthesis (ITAP), developed for use in human digits and inspired by the structure and function of deer antler, enjoyed favorable functional outcomes when inserted in the radius (n = 3) or tibia (n = 1) in 4 dogs during amputation. The stump was protected by a bandage or external skeletal fixation for 5 to 6 weeks before the exoprosthesis was attached. Dermal integration was achieved by 3 weeks and the dogs walked, apparently without pain, by 8 weeks.

Source

Intraosseous transcutaneous amputation prosthesis (ITAP) for limb salvage in 4 dogs. Fitzpatrick N, Smith TJ, Pendegrass CJ, et al. ***VET SURG*** 40:909-925, 2011.

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