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News & Comments

Safety and Efficacy of an Oncolytic Adenovirus

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As pets' lifespans have increased over the past few years, there has been an increase in the prevalence of tumours in canine patients. As a result, tumours are now the leading cause of pet death and one of the biggest issues in veterinary medicine. Since the immune system can identify malignancies, oncologists are interested in exploring new therapeutic strategies in this area. Immunotherapy typically targets two main pathways: inducing an immune response against the tumour and combating the TME's growth-inhibitory mechanisms. Multiple investigations have discovered various mechanisms that could trigger a therapeutic response, including cellular lysis, antitumor immunity, and vascular collapse. OVs are genetically modified to have a selective replication in tumour cells. Given that this treatment has the potential to enhance outcomes for these oncologic patients, the study's goal was to ascertain the efficacy and safety of intratumorally injection with ICOCAV15, a canine Ad (CAV) that replicates only in tumour cells. At the Universidad Alfonso X el Sabio-Hospital Clnico Veterinario in Madrid, Spain, eight canine patients with carcinoma/adenocarcinoma were enrolled for intratumorally treatment with ICOCAV15. For preservation, the canine biopsies were embedded in paraffin and treated in 10% formalin. Oncolytic Ads are a promising cancer treatment that have produced intriguing outcomes in both human and veterinary clinical trials. A 74% response rate using similar oncolytic Ads injected into mesenchymal stem cells (Celyvir), a novel therapy strategy for canine cancers, has been described. The use of Celyvir intravenously has not been associated with any unfavorable side effects in individuals. The virus will reach the tumor without being attacked or destroyed by the animal's immune system thanks to intralesional injection. 25% of patients who received the oncolytic CAV's first dose exhibited PR responses, while the remaining 75% displayed SD. Our findings demonstrated that patients who responded to the treatment the first time had a better prognosis for the long term for at least three months. In addition, even though the progression-free survival (PFS) time was shorter following the second administration of ICOCAV15, these patients had a greater response rate.

In veterinary medicine, ICOCAV15 has been demonstrated to be a potential treatment for several carcinomas and adenocarcinomas, with no side effects and an improvement in the quality of life and survival rates in canine oncologic patients. Although ICOCAV15 intratumorally injection may be able to slow the growth of distant metastases, this study only included a small number of patients, necessitating the need for a larger, more thorough investigation to support these results.

Source: Veterinary Sciences

KEYWORDS

Oncolytic virus, virotherapy, immunotherapy, ICOCAV15, canine carcinoma