

Public Abstract

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Title:Tavocept (BNP7787): A Novel Chemoprotector/ sensitizer and Radioprotector/sensitizer

Introduction: Tavocept is a novel chemoprotector/ sensitizer that has been used in combination with cisplatin to treat adenocarcinomas. The objectives of this study were to evaluate the interaction of radiation and Tavocept on a nasal tumor cell line and try to apply the concepts to the treatment canine nasal tumors.

Materials and Methods: Using cell culture techniques and the nasal carcinoma cell line RPMI 2650, various combinations of radiation, cisplatin chemotherapy, and Tavocept were evaluated. The doubling time the cell line, the optimal cell concentration required, the concentration of cisplatin to inhibit cell growth by 50% (IC-50), and the survival fraction of 2 Gray of radiation (SF2) were established and optimized before assessing the interactions of the different treatments. Cytotoxicity to the cells was established using the sulfarhodamine (SRB) dye assay.

Results: Tavocept alone at a low and high concentration did not show any cytotoxicity or increased cell growth compared to the control group. Both radiation and cisplatin significantly decreased survival of the cell line compared to the control group. The combination of radiation and cisplatin further increased cytotoxicity compared to the radiation alone group. The addition of Tavocept at a low and high concentration increased the cytotoxicity of cisplatin compared to cisplatin alone. The combination of Tavocept and a low and high concentration to radiation therapy appeared no different than radiation alone. The addition of Tavocept at a low and high concentration to radiation and cisplatin increased cytotoxicity compared to radiation and cisplatin alone.

Conclusions: Tavocept by itself appears to not have any toxic effects on the cell line, but it increases the cytotoxicity of cisplatin suggesting chemosensitization. There was no apparent interaction with radiation, neither sensitization nor protection. Further evaluation of radiation and Tavocept at different time intervals and different cell lines is warranted.