Universitat Autònoma de Barcelona

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ELECTROCHEMOTHERAPY: APPLICATION IN ONCOLOGICAL TREATMENT IN DOGS

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INTRODUCTION

Achieving local tumor control in veterinary patients with cancer represents one of the major challenges for veterinary oncologists, One of the recent options they have for the treatment is electrochemotherapy (ECT) (1).

Electrochemotherapy combines local or systemic administration of chemotherapeutic drugs with electroporation by direct application of electric pulses to the tumors (2).

OBJECTIVES

The aim of this revision is to better understand the mechanism of action of the electrochemotherapy and study the efficacy and the safety of this method in comparison with more conventional oncological treatments in dogs.

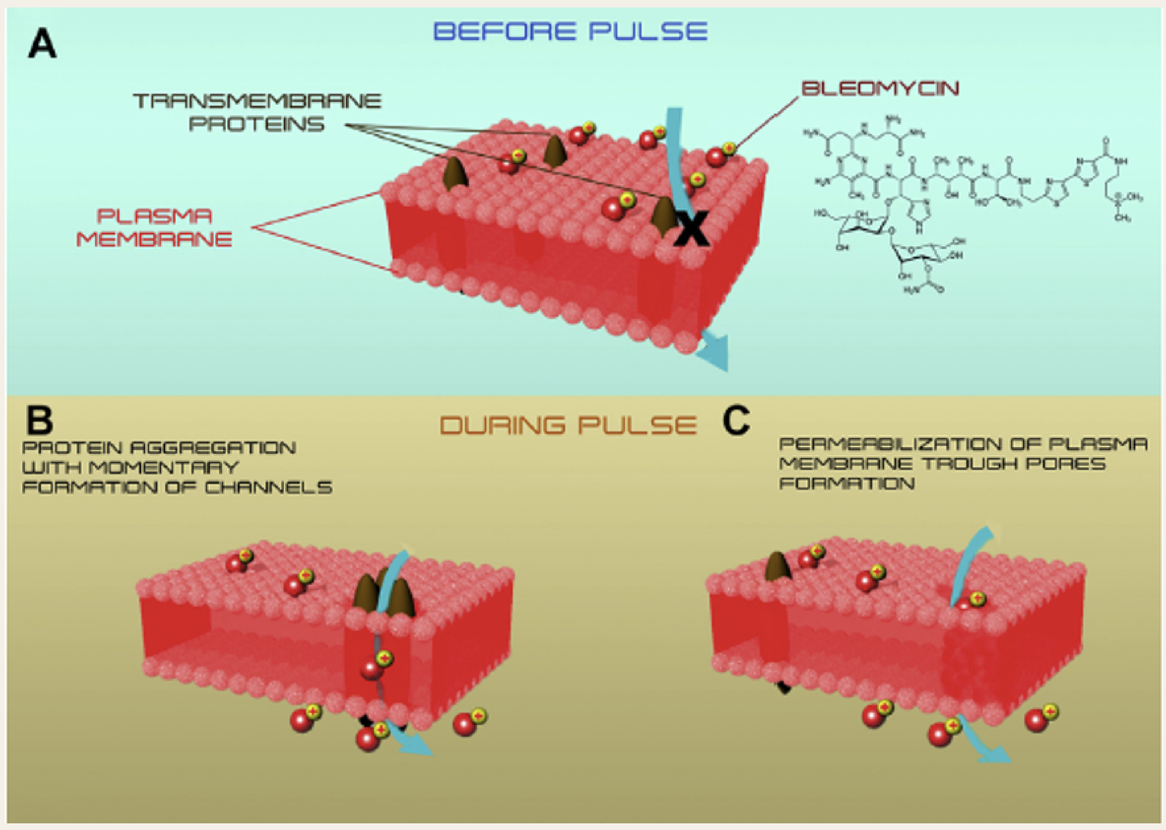

Fig 1. Mechanisms of drug perfusion following electroporation.

- **Keywords:** “electrochemotherapy” AND “veterinary oncology ” AND “dog” AND “clinical trials".
- **Inclusion criteria**: Articles published in the English or Spanish language.
- **Exclusion criteria:** Unavailability of full text and congress abstracts or posters.

MATERIAL AND METHODS

RESULTS

Canine Nasal Tumour

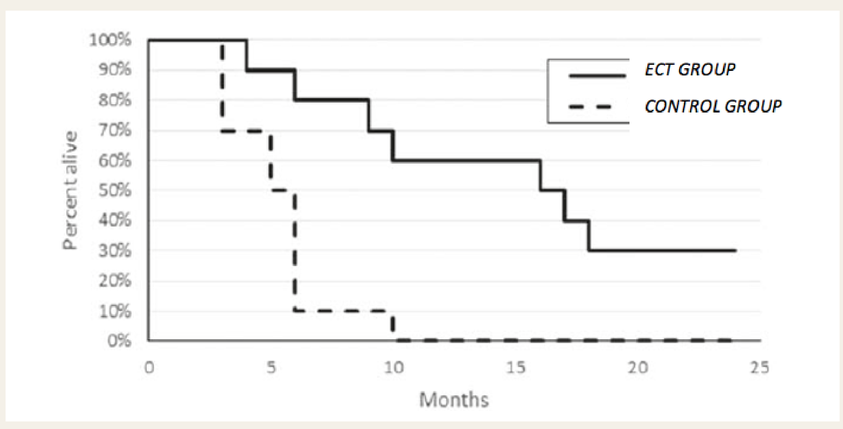

Fig 2. Overall survival in ECT and control dogs groups.

21 dogs

11 treated with ECT

10 treated with surgery + chemotherapy

25 dogs

9 treated with ECT

16 treated with surgery

Canine Mast Cell Tumours

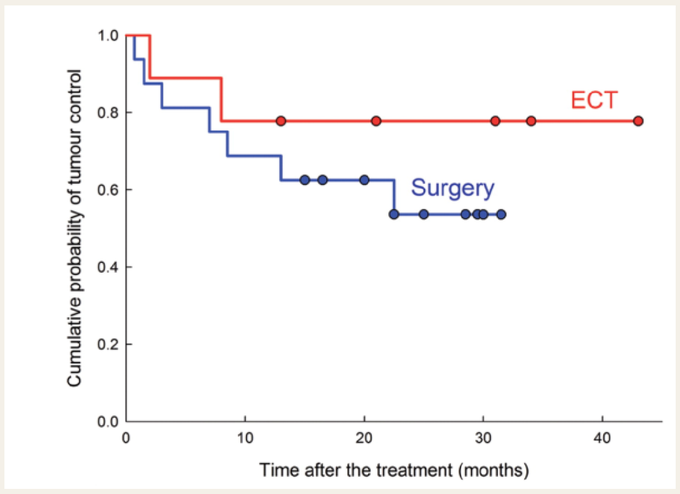

Fig 3. Probability of tumour control for patients treated with surgery vs. ECT.

- The overall survival in the group of dogs treated with ECT was significantly greater than in the control group, with a median survival time of 16.86 months, compared to 5.3 months for the control group (3).

- Same efficacy of the two treatments-
- The duration of local tumour control was longer in the ECT-treated group compared to the surgery group (4).

CONCLUSIONS

ECT provides great advantages over other conventional treatments due to the combination of cytotoxic drugs with electrical pulses that improve the entry of poorly permeable drugs into the cell. Through this mechanism, the effectiveness of antitumor drugs increases, allowing to decrease drug doses, so reducing the risk of toxicity.
ECT is 80% more effective against cutaneous and subcutaneous tumors than other conventional treatments, increasing patient survival, especially in case of tumors difficult to be removed by surgical procedures.

Figure 4. Administration of bleomycin + electroporation (provided by doctor Josep Pastor and the HCV).

REFERENCES