Curative Electrochemotherapy in the Head and Neck Area

av

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Akademisk avhandling

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Abstract


Electrochemotherapy (ECT) is a local cancer treatment modality in which the local intracellular accumulation of chemotherapeutic agents is enhanced by a local electric field. The effect of ECT is caused by a direct cytotoxic effect on the cancer cells themselves as well as effects of the tumor vasculature. The most common agent used is bleomycin. Today, clinical ECT is mostly used in palliative treatment of skin metastases.

In this thesis the long-term follow up after ECT with intratumoral bleomycin in 26 patients with T1 and T2 head and neck cancer and non-melanoma skin cancer was investigated. The primary outcome was local control and safety of treatment. Secondary outcome was survival and functional assessment. A possible selective effect in vitro of ECT on survival in different human cell-types, normal and malignant, was also investigated.

The local control rate in the 19 head and neck cancer patients treated with curative intent was 100% in the 60 month follow-up period. Six patients were cured by ECT as a mono-modality treatment and six by ECT and adjuvant radiotherapy. Seven patients died, three from intercurrent disease and four from region recurrence making the tumor-specific survival 75%. The safety and functional outcome was very good in the fifteen patients treated with oral tongue cancer but poor in the patients with tumors in the floor of mouth, bucca and tongue base.

Four of the six patients with non-melanoma skin cancer had a complete response 24 months after treatment with ECT alone. The treatment was also organ and function sparing in three patients. One patient had a persistent tumor and one patient had a recurrence 30 months after treatment.

There was also evidence for cell-type selectivity of ECT with bleomycin on cell survival in vitro. The survival was significantly higher in fibroblasts compared to endothelial and squamous cell carcinoma cells.

ECT as a curative treatment merits further investigation.

Keywords: electrochemotherapy, curative, squamous cell carcinoma, basal cell carcinoma, bleomycin, local control, functional outcome, quality of life, cell-type, selectivity.

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