

## Case Report

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# Electrochemotherapy: A New Arm against Cancer

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Electrochemotherapy (ECT) is a therapy with antitumor effect, in which there is a combination of administration of chemotherapeutic drugs intravenously, or intratumorally and tumor application of short and high-intensity electric pulses [1]. This latter phenomenon, called electroporation, transiently making the tumor cell membranes permeable, facilitates the intracellular delivery of administered drugs (bleomycin or cisplatin), increasing their cytotoxicity, and leading to an additional cascade with final result of tumor cell death. For example, bleomycin increases its antitumor effectiveness more than 8000-fold [2].

Currently, ECT indications include local control of single and in-transit metastatic melanoma skin nodules not amenable to surgery or isolated limb perfusion or infusion, non-melanoma skin cancers, local recurrences and skin metastases from breast cancer, skin metastases from head and neck cancer unsuitable for surgery or standard therapies [3]. ECT also represents an important option in the palliative management of bleeding skin metastases by melanoma. These kinds of lesions can be very stress full for the patients, often aggravate by ulceration and pain. ECT can play a role in the local management of these neoplastic lesions, because electroporation of the cell membrane causes significant vascular changes in the tumor region, inducing arteriolar vasoconstriction with the reduction of tissue blood perfusion and short-term cessation of bleeding and ulcerated cutaneous lesions [4].

Another application of ECT is the possibility to use the procedure as neoadjuvant treatment, in order to reduce tumor burden before surgical resection [2].

The European standard operating procedure for ECT calls attention to the technical aspects of the procedure and have established this treatment in clinical practice [5,6].

ECT has been reported as highly effective, with complete response rates between 60 and 70% and objective response rates of about 80% [4]. The treatment is safe, repeatable, associated with minimal discomfort for patients, limited toxicity and short duration of hospital stay.

Due to high effectiveness of ECT in treatment of cutaneous and subcutaneous tumors regardless of histological origin, new ECT approaches are currently being developed for treatment of deep seated tumors like liver and bone metastases, soft tissue sarcomas, brain tumors and colorectal and esophageal tumors [7].

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