

Electrochemotherapy makes resectable from unresectable and pain reduction in chest wall recurrence breast cancer of two patients

Abstract

Electrochemotherapy (ECT) is a local cancer treatment modality where the intracellular accumulation of a chemotherapeutic agent is enhanced in the presence of an electrical field by the phenomenon known as electroporation (EP). If surgery, chemotherapy and/or radiotherapy are no longer possible, this innovative technology can be used effectively for local tumour control. The minor side effects of the therapy and the low intraoperative duration of treatment make it possible to admit patients to hospital for just a short time. Thus, the repeated use of electrochemotherapy has allowed for treatment of tumors untretable before.

We treated two patients with adenocarcinoma of chest wall recurrence of breast cancer who had been treated with bleomycin electrochemotherapy with four needle electrodes. Bleomycin was given intravenously (15 units) as well as intra tumorally, for Patient 1. Patient 2 was given only intravenously (15 units). The objective response was significant in both cases, with 90% for Patient 1 and 40% for Patient 2.

Chest wall recurrence breast cancer showed partial responses and local control of the disease was seen. Electrochemotherapy with bleomycin is an effective option for skin tumors of the chest wall recurrence breast cancer and is a feasible alternative in highly selected (small, primary and big lesions) of the skin lesions.

Keywords: electrochemotherapy, radiotherapy, electroporation, tumour control

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Background

In the case of breast cancer, recurrences in the thoracic wall area following a mastectomy have been reported with an incidence of 5-40%. It is also known that approximately 10-15% of all breast cancer patients develop a loco regional recurrence within 10 years following a mastectomy and radiation therapy. In fact, in the case of most patients, this occurred after 2-3years in the form of numerous cutaneous and subcutaneous nodules in the area of the thoracic wall. If these are left untreated, they often lead to ulceration, bleeding, pain, etc. The quality of life of affected patients is thus significantly reduced.¹

Once the treatment options of surgery and radiation therapy have been exhausted, the possibilities of local tumour control are limited. If the cutaneous metastases do not respond well to systemic chemotherapy, electrochemotherapy is the only remaining option. Because of its low side effects, electrochemotherapy is an appropriate therapy for patients who have exhausted all other treatment options.²

Methods

We report two women with Left Cancer Breast - Stage III Adenocarcinoma, who underwent left mastectomy.

Patient 1 had recurrence with a huge tumor (several cm in length, width and breadth). Patient had the complaints of huge tumor, pain, bleeding and oozing of pus daily. Surgeons suggested that the tumor was inoperable. The radiation therapist suggested that that it cannot be treated as field cannot be possible. Patient was not willing for systemic chemo; was afraid of side effects. Patient was treated with 3 sittings of ECT at the interval of 2 weeks, each sitting according

to the ESOPE (European Union Standard Operative Procedures for Electrochemotherapy) protocol.³ Bleomycin injection (15 units) was administered, both intravenously (IV) and Intratumorally.

Patient 2, with chest wall lesions with pain was treated with 2 sittings of ECT at the interval of 2 weeks. Bleomycin injection (15 units) was administered intravenously followed by electrical pulses at the tumor site.

In each case, applied eight pulses, 1000V/cm, at 100µs.



Figure 1 Patient 1: Chest wall recurrence (before and after ECT treatments).

Results

Patient 1: Tumor decreased in size, pain score lessened from 10 to 4 after first sitting. Bleeding and oozing had completely stopped. The tumor had reduced to 50% after 3rd sitting (Figure 1). Patient tolerated the treatment well with no residual effects from the electric pulses. Patient had no visceral mets elsewhere with evidence of PET CT scans after 6 months. Patient underwent Flap reconstruction after 3 sittings of ECT from palliative to curative intent. Patient is doing well from ECT, now after one year of the treatment.

Patient 2: Tumor size decreased by 40%. Pain had reduced and became tolerable. Enhanced quality of life is seen after first sitting (Figure 2).



Figure 2 Patient 2: Chest wall recurrence (before treatment and 2 weeks after treatment).

Conclusion

These two cases confirm that ECT has high antitumor activity in metastatic breast cancer.⁴ ECT may represent a new, effective possibility in the local treatment of superficial metastases from breast cancer. The method is suitable for patients with severe co-morbidity and/or patients of an advanced stage who have already exhausted all other treatments. Electrochemotherapy can be used to treat painful, bleeding and weeping metastases, as well as large lesions up to a depth of 4 cm. Furthermore, the implementation of electrochemotherapy can also result in the prevention of large scars and can also potentially result in organ/tissue preservation. On the whole, the quality of life of patients is improved by this procedure.⁵

Local tumour control is possible with the aid of electrochemotherapy. Furthermore, in contrast to radiotherapy, repeatability is possible in the case of this method.

The favorable cost-benefit ratio makes this method extremely attractive, when current standard of cancer cure does not work.

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Conflicts of interest

The authors declare there is no conflict of interests.

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References

1. Mir LM, Belehradec M, Domenge C, et al. Electrochemotherapy, a new antitumor treatment: first clinical trial. *C R Acad Sci III*. 1991;313(13):613–618.
2. Mir LM, Orłowski S, Belehradec J Jr, et al. Electrochemotherapy potentiation of antitumor effect of bleomycin by local electric pulses. *Eur J Cancer*. 1991;27(1):68–72.
3. Luis M, Gehl J, Sersa G. Standard operating procedures of the electrochemotherapy: instructions for the use of bleomycin or cisplatin administered either systemically or locally and electric pulses delivered by the Cliniporator™ by means of invasive or non-invasive electrodes. *EJC Supplements*. 2006;74:14–25.
4. Benevento R, Santoriello A, Perna G, et al. Electrochemotherapy of cutaneous metastases from breast cancer in elderly patients: a preliminary report. *BMC surgery*. 2012;12(suppl1):S6.
5. Grischke EM, Wallwiener D, Souchon R, et al. Isolated loco-regional recurrence of breast cancer - established and innovative therapy concepts. *Geburtsh Frauenheilk*. 2013;73(6):611–622.