Featured Interview

Electrochemotherapy: an active treatment for chest wall metastases from breast cancer

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Interviewees

Luca G. Campana, MD, PhD, Sarcoma and Melanoma Unit, Veneto Region Oncology Research Institute (IOV-IRCCS) (*Figure 1*).

Raji Sundararajan, Electrical and Computer Engineering Technology Department, Purdue University (*Figure 2*).

Figure 1 Luca G. Campana

Figure 2 Raji Sundararajan

Introduction

This is a featured interview regarding a clinical trial article entitled "The activity and safety of electrochemotherapy in persistent chest wall recurrence from breast cancer after mastectomy: a phase-II study" published in the journal *Breast Cancer Research and Treatment* on July 2012, by Campana *et al.* (1). The interview is to provide a more direct and simple way for readers to interpret the study. Dr. Luca G. Campana, involved in clinical application of electrochemotherapy, and Prof. Raji Sundararajan, whose research is focused on the preclinical aspects of electric voltage application to cancer cells, accepted the interview and answered questions which would demonstrate the study from the significance of the study in the present and in the future, its patients' selection, to its limitation and progress.

Interview

What question did your study answer?

This study confirms that electrochemotherapy (ECT) is an active treatment for chest wall metastases from breast cancer. Moreover, it shows that ECT was effective in tumors that recurred after reirradiation and were refractory to systemic treatments.

Why there were only 35 patients included in the study?

The size of the study is a consequence of the statistical design. Essentially, in this clinical trial we wanted to assess ECT activity in a palliative setting. The decision-making criteria were set accordingly.

It mentions in your paper that "since it is unclear if ECT provides a clinical benefit to all cases of CWR, there are no shared criteria for patients' selection." Then how did you select patients?

Essentially, our patients received previous mastectomy followed by radiotherapy treatment before enrollment and presented skin metastases on their chest wall. The present one is an exploratory study, conduced in a non-randomized fashion since the patients exhausted all other available therapeutic options. In the future, it would be intriguing to compare ECT with radiotherapy or systemic treatments in less advanced patients and with a lower tumor burden on chest wall skin.

Where do you see your research leading in the future?

Since the procedure was well tolerated under mild general sedation and has a limited toxicity, it is presumable that it can find a wide range of application in breast cancer patients.

Do you foresee any social or political implications for your study?

Absolutely. ECT is efficient, economical, minimally invasive and medically proven and uses a very small dose of antiblastics compared to conventional chemotherapy. What's more, it can be performed on an outpatient basis. ECT has a great potential because it's a suitable option for palliative management of those superficial tumors which are inoperable, radio- and chemo-resistant. Also, in other contexts, it could be an appreciable curative option for those patients where there is no the possibility to receive surgical treatment of the primary or recurrent tumor.

What's the limitation of your study?

The first limitation of this study is given by the limited number of patients, therefore our results need further confirmation in larger appropriately designed trials.

The second, is given by the fact that, being our cancer patients advanced and often symptomatic, their follow-up has been difficult and sometimes discontinuous.

As it is mentioned in the paper, "more data not only on ECT early, but also on long-term toxicity profile, are awaited" "the ECT treatment modalities for CWR are not completely standardized", so if it is possible, what will you do to overcome both of these drawbacks?

As it is made possible by the disease course, we are continuing the follow-up of our patients to document the results of ECT treatment not only in terms of local tumor control, but also of skin/soft tissue toxicity.

The application of ECT in patients with breast cancer has some technical challenges. The continuous dialogue between the experts is paramount to improve ECT technique in the clinical setting. In March 2013, the 2nd International Users' Meeting on ECT will be held in Italy and it will be a great opportunity to work together with other medical groups in this direction.

According to the conclusion,"although ECT does not enjoy enough evidential support to represent an alternative to conventional treatments for CWR from BC, in this series it proved active in reirradiated tumors that were refractory to several systemic treatments", what would be your reason for patients to accept electrochemocherapy?

We have to keep in mind that, in most patients, and also in those with recurrent breast cancer, the presence of skin metastases is the hallmark of advanced stage disease. Therefore, it is a priority to assess patients' life expectancy the possible superficial disease-related symptoms, together with any emotional and social impact. Consequently, at present ECT should be reserved to patients with a good performance status and symptomatic skin metastases.

Are there any cases that impress you most during your clinical research?

We remember the story of a patient with a large recurrence from triple negative breast cancer. When it came to our observation, she presented numerous, partially ulcerated, cutaneous metastases on her chest wall that required repetitive dressings. Unfortunately, the anterior chest wall was completely covered with gauze. In this patient, skin metastases had a partial response to previous radiotherapy,

but subsequently progressed despite several lines of systemic chemotherapy. Although the patient was free from visceral metastases, her oncologist had decided to suspend chemotherapy at all.

We decided to try ECT, with the hope that even a partial tumor response, could allow to make the wounds dry, hence sparing the patient from numerous daily dressings. The patient underwent several ECT cycles at our center. Nevertheless, in the interval between each procedure she required repetitive dressing of her skin that developed an inflammatory reaction as a consequence of electroporation-driven bleomycin administration.

The clinical outcome appeared uncertain to us and actually those weeks were not easy to bear for the patient. Finally, after five ECT treatments, the electroporated metastases regressed and the skin completely healed. At present, our patient has an active life, without any gauze on her chest wall. Fortunately she's free from visceral metastases; recently she developed some new skin nodules outside ECT field, but accepted to be scheduled for further ECT.

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