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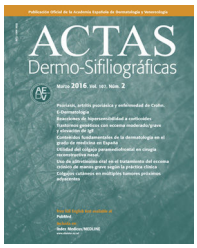

VIDEOS OF SURGICAL PROCEDURES IN DERMATOLOGY

Electrochemotherapy With Intravenous Bleomycin in the Treatment of Unresectable Merkel Cell Carcinoma☆

Electroquimioterapia con bleomicina intravenosa en el tratamiento del carcinoma de células de Merkel irresecable

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Introduction

Electrochemotherapy (ECT) is a therapeutic procedure that combines the phenomenon of electroporation of the cell membrane with the administration of a chemotherapy drug, generally bleomycin or cisplatin. This technique is currently used for local treatment of primary and metastatic cutaneous and subcutaneous tumors, regardless of their histology.

Electroporation is a phenomenon in which the permeability of the cell membrane is increased by applying short, intense electric pulses. These pulses generate an electric field that triggers a reversible change in the cell's lipid bilayer and increases cell permeability by forming pores that, among other effects, allow the entry of drugs with high cytotoxicity but that, due to their hydrophilic nature, molecular volume, and electrical charge, have low permeability.

This favors the entry of antineoplastic drugs into the cell in high concentrations, thereby increasing their antitumoral effect at lower systemic doses.[1]

The antitumoral action of this procedure is based on 3 phenomena: 1) vasoconstriction induced by the electric pulse, which reduces vascular flow to the tumor; 2) necrosis of the vascular endothelium; and 3) stimulation of the host immune response.[2]

The effectiveness of ECT in the treatment of tumors of different histologic characteristics has been described in palliative contexts after the failure of prior treatments, and in a neoadjuvant setting prior to surgery, chemotherapy, and radiation therapy.[2]

In general terms, it is a well tolerated technique, although it is not free from toxic effects, which may be caused by the drug or by the technique, due to the application of the electrodes and electric pulses. The most commonly reported adverse events include local pain, ulceration, and pigmentation disorders.[2]

Technical Description

ECT is performed as major ambulatory surgery and, depending on the part of the body to be treated, the number and size of the lesions, and the baseline status of the patient, it may be performed under general or locoregional anesthetic, or under sedation.

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The surgical field to be treated is prepared using regular antiseptics (chlorhexidine or povidone iodine).

When the patient has been anesthetized or sedated, intravenous bleomycin is infused slowly for between 1.5 and 2 minutes. It is necessary to wait for 8 minutes before applying the electric pulses, as this interval is necessary for optimum levels of bleomycin to be reached in the blood and in the peritumoral area. The successive electric pulses must then be administered within 20 minutes. This requires inserting the electrode needles into the tumor and peritumoral tissue while simultaneously depressing the pedal that connects to the console (Cliniporator®, Igea srl, Carpi, Italy).

Indication

ECT has been used in dermatology to treat cutaneous and subcutaneous metastases of melanoma,[3] squamous cell carcinoma, basal cell carcinoma, Kaposi sarcoma, and metastasis of solid-organ tumors, mainly breast cancer,[3] and in isolated cases of Merkel cell carcinoma.

Merkel cell carcinoma (MCC), also known as primary cutaneous neuroendocrine carcinoma, is a rare tumor characterized by the fact that it affects the elderly population and has an aggressive course that can involve locoregional recurrence and metastasis.[4]

The application of ECT in metastatic or locoregionally advanced MCC has been described in at least 10 cases,[5] most of which involve patients with cutaneous and subcutaneous metastases of MCC located in the cervical and facial region; ECT was performed as palliative treatment in all cases. In general, however, a reduction was observed in the size of the metastases with consequent improvement in the symptoms of these patients.[5]

ECT is described as a therapeutic alternative after prior failure of surgery and radiation therapy in a 75-year-old man with a good general status, who presented multiple irresectable cutaneous and subcutaneous MCC lesions in the right leg.

Conclusion

ECT is a procedure that can be performed by dermatologists in major ambulatory surgery, with a good risk/benefit ratio, and can be used in patients diagnosed with irresectable MCC.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.adengl.2018.07.027.

References

1. Gehl J, Sersa G, Matthiessen LW, Muir T, Soden D, Occhini A, et al. Updated standard operating procedures for electrochemotherapy of cutaneous tumours and skin metastases. Acta Oncol. 2018;25:1–9.
2. Ferrándiz-Pulido L, Fernández-Orland A, Moreno-Ramírez D. Electroquimioterapia en el tratamiento del cáncer cutáneo. Piel (Barc). 2018;33:57–66.
3. Mir-Bonafé JM, Vilalta A, Alarcón I, Carrera C, Puig S, Malvehy J, et al. Electrochemotherapy in the treatment of melanoma skin metastases: A report on 31 cases. Actas Dermosifiliogr. 2015;106:285–91.
4. Llombart B, Requena C, Cruz J. Update on Merkel Cell Carcinoma: Epidemiology, Etiopathogenesis, Clinical Features Diagnosis, and Staging. Actas Dermosifiliogr. 2017;108:108–9.
5. Scelsi D, Mevio N, Bertino G, Occhini A, Brazzelli V, Morbini P, et al. Electrochemotherapy as a new therapeutic strategy in advanced Merkel cell carcinoma of head and neck region. Radiol Oncol. 2013;47:366–9.