Braz J Otorhinolaryngol. 2016;82(3):285–288

Brazilian Journal of
OTORHINOLARYNGOLOGY
www.bjorl.org

ORIGINAL ARTICLE

Electrochemotherapy as palliative treatment in patients with thyroid papillary carcinoma☆

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Received 4 December 2014; accepted 7 May 2015
Available online 21 September 2015

KEYWORDS
Bleomycin;
Electrochemotherapy;
Head and neck cancer;
Palliative therapy;
Thyroid

Abstract
Introduction: Local progression of papillary thyroid carcinoma (PTC) after failure of standard therapies may cause pain, ulceration, and bleeding. As patients are fully aware of the tumor growth, they might suffer high grade anxiety. Electrochemotherapy (ECT) is a new local palliative treatment for skin metastases of malignant melanoma or other tumors, including squamous head e neck cancer patients.
Objective: To evaluate the impact of ECT in patients with local progression of PTC.
Methods: Four patients with local progression of PTC were treated with ECT based on Bleomycin, and evaluated according to tumor response, local pain and side effects.
Results: In all cases, some grade of tumor response was observed, lasting 6, 7, 12 and 8 months, respectively. Also, reduction of local pain and anxiety was registered in all patients. Tumor infiltrated skin necrosis was the only collateral effect of the treatment. ECT induced a tumor response in all PTC patients with improvement of symptoms.
Conclusions: ECT may be an option for local palliative treatment in PTC patients with local tumor progression.

☆ Please cite this article as: Grau JJ, Caballero M, Langdon C, Bernal-Sprekelsen M, Blanch JL. Electrochemotherapy as palliative treatment in patients with thyroid papillary carcinoma. Braz J Otorhinolaryngol. 2016;82:285–8.

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http://dx.doi.org/10.1016/j.bjorl.2015.05.008

PALAVRAS-CHAVE
Bleomicina;
Eletroquimioterapia;
Câncer de cabeça e pescoço;
Terapia paliativa;
Tireoide

Eletroquimioterapia como tratamento paliativo em pacientes com carcinoma papilar da tireoide

Resumo
Introdução: A progressão local do carcinoma papilífero de tireoide (CPT) após a falha da terapia de rotina pode causar dor, ulceração e sangramento. Considerando que os pacientes estão perfeitamente cientes do crescimento tumoral, podem apresentar um alto grau de ansiedade. A eletroquimioterapia (EQT) é um novo tratamento paliativo para metástases de pele de melanoma maligno ou de outros tumores, inclusive em pacientes com carcinoma escamoso de cabeça e pescoço.
Objetivo: Avaliar o impacto da EQT em pacientes com progressão local de CPT.
Método: Quatro pacientes com progressão local de CPT foram tratados com EQT com base em bleomicina, e avaliados em relação ao grau de resposta tumoral, dor local, efeitos colaterais.
Resultados: Em todos os casos, foi observado algum grau de resposta tumoral, que perdurou por 6, 7, 12 e 8 meses, respectivamente. Da mesma forma, foi registrada diminuição da dor local e da ansiedade em todos os pacientes. Necrose cutânea na infiltração tumoral foi o único efeito colateral do tratamento. EQT induziu resposta tumoral em todos os pacientes com CPT, com melhora dos sintomas.
Conclusões: EQT pode ser uma opção para o tratamento paliativo tópico em pacientes com CPT com progressão tumoral local.

Introduction

Local relapse or regional neck metastases after failure of standard therapies of papillary thyroid carcinoma (PTC) are rare. However, patients developing local or regional tumor progression may suffer from anxiety, local pain, exudation, or bleeding.

Electrochemotherapy (ECT) is a new experimental technology based on increasing cell membrane permeability of the tumor cells (electroporation) to molecules. ECT consists of the administration of electric pulses in the tumor during perfusion of chemotherapy to facilitate drug delivery into malignant cells.[1,2] ECT is now being used as a palliative therapy for cutaneous metastases and head and neck cancer.[3–7] A recently published meta-analysis of 915 patients studied the results of skin-directed therapy for local cutaneous metastases, including electrochemotherapy, photodynamic therapy, radiotherapy, intralesional therapy, and topical therapy.[8] The histology of primary tumors was mainly melanoma and breast carcinoma, and none of them were thyroid carcinoma. ECT was more active than the other skin-directed therapies, as a 59% complete response rate was reported, and transient local pain occurring in 49% of patients that resolved within a month was the more common side effect.

The authors present the preliminary results of a pilot study of thyroid cancer patients with progression of local recurrence or neck metastases treated with ECT.

Methods

Inclusion criteria

Patients resistant to radioiodine and to anti-target agent Sorafenib with local tumor progression of PTC after primary therapy (thyroidectomy, cervical neck dissection, and adjuvant radioiodine), and after treatment of the relapse (salvage cervical surgery and radiotherapy) were included. Sorafenib resistance was considered when a 20% increase in the sum of diameters of the target lesion was observed.

Additional inclusion criteria: Eastern Cooperative Oncology Group performance status of 2 or less, life expectancy of at least three months, no active respiratory disease or serious chronic pulmonary disease, absolute white blood count above 4000 cells/μL, hemoglobin greater than 10 g/dL, platelet count above 100,000 μL, and no previous clinical history of allergy to bleomycin.

The study was approved by the Institutional Review Board. Informed consent was obtained from all patients.

Treatment

Under total anesthesia, with an inspired oxygen fraction (FiO_2) of 36% or less, bleomycin, 20 mg/m^2 IV was administered in a bolus. Between eight and 28 min later, electric pulses of 100 μs and 1000 V were administered to the target tumor by an electrode (model N-30-HG; IGEA S.r.l. – Carpi, Italy), powered by a commercial pulse generator for electroporation treatments (CLINIPORATOR; IGEA S.r.l. – Carpi, Italy). Tumor tissue was treated homogeneously, covering the entire target volume.

Response criteria

Radiological evaluation was performed at 0, 6, and 12 weeks after ECT, according to Response Evaluation Criteria in Solid Tumor (RECIST) criteria (version 1.1).[9] Symptom evaluation of pain and anxiety was performed with the