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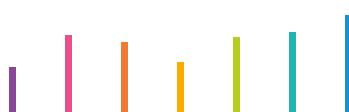


# CLINIPORATOR®

TECHNOLOGY FOR CARE



## ELECTROCHEMOTHERAPY LIVER CANCER



## INTRODUCTION

Hepatocellular carcinoma (HCC), together with intrahepatic cholangiocarcinoma, represents more than 98.5% of all primary liver tumors.

Many cancers metastasize to the liver including colorectal cancer with nearly 50% of these patients that will develop liver metastases.

Several treatments are available for the primary or secondary liver tumors. However, many patients are left with no therapeutic options due to tumor size, location and/or inadequate remnant liver volume.

Electrochemotherapy (ECT) is a non-thermal tumor ablation modality based on electrical pulses directly applied to the tumor volume and combined with a single intravenous drug administration, thus resulting in a **locally enhanced chemotherapy**.

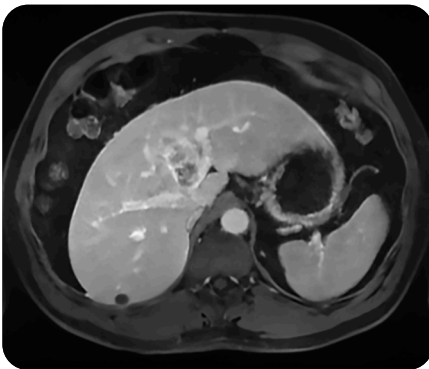
## ELECTROCHEMOTHERAPY IN THE TREATMENT OF LIVER CANCER

Electrochemotherapy is a safe and effective treatment for liver cancers surrounded by vital structures such as splanchnic blood vessels and major bile ducts (**Fig 1**).

**“Electrochemotherapy is a feasible, effective and safe therapy for portal vein tumor thrombus Vp3-Vp4 from HCC in cirrhotic patients not eligible to other therapeutic approaches”.** [9]

Large tumor volumes can be easily addressed (**Fig 2**) with wide safety margins due to the selective cytotoxicity among cancer cells. Normal liver parenchyma within the treated area is preserved.

**“Electrochemotherapy could be predominantly applicable in patients with impaired liver function due to liver cirrhosis and/or with lesions where a high-risk operation is needed to achieve curative intent”.** [4]



**Fig 1-A:** Liver metastasis from renal clear cell adenocarcinoma between the portal and the main hepatic veins [3]



**Fig 1-B:** Post-contrast MRI at 2 months post ECT demonstrates complete tumor response [3]

## HOW EFFECTIVE IS ELECTROCHEMOTHERAPY

Electrochemotherapy was successfully performed on 17 HCC nodules, 47% of these were in the close proximity of the major blood vessels.

The remaining 53% of the lesions (peripheral), were not suitable for standard ablative techniques as indicated by interventional radiologists blinded to the study.

**"The overall response in the treatment of HCC was high, 88% of the treated lesions and 80% of patients had complete responses at a median follow-up of 20.5 months".<sup>[4]</sup>**

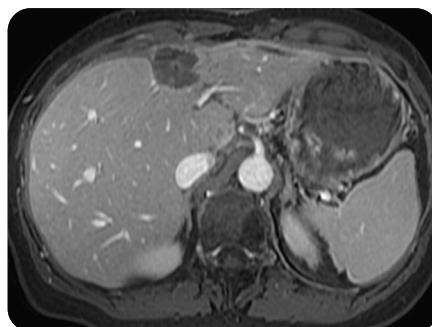
"No treatment or postoperative adverse events were recorded, including in patients with lesions located near the major hepatic vessels".<sup>[4]</sup>

**In a further study on colorectal liver metastases treated with ECT, radiological evaluation showed 85% complete responses and 15% partial responses".<sup>[5]</sup>**

In a recent study, ECT proved to be superior to the majority of local ablation techniques in achieving local tumor control.<sup>[11]</sup>



**Fig 2-A:** Solitary liver metastasis from BC in a challenging location between the left and right lobes<sup>[10]</sup>



**Fig 2-B:** Two years after ECT, complete remission of the target lesion without residual or marginal recurrence<sup>[10]</sup>

## BEYOND THE LIMITS WITH ELECTROCHEMOTHERAPY

Electrochemotherapy is a new ablation modality that overcomes the limits of both tumor volume and tumor location.

The pharmacologically induced cell death provides wide safety margins and complete sparing of the residual liver function.

Electrochemotherapy is a simple solution for challenging situations and completes the therapeutic armamentarium.

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