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Microwave Ablation of Hepatocellular Carcinoma

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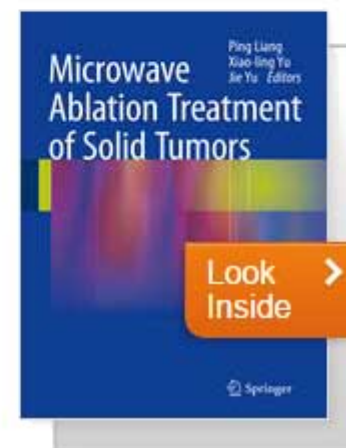
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Abstract

Hepatocellular carcinoma (HCC) is the sixth most common neoplasm and the third most frequent cause of cancer death. Percutaneous ablation has been recommended as the conventional treatment option for patients with early-stage HCC by multiple guidelines. Radiofrequency ablation has obtained wide use worldwide and been deemed as the first-line technique for small HCC. As one of the most recent and exciting advances in the field of thermoablative technology, microwave

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Name of journal: World Journal of Hepatology

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Manuscript Type: MINIREVIEWS

Microwave ablation of hepatocellular carcinoma

Guido Poggi, Nevio Tosoratti, Benedetta Montagna, Chiara Picchi

Abstract

Although surgical resection is still the optimal treatment option for early-stage hepatocellular carcinoma (HCC) in patients with well compensated cirrhosis, thermal ablation techniques provide a valid non-surgical treatment alternative, thanks to their minimal invasiveness, excellent tolerability and safety profile, proven efficacy in local disease control, virtually unlimited repeatability and cost-effectiveness. Different energy sources are currently employed in clinics as physical agents for percutaneous or intra-surgical thermal ablation of HCC nodules. Among them, radiofrequency (RF) currents are the most used, while microwave ablations (MWA) are becoming increasingly popular.

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Microwave ablation of hepatocellular carcinoma using a new percutaneous device: preliminary results.

Poqqi G¹, Montagna B, Di Cesare P, Riva G, Bernardo G, Mazzucco M, Riccardi A.

Author information

Abstract

BACKGROUND: Thermal ablative techniques have gained increasing popularity as safe and effective options for patients with unresectable solid malignancies. Microwave ablation has emerged as a relatively new technique with the promise of larger and faster ablation areas without some of the limitations of radiofrequency thermal ablation. Herein, we report our preliminary results on the feasibility and efficacy of thermal ablation for hepatocellular carcinoma (HCC) with a new 2,45-MHz microwave generator.

PATIENTS AND METHODS: Under ultrasound guidance 194 HCCs in 144 patients were treated through a percutaneous approach. The median diameter of lesions was 2.7 cm (range=2.0-11.0 cm); 68 lesions had a diameter greater than 30 mm. We used a microwave generator (AMICA-GEM, Apparatus for MICrowave Ablation) connected to a 14- or 16-gauge coaxial antenna endowed with a miniaturized sleeve choke to reduce back heating effects and increase the sphericity of the ablated area. Contrast-enhanced computed tomography scan was carried out one month after treatment, and then every three months to assess efficacy.

RESULTS: Complete ablation was achieved in 94.3% of the lesions after a mean of 1.03 percutaneous sessions. For small HCCs (diameter <3 cm) complete necrosis was obtained in 100%. Local tumor progressions were found in 10 treated lesions (5.1%) a median of 19.5 months after ablation. Minor complications occurred in 5.1% procedures. No deaths, or other major complications occurred.

CONCLUSION: In our experience, the new device for microwave ablation proved to provide an effective and safe percutaneous ablative method, capable of producing large areas of necrosis.

PMID: 23482806 [PubMed - indexed for MEDLINE]



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