ECT TREATMENT VERIFICATION

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Ablative techniques provide an effective tool for local treatment of liver tumors. Radiofrequency ablation is the most frequently used local method, whereas electroporation-based treatments are being explored as possible alternatives. US imaging is mostly used for the identification of the electrode placement according to the treatment plan and US specific changes are detected for identification of adequate tumor coverage. Treatment monitoring and understanding the imaging findings to predict the tumor response to ECT are important.

The effect after ECT is slow. We observed tumor response in three phases after ECT: Immediate effects, Intermediate effects after a few days and late effects.

We observed immediate effects with US, the changes in the ablation zone were followed to identify whether they appear in the entire treated tumor, therefore indicating an effective electroporation of the tumor.

Intermediate and late effects can be evaluated with US, CT or MRI.

Morphologic methods such as the Response Evaluation Criteria in Solid Tumors (RECIST 1.1) are considered the gold standard for response assessment in the management of cancer. However conventional morphologic methods are confronting limitations in response assessment (1).

All local treatments attempt to induce necrosis of the tumor, which may delay tumor shrinkage during the early posttreatment period. Given these limitations of morphologic response criteria, the American Association for the Study of Liver Disease (AASLD) proposed the modified RECIST (mRECIST) criteria, which conceptualized viable tumor measurements (2). mRECIST had better overall response rate than conventional morphologic criteria such as RECIST 1.1 (3) and a better correlation with survival.

Diffusion-weighted MRI (DWI) is unique among imaging technique, although many studies have confirmed the usefulness of DWI and its diagnostic role in cancer imaging. A significant and growing volume of data are now gathering to support its use for tumour response assessment (4). Restriction in the diffusion of water molecules is directly proportional to the degree of cellularity of the tissue. In general, an increase in ADC value in response to treatment has been shown to be associated with better outcome (5,6).

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