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TITLE

Ablative Margin Assessment For Post-Radiofrequency Ablation Hepatocellular Carcinoma Recurrence Prediction

BACKGROUND

To predict the local tumor progression (LTP) of hepatocellular carcinoma (HCC) patients after radiofrequency ablation (RFA) by assessing the ablative margin. Traditional measurement of ablative margin (AM) may potentially underestimated the AM when the tumor is near the liver surface. Hence, we propose a new way of AM measurement to better assess the prognosis of these high-risk location.

METHODS

We retrospectively analyzed 163 HCC patients with complete RFA treatment at National Taiwan University Hospital (NTUH) from 2015 to 2020. Local tumor progression is defined as the reappearance of HCC at the ablative zone. Various ablative margins (AM) are measured on post-RFA computed tomography (CT), including the minimal and maximal AM covering or not covering the liver surfaces (AMCLSmin, AMCLSmax, AMULSmin, AMULSmax). Average ablative margins (AMCLSavg, AMULSavg) are calculated from the minimal and maximal AM. Tumors at high risk locations were further analyzed, including subdiaphragmatic, subcapsular and perivascular regions. The Kaplan-Meier method was utilized to analyze the recurrence-free survival of different groups of patients. Patients were grouped by their ablative margin width with a cut-off value of 3mm or 5mm.

RESULT

Of the 163 HCC patients enrolled, 29 patients had LTP within 2 years and 20 patients had LTP after 2 years. AMULSmin, AMULSavg were shown to be significant factors contributing to local tumor recurrences.

CONCLUSIONS

Measuring the ablative margin widths (especially AMULSmin, AMULSavg) in the post-RFA CT may be a helpful prognosis indicator of local tumor recurrence in HCC patients.

AUTHOR

Geeng-Jia Hu

CO-AUTHOR

Assistant Professor Chih-Horng Wu