

SPEAKER PRESENTATION

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Value of pretreatment MRI determined parameters for predicting outcome after radio-frequency ablation of hepatocellular carcinoma

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Aim

To evaluate whether pretreatment magnetic resonance imaging (MRI) determined imaging parameters are predictive for outcome in hepatocellular carcinoma (HCC) treated with radio-frequency ablation (RFA).

Methods

Thirty-seven patients with HCC treated by RFA were evaluated. Lesion number, size and segmental location, T2-weighted (w), arterial, portal-venous and venous contrast-phase, b600 diffusion-w imaging (DWI) and delayed phase contrast-enhanced imaging pattern were assessed at MRI. The separate imaging patterns as well as pretreatment clinical variables were correlated with outcome (disease free survival longer or shorter than 1 year) using a chi-square test with multiple variables and Mann-Whitney U test respectively. Pretreatment clinical variables and imaging parameters were correlated with Keratin 19 and microvascular invasion status at the biopsy during RFA.

Results

None of the pretreatment patient- or tumour-related parameters correlated to disease free survival ($p > 0.5$).

The portal-venous, venous phase and b600 DWI imaging pattern showed strongest correlation with disease free survival ($p = 0.00023$, $p = 0.00003$ and $p = 0.0002$ respectively). Also correlation was found for T2w imaging pattern ($p = 0.007$), and hepatobiliary phase imaging pattern ($p = 0.017$). Patients with tumour recurrence within 1 year ($n = 14$) showed persistent venous rim- or

nodular enhancement in 13 patients and b600 DWI rim-like hyperintensity in 9 patients correlating with microvascular invasion at biopsy ($p = 0.04$). Patients disease free for at least 1 year ($n = 23$) showed venous wash-out in 22 of 23 patients and whole-lesion hyperintensity b600 DWI in 18 patients.

Conclusion

Pretreatment venous rim-enhancement and rim-like intensity at b600 DWI were strongest predictors of treatment failure within the first year after RFA of HCC.

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