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# SUPERPARAMAGNETIC IRON OXIDE (FERUCARBOTRAN) ENHANCED MRI OF HEPATIC TUMORS

Ran-Chou Chen MD,[1, 2] Jiunn-Ming Lii MD,[1] Chung-Kwe Wang MD,[3] Wei-Tsung Chen MD,[1] Hsing-Yang Tu MD,[1]

[1]Department of Radiology, Taipei City Hospital Ren-Ai Branch

[2]School of Medicine, National Yang-Ming University

[3]Department of Internal Medicine, Taipei City Hospital Ren-Ai Branch

**BACKGROUND/AIMS:** Iron oxide contrast medium (Ferucarbotran) is a tissue specific MRI contrast agent. It shortens both T1 and T2 relaxation time. The purpose of this study was to use the T2 signal in Ferucarbotran-enhanced MRI to differentiate hepatocellular carcinoma (HCC), hemangioma and benign hyperplastic nodules (including focal nodular hyperplasia, FNH).

**METHODS**: 61 patients with a total of 68 representative hepatic lesions, including 20 overt HCCs, 11 well-differentiated HCCs, 23 hemangiomas and 14 benign hyperplastic nodules (including 11 hyperplastic nodules, and 3 FNH), T1-weighted image, T2-weighted turbo spin echo, and T2*EPI images were obtained before and after Ferucarbotran injection. The percentage T2 signal intensity loss (PSIL) of the tumors was calculated as (precontrast signal intensity - postcontrast signal intensity/precontrast signal intensity)%.

**RESULTS:** The PSIL of overt HCC were 26.11 ± 19.49%, well-differentiated HCC were 37.95 ± 17.57%, benign hyperplastic nodule were 42.21 ± 16.32% and hemangioma were 58.16 ± 17.81%. Comparison of variances of T2 PSIL showed significant differences between the well-differentiated HCC and the hemangiomas ($p=0.019$); overt HCC and hemangioma ($p<0.001$); and benign hyperplastic nodules and overt HCC ($p<0.05$). There were no significant differences between the well-differentiated HCC and benign hyperplastic nodules by Bonferroni test.

**DISCUSSION AND CONCLUSIONS:** Ferucarbotran-enhanced MRI may help in differentiating overt HCC, well-differentiated HCC, benign hyperplastic nodules and hemangioma by using T2 PSIL.

**Keywords**: hepatic tumors, Superparamagnetic iron oxide, MRI