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Detection of Colorectal Liver Metastasis: Value of adding Ferucarbotran-Enhanced MR Imaging to Gadobenate Dimeglumine Enhanced Delayed-Phase Imaging

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Purpose

To evaluate whether ferucarbotran-enhanced MR imaging provides additional value for the detection of colorectal liver metastasis compared with gadobenate dimeglumine-enhanced delayed phase imaging (DPI).

Materials and Methods

Twenty-three patients with known hepatic colorectal metastasis underwent gadobenate dimeglumine- and ferucarbotran-enhanced MR imaging. Fifty metastases were confirmed by histopathology or intraoperative ultrasonography. Two radiologists independently reviewed the DPI and then evaluated the combined DPI and ferucarbotran-enhanced images. The sensitivity and accuracy of lesion detection were compared by the areas (Az) under the receiver operating characteristic (ROC) curve.

Results

The overall accuracy for detecting metastases was not significantly different between the DPI (Az= 0.964 and 0.930 for reviewer 1 and 2, respectively) and combined DPI and ferucarbotran-enhanced images (Az= 0.952 and 0.928). The mean sensitivities and positive predictive value of DPI were 93.0 % and 97.8 %, respectively, and those of combined DPI and ferucarbotran-enhanced images were 92.0 % and 97.8 %, respectively. No statistically significant differences in the mean sensitivity were seen between the two image set in the detection of small metastasis (≤ 1 cm) (84.4 % for DPI and 81.3% for combined DPI and ferucarbotran-enhanced images)

Conclusion

The addition of ferucarbotran-enhanced MR images to the Gd-BOPTA DPI did not significantly improve the detection rate of colorectal hepatic metastases.