Detection and Characterization of Hepatic Metastasis: Comparison between Gd-BOPTA-enhanced and Ferucarbotran-enhanced MR imaging

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목적 :

To compare Gd-BOPTA-enhanced and ferucarbotran-enhanced MR imaging in detection and characterization of hepatic metastasis.

대상 및 방법 :

Consecutive 36 patients suspected of having hepatic metastasis from primary malignancies in other organs (25 colorectal cancers, 3 stomach cancers, 1 duodenal cancer, and 1 renal cell carcinoma), underwent both Gd-BOPTA-enhanced and ferucarbotran-enhanced MR imaging. Gd-BOPTA-enhanced MR imaging was performed first and ferucarbotran-enhanced MR imaging performed with more than 48-hour delay. Eighty-nine focal hepatic lesions (51 metastases and 38 benign lesions) were included. Three radiologists independently reviewed the 4 sets of images in random order; Gd-BOPTA-enhanced dynamic imaging, Gd-BOPTA-enhanced dynamic with 1-hour delay imaging, ferucarbotran-enhanced 10-min delay imaging, and ferucarbotran-enhanced, dynamic and 10-min delay imaging. Each observer determined number of lesions. Lesion characterization was performed with rating of confidence. The analyzed data were correlated with the reference diagnosis: histopathology in 46 lesions; and PET or follow up imaging (>3 months) in 43 ones. Sensitivity and specificity were evaluated. The accuracy of lesion characterization in each image set was assessed using ROC analysis.

결과 :

Overall accuracy and sensitivity were not significantly different among four image sets. For small hepatic lesions (< 3 cm), there is significant difference (p=0.003) between ferucarbotran-enhanced 10-min delay imaging (Az=0.856, sensitivity 76.7 %) and ferucarbotran-enhanced, combined dynamic and delay imaging (Az=0.905, sensitivity 86.0 %).

결론 :

There was no significant difference in diagnostic performance between Gd-BOPTA-enhanced and ferucarbotran-enhanced MR imaging in detection and characterization of hepatic metastasis. For small hepatic lesions (< 3 cm), there was improved performance when ferucarbotran-enhanced dynamic imaging was added to delay imaging.