

M-09 15:20 – 15:30

## Comparison of Hepatocyte-specific T1 Agent (Gd-EOB-DTPA) with Ferucarbotran-Enhanced MRI for Detection of Hepatic Tumor on H-ras 12V transgenic mice

채권우<sup>1</sup>, 최규실<sup>1</sup>, 박성훈<sup>1</sup>, 김현수<sup>2</sup>, 유대열<sup>3</sup>, 윤권하<sup>1</sup>

<sup>1</sup>원광대학교 의과대학 영상의학과 및 익산방사선영상과학연구소, <sup>2</sup>원광대학교 의과대학 병리과, <sup>3</sup>한국생명공학연구원 질환모델연구센터

**PURPOSE:** To compare the gadolinium ethoxybenzyl diethylenetriamine pentaacetic acid (Gd-EOB-DTPA) enhanced MRI with ferucarbotran-enhanced MRI for detection hepatic tumor on H-ras12V transgenic mice.

**MATERIALS AND METHODS:** Hepatocellular carcinoma lines were established to create an insertion of the H-ras12V transgene under the control of the albumin enhancer/promoter. Six H-ras12V transgenic mice with 123 hepatic tumors underwent Gd-EOB-DTPA enhanced MRI and ferucarbotran-enhanced MRI before hepatic resection. MR imaging was performed with a 4.7-T scanner (Phamscan; Bruker)

with a mouse body coil. The diagnosis of hepatic tumor was confirmed by means of pathologic examination. Two experienced radiologists independently reviewed the MR images on a segment-by-segment basis. The sensitivity, contrast, and conspicuity of the MR contrast agents were evaluated. The accuracy of these techniques for the detection of hepatic tumor was assessed by conducting a receiver operating characteristic (ROC) analysis.

**RESULTS:** Tumor-to-liver contrast ratio of the T1W imaging was significantly higher than ferucarbotran-enhanced T2W imaging ( $p < 0.05$ ). The lesion conspicuities of Gd-EOB-DTPA enhanced T1W imaging were better and the image artifacts of ferucarbotran-enhanced T2W imaging were more prominent. The detectability of Gd-EOB-DTPA enhanced T1W images were superior to those of the ferucarbotran-enhanced T2W images. For the detection of very small hepatic tumors of less than 2 mm, the sensitivities of Gd-EOB-DTPA enhanced T1W images was much higher than those of ferucarbotran-enhanced T2W images ( $p < 0.0001$ ).

**CONCLUSION:** Gd-EOB-DTPA-enhanced T1W images have a higher sensitivity, contrast, and conspicuity than those of ferucarbotran-enhanced MRI in detection hepatic tumor on H-ras12V transgenic mice.