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Abdomen 2

SY05-4

# Diagnostic Performance of LI-RADS with MRI

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The Liver Imaging Reporting and Data System (LI-RADS) is a comprehensive system for standardizing the terminology, technique, interpretation, reporting, and data collection of liver imaging in patients at high risk for hepatocellular carcinoma (HCC) [1].
According to a meta-analysis using LI-RADS versions 2014, 2017, and 2018, the pooled percentages of HCC for MRI with extracellular contrast agents (ECA-MRI) and MRI with gadoxetate (Gx-MRI), respectively, were 0% and 0% for LR-1; 6% and 1% for LR-2; 31%, and 38% for LR-3; 64% and 77% for LR-4; 95% and 96% for LR-5; 76% and 78% for LR-5V or LR-TIV (tumor in vein); and 30% and 35% for LR-M. Most LR-M (94%–100%) and LR-5V or LR-TIV (99%–100%) observations were malignant, regardless of contrast agent [2].
A meta-analysis of the diagnostic performance of LR-5 using LI-RADS version 2018 revealed that ECA-MRI had significantly higher pooled sensitivity than Gx-MRI (77% vs 65%; $p = 0.001$). Pooled specificities were 92% for ECA-MRI and 93% for Gx-MRI without significant difference ($p = 0.536$) [3].
Another meta-analysis using LI-RADS versions 2014, 2017, and 2018 reported that the pooled sensitivities of combined LR-4/5 were higher than those of LR-5 (86.5% vs 73.2%, $p < 0.001$ for ECA-MRI and 84.8% vs 63.9%, $p < 0.001$ for Gx-MRI). The pooled specificities of combined LR-4/5 were lower than those of LR-5 (76.3% vs 92.6%, $p = 0.035$ for ECA-MRI and 73.4% vs 92.1%, $p < 0.001$ for Gx-MRI) [4].

Reference

[1] American College of Radiology. CT/MRI Liver Imaging Reporting and Data System version 2018.
[2] Lee S, Kim YY, Shin J, Son WJ, Roh YH, Choi JY, Sirlin CB, Chernyak V. Percentages of Hepatocellular Carcinoma in LI-RADS Categories with CT and MRI: A Systematic Review and Meta-Analysis. Radiology. 2023 Apr;307(1):e220646.
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[4] Lee S, Kim YY, Shin J, Shin H, Sirlin CB, Chernyak V. Performance of LI-RADS category 5 vs combined categories 4 and 5: a systemic review and meta-analysis. Eur Radiol. 2024 Nov;34(11):7025-7040.

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