

## Performance of Gd-EOB-DTPA MRI criteria for diagnosis of pathologically proven HCC: A comparison with AASLD and Barcelona criteria.

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**Target audience:** Subspecialized and general radiologists with an interest in maximizing the capability of MRI in the imaging diagnosis of hepatocellular carcinoma (HCC).

**Purpose:** To determine the applicability of extracellular contrast agents (Gd-EOB-DTPA) with and without the addition of hepatobiliary phase imaging in conjunction with established AASLD and Barcelona Criteria for the imaging based diagnosis of HCC.

**Methods:** This was an IRB approved, HIPAA compliant study with 112 consecutive suspected HCC nodules in 105 patients confirmed by percutaneous biopsy, resection, or explant performed within 90 days of Gd-EOB-DTPA MRI. Blinded abdominal imagers categorized the nodules as either meeting or not meeting AASLD and Barcelona Criteria (based on size and enhancement pattern), as well as “EOB Criteria” (defined as arterial enhancement, venous washout, and a lack of uptake on hepatobiliary phase imaging).

**Results:** Of 112 nodules, 76 were confirmed HCC (68%). Of 76 HCC nodules, 36 met Barcelona criteria, 50 met AASLD criteria, and 59 met EOB Criteria (sensitivities 47%, 69%, and 78%; specificities 69%, 64%, & 58%, respectively). The accuracy of EOB criteria (71.4%; 80/112) was higher than both Barcelona (54.5%; 61/112 (p=0.0006)) and AASLD (65.2%; 73/112 (p = 0.07)).

**Discussion:** Hepatobiliary specific MR contrast is becoming more prevalent, and understanding its applicability with existing imaging criteria is essential for the noninvasive evaluation of the cirrhotic liver. This was the first study to comprehensively examine and clarify the role of Gd-EOB-DTPA in diagnosing HCC. Hepatobiliary phase imaging when using Gd-EOB-DTPA increases sensitivity for the diagnosis of HCC when compared to using established criteria alone, with a small decrease in specificity. The findings of this study support a role for hepatobiliary specific contrast agents to improve diagnosis of HCC.

**Conclusion:** EOB criteria was more sensitive and accurate for diagnosing HCC compared to the AASLD and Barcelona criteria, helping to clarify the role of hepatobiliary-specific contrast agents in clinical practice.

### References:

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