A proposal for a useful algorithm to diagnose small hepatocellular carcinoma on MRI

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Résumé en anglais	OBJECTIVE: To assess MRI features for the diagnosis of small hepatocellular carcinomas (HCCs) and especially for nodules not showing both of the typical hallmarks. PATIENTS AND METHODS: Three hundred and sixty-four cirrhotic patients underwent liver MRI for 10-30 mm nodules suggestive of HCC. The diagnostic performances of MRI features [T1, T2; diffusion-weighted (DW) imaging signal, enhancement, capsule, fat content] were tested, both individually and in association with both typical hallmarks and as substitutions for one hallmark. The diagnostic reference was obtained using a multifactorial algorithm ensuring high specificity (Sp). RESULTS: Four hundred and ninety-three nodules were analyzed. No alternative features, associations or substitutions outperformed the typical hallmarks for the diagnosis of HCC. For 10-20 mm nodules not displaying one of the typical hallmarks, hyperintensity on DW images was the most accurate substitutive sign, providing a sensitivity of 71.4% and Sp of 75% for nodules without arterial enhancement and sensitivity=65.2% and Sp=66% for nodules without washout on the portal or delayed phases. A new diagnostic algorithm, including typical hallmarks as a first step then the best-performing substitutive signs (capsule presence or DW hyperintensity) in combination with the nonmissing typical hallmark as a second step, enabled the correct classification of 77.7% of all nodules, regardless of size. CONCLUSION: Using MRI, the typical hallmarks remain the best criteria for the diagnosis of small HCCs. However, by incorporating other MRI features, it is possible to build a simple algorithm enabling the noninvasive diagnosis of HCCs displaying both or only one of the typical hallmarks.

Liens

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