



## Non-enhanced magnetic resonance as a surveillance tool for hepatocellular carcinoma: Many unresolved issues

To the Editor:

We read with interest the paper by Park *et al.*<sup>1</sup> Hepatocellular carcinoma (HCC) is a common complication in patients with cirrhosis and worsens their prognosis. The current HCC surveillance guidelines recommend 6 monthly ultrasound (US),<sup>2</sup> which lacks good sensitivity for early HCC. Park *et al.* studied non-contrast magnetic resonance imaging (MRI) vs. US for surveillance of HCC in predominantly hepatitis B-related cirrhosis and baseline high-risk group.<sup>1</sup> MRI had significantly better diagnostic accuracy for the diagnosis of liver lesions than US. It is well known that MRI is a better diagnostic modality than US for diagnosing liver lesions in cirrhosis<sup>3</sup> especially in detecting small HCC lesions. A meta-analysis has shown a sensitivity of 63% for early HCC with US.<sup>4</sup> Although the MRI is good for overcoming the difficulty of detecting small lesions with US, there are several important limitations in the index study. The use of non-contrast MRI resulted in the following diagnostic parameters: sensitivity 79.1%, positive predictive value 61.8%, specificity and negative predictive value >97%. The sensitivity of US was only 25% in comparison. The authors have concluded that “given the high performance, short scan time, and the lack of contrast agent associated risks, non-enhanced MRI has potential to be an option for surveillance of HCC in high-risk patients.” In this instance, the terms “high performance” and “lack of contrast agent associated risks” are only partially true. Although, use of non-contrast MRI to detect HCC is attractive, the study has important practical applicability issues. The MRI was very good for excluding HCC (high specificity and negative predictive value), however, it missed 21% of HCCs and made a false diagnosis of (possible) HCC in 38% patients or 43% of lesions. Importantly, non-contrast MRI missed early HCCs (size 10–19 mm), which are potentially curable by locoregional interventions. A false positive diagnosis in a significant number of patients with liver lesions (38% patients with lesions in the index study) will result in another MRI with contrast, thus a significant number will need MRI contrast anyway and will have to undergo 2 MRIs with cost and time implications.

The sensitivity of US (25%) in the current study is markedly lower than that reported in the literature,<sup>4</sup> which has increased the diagnostic significance of non-contrast MRI. The author's statement about MRI contrast associated risks is an overestimation. The concept of absolute contraindication of MRI contrast agents based on kidney function is inaccurate. The MRI contrast agents are safer than CT contrast agents, and are safe in patients with estimated glomerular filtration rate (eGFR) >30 ml/min. The MRI contrast agents can be selectively used in patients with lower eGFR if

needed.<sup>5</sup> A multicenter study with large sample size (thus removing possible biases) will provide a better assessment of the utility of non-contrast MRI for the surveillance of HCC.

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### Conflict of interest

The authors declare no conflicts of interest that pertain to this work.

Please refer to the accompanying [ICMJE disclosure](#) forms for further details.

### Authors' contributions

NSC, NS: drafting of manuscript, SS, AS: critical revision.

### Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jhep.2020.01.004>.

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