
HCC liver cancer diagnosis in China: imaging cost and quality



New research indicates that an MRI technique, gadolinium ethoxybenzyl diethylenetriamine magnetic resonance imaging (Gd-EOB-DTPA-MRI), is the preferred initial imaging procedure for the diagnosis of hepatocellular carcinoma (HCC) in China. Researchers say the technique offered higher diagnostic accuracy compared with other modalities for diagnosing patients with suspected HCC, at comparable cost.

China has a large patient pool of HCC, with thousands of new cases being added to the already existing patient population, therefore diagnosis becomes a vital step for early detection and effective treatment. The most commonly used imaging techniques, multidetector computed tomography (MDCT) and extracellular contrast media-enhanced MRI (ECCM-MRI), however cannot completely detect HCC lesions <2cm in size.

Gd-EOB-DTPA, a liver-specific MRI contrast media for detecting and characterising focal liver lesions, was approved in China in the year 2010. Previous studies have reported higher diagnostic accuracy of initial Gd-EOB-DTPA-MRI compared with other imaging techniques; which indicates that more number of patients are correctly diagnosed using Gd-EOB-DTPA-MRI and require less additional confirmatory procedures.

Limited data exists in China on the comparative cost of Gd-EOB-DTPA-MRI with other imaging techniques. The current study compared the total cost of Gd-EOB-DTPA-MRI with MDCT and ECCM-MRI as initial imaging procedures in patients with suspected HCC. Researchers developed a decision-tree model on the basis of the Chinese clinical guidelines for HCC, which was validated by clinical experts from China. The model compared the diagnostic accuracy and costs of alternative initial imaging procedures.

The study's key findings include:

- Compared with MDCT and ECCM-MRI, Gd-EOB-DTPA-MRI imaging was associated with higher rates of diagnostic accuracy, i.e., higher proportions of true positives (TP) and true negatives (TN) with lower false positives (FP).
- Total diagnosis and treatment cost per patient after the initial Gd-EOB-DTPA-MRI evaluation was similar to MDCT (¥30,360 vs. ¥30,803) and lower than that reported with ECCM-MRI (¥30,360 vs. ¥31,465).
- Lower treatment cost after initial Gd-EOB-DTPA-MRI was driven by reduced utilisation of confirmatory diagnostic procedures and unnecessary treatments.

"Consistent with the previous findings, Gd-EOB-DTPA-MRI reported higher proportion of cases of TP and TN diagnosis compared with alternative imaging procedures at initial imaging and at the end of the diagnosis, along with showing lower need for additional confirmatory procedures. Similarly, the proportion of patients diagnosed as FP and FN was lower with Gd-EOB-DTPA-MRI. Lower rate of FP led to lower unnecessary diagnostic procedures or therapeutic interventions for the patients," the authors write.

Although Gd-EOB-DTPA-MRI costs higher compared with MDCT and ECCM-MRI, the authors note that initial diagnosis using Gd-EOB-DTPA-MRI had overall similar cost as that of MDCT and lower cost compared with ECCM-MRI in Chinese patients with suspected HCC.

"The decreased costs were attributed to reduced subsequent diagnostic procedures, unnecessary treatments, and potential delays for confirmed diagnosis. Therefore, Gd-EOB-DTPA-MRI might be used as first-line diagnosis of HCC and other tumour types in China," the authors conclude.

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