



Invited Commentary

Commentary on: “Dynamic liver function is an independent predictor of recurrence-free survival after curative liver resection for HCC - a retrospective cohort study”



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In curative hepatectomy for HCC, postoperative related complications and mortality, as well as recurrence after surgery, remain as major problems. Predicting postoperative liver failure, recurrence and survival are important before liver resection for patients with hepatocellular carcinoma. Therefore, liver functional evaluation is one of the most important factors.

There are several methods to estimate liver functional reserve before surgery, such as the Child-Pugh score, model for end-stage liver disease (MELD) score, hepatic venous pressure gradient, 99mTc-galactosyl serum albumin (GSA) liver scintigraphy, measurement of indocyanine green retention rate at 15 min (ICG R15), 13C-methacetin breath test (LiMAX), serum albumin-bilirubin (ALBI) grade, and aspartate transaminase-to-platelet ratio index (APRI).

In popular guidelines, liver resection is recommended only for patients with a very early tumor stage and with very well-preserved liver function [1,2]. These guidelines set a narrow indication for liver resection, restricting to patients with a single nodule, Child-Pugh class A and without portal hypertension. The Child-Pugh score, though commonly used, provides too rough an estimation to allow accurate quantitative evaluation of liver functional reserve in patients with liver dysfunction. In the real world, liver resection is widely adopted and performed beyond these guidelines, especially in Asia [3]. To adequately evaluate liver functional reserve, several methods in addition to the Child-Pugh score, are commonly used. Thus, a good method to evaluate liver function to replace or supplement the Child-Pugh score is required.

In the published manuscript, the authors presented a study using LiMAX to evaluate liver function before curative hepatectomy for HCC. The LiMAX can precisely determine the actual liver functional capacity and was reported to provide reliable information on the actual enzymatic liver function [4]. The authors concluded that liver functional evaluation by LiMAX in a disease state evaluation has a significant impact on recurrence-free survival after curative hepatectomy. Although there are limitations in retrospective studies, the usefulness of LiMAX as a test for liver functional reserve is revealed. Further

researches in this area, including prospective studies, are recommended to obtain more reliable evidence in the future.

LiMAX may have the potential to become an effective preoperative liver functional evaluation method.

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None.

Disclosure of potential conflicts of interests

None.

Provenance and peer review

Invited Commentary, internally reviewed.

References

- [1] European Association for The Study of the Liver; European Organisation for Research and Treatment of Cancer, EASL-EORTC clinical practice guidelines: management of hepatocellular carcinoma, *J. Hepatol.* 56 (2012) 908–943 <https://doi.org/10.1016/j.jhep.2011.12.001>.
- [2] J. Bruix, M. Reig, M. Sherman, Evidence-based diagnosis, staging, and treatment of patients with hepatocellular carcinoma, *Gastroenterology* 150 (2016) 835–853 <https://doi.org/10.1053/j.gastro.2015.12.041>.
- [3] M. Omata, A.L. Cheng, N. Kokudo, M. Kudo, J.M. Lee, J. Jia, R. Tateishi, K.H. Han, Y.K. Chawla, S. Shiina, W. Jafri, D.A. Payawal, T. Ohki, S. Ogasawara, P.J. Chen, C.R.A. Lesmana, L.A. Lesmana, R.A. Gani, S. Obi, A.K. Dokmeci, S.K. Sarin, Asia-Pacific clinical practice guidelines on the management of hepatocellular carcinoma: a 2017 update, *Hepatol. Int.* 11 (2017) 317–370 <https://doi.org/10.1007/s12072-017-9799-9>.
- [4] M. Stockmann, J.F. Lock, M. Malinowski, S.M. Niehues, D. Seehofer, P. Neuhaus, The LiMAX test: a new liver function test for predicting postoperative outcome in liver surgery, *HPB* 12 (2010) 139–146 <https://doi.org/10.1111/j.1477-2574.2009.00151.x>.

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