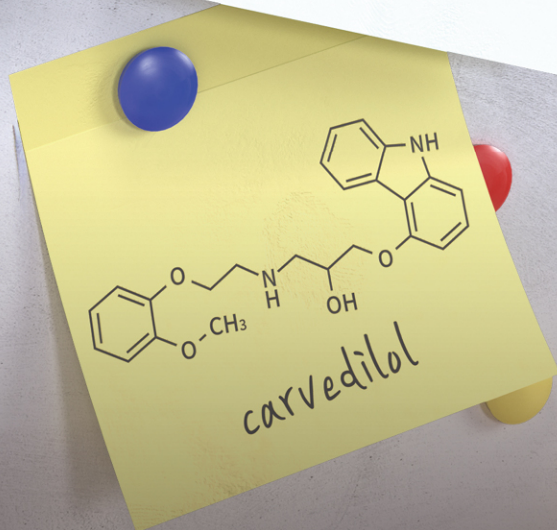
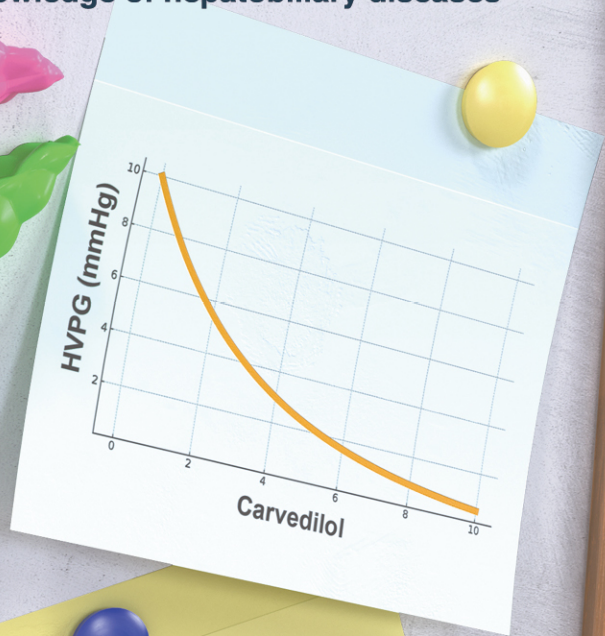


# CLINICAL and MOLECULAR HEPATOLOGY

The forum for latest knowledge of hepatobiliary diseases



## Non-invasive Model guiding Carvedilol for Clinically Significant Portal HTN

- Inpatient variability of tacrolimus on CKD in LT
- HCV self-testing and disease burden reduction
- MASLD and microbiota
- Bariatric surgery for metabolic cirrhosis

## Correspondence

# Correspondence to editorial on “Risk assessment of hepatitis B virus-related hepatocellular carcinoma development using vibration-controlled transient elastography: Systematic review and meta-analysis”

Young-Joo Jin<sup>1</sup> and Seung Up Kim<sup>2,3</sup>

<sup>1</sup>Department of Internal Medicine, Inha University Hospital, Inha University School of Medicine, Incheon; <sup>2</sup>Department of Internal Medicine, Yonsei University College of Medicine, Seoul; <sup>3</sup>Yonsei Liver Center, Severance Hospital, Seoul, Korea

**Keywords:** Liver stiffness; Vibration-controlled transient elastography; Hepatocellular carcinoma; Chronic hepatitis B

Dear Editor

The authors would like to thank Zoncace and Tsochatzis<sup>1</sup> for their interest in our paper titled “Risk assessment of hepatitis B virus-related hepatocellular carcinoma development using vibration-controlled transient elastography: Systematic review and meta-analysis”<sup>2</sup> and their feedback.

As mentioned by Zoncace and Tsochatzis,<sup>1</sup> we acknowledge that the results of our article<sup>2</sup> have several limitations despite its clinical utility in predicting the risk of hepatocellular carcinoma (HCC) in chronic hepatitis B (CHB) patients. All the studies included in our systemic review and meta-analyses were conducted on Asian populations,<sup>2</sup> which limits the generalizability of our results. Therefore, it is necessary to conduct multinational studies to generalize our results globally. Nevertheless, our findings are expected to be beneficial for managing CHB patients in areas where hepatitis B virus infection is prevalent.<sup>1</sup> Another issue raised by Zoncace and Tsochatzis<sup>1</sup> was the potential

influence of antiviral treatment, which is significantly associated with a reduced risk of HCC development.<sup>3-6</sup> Due to variations in the types of antiviral drugs and their usage criteria depending on when the studies were conducted, it was challenging to perform subgroup analyses based on the status of the antiviral treatment.

Furthermore, as indicated by Zoncace and Tsochatzis,<sup>1</sup> the hepatitis B e antigen (HBeAg) status or the duration of antiviral treatment are also important factors in determining the risk of HCC development.<sup>5,7</sup> However, our study had several limitations related to these factors. First, HBeAg positive and negative patients were mixed in the included studies, making it difficult to analyze them separately because our study was not based on an individual patient database.<sup>2</sup> Second, despite the slight differences between studies, it was found that antiviral therapy was administered for at least 24 months. Additionally, as described in the discussion of our article,<sup>2</sup> the included study was not a randomized controlled trial, and several confounding vari-

---

### Corresponding author : Seung Up Kim

Department of Internal Medicine, Yonsei University College of Medicine, 50-1 Yonsei-ro, Seodaemun-gu, Seoul 03722, Korea  
Tel: +82-2-228-1944, Fax: +82-2-393-6884, E-mail: [ksukorea@yuhs.ac](mailto:ksukorea@yuhs.ac)  
<https://orcid.org/0000-0002-9658-8050>

**Editor:** Han Ah Lee, Chung-Ang University College of Medicine, Korea

**Received :** Sep. 27, 2024 / **Accepted :** Oct. 2, 2024

ables such as the duration of antiviral treatment, alcohol history, or combined metabolic variables could not be strictly controlled as noted by Zoncape and Tsochatzis.<sup>1</sup> Given these limitations, caution is needed when interpreting the results of our research.

Lastly, we agree with Zoncape and Tsochatzis<sup>1</sup> that there can be limitations in assessing the risk of HCC development using a single tool. In our study, we focused on the ability of transient elastography (TE) to predict the risk of HCC development based on liver stiffness (LS) cutoff value.<sup>2</sup> As individual patient data could not be obtained in our meta-analysis,<sup>2</sup> combined analyses could not be performed using multiple noninvasive methods.<sup>8-15</sup> However, combining well-known noninvasive methods or other clinical/laboratory parameters<sup>8-15</sup> to complement the LS cutoff determined by TE is expected to enable a more accurate assessment of HCC development risk as Zoncape and Tsochatzis<sup>1</sup> mentioned.

In summary, the TE-determined LS values may assist in making a risk prediction of HCC development in CHB patients. Moreover, we expect that TE can be used to facilitate the development of optimal HCC surveillance strategies in CHB patients.

### Authors' contributions

The authors contributed equally to the literature review and manuscript preparation. They approved the final version of the manuscript.

### Conflicts of Interest

The authors have no conflicts to disclose.

## REFERENCES

1. Zoncapè M, Tsochatzis EA. The use of transient elastography for predicting hepatocellular carcinoma in chronic hepatitis B patients: Editorial on "Risk assessment of hepatitis B virus-related hepatocellular carcinoma development using vibration-controlled transient elastography: Systematic review and meta-analysis". *Clin Mol Hepatol* 2025;31:268-274.
2. Jin YJ, Kim HY, Suh YJ, Lee CH, Yu JH, Kim MN, et al. Risk assessment of hepatitis B virus-related hepatocellular carcinoma development using vibration-controlled transient elastography: Systematic review and meta-analysis. *Clin Mol Hepatol* 2024;30(Suppl):S159-S171.
3. Huang DQ, Tran A, Yeh ML, Yasuda S, Tsai PC, Huang CF, et al. Antiviral therapy substantially reduces HCC risk in patients with chronic hepatitis B infection in the indeterminate phase. *Hepatology* 2023;78:1558-1568.
4. Choi WM, Yip TC, Wong GL, Kim WR, Yee LJ, Brooks-Rooney C, et al. Hepatocellular carcinoma risk in patients with chronic hepatitis B receiving tenofovir- vs. entecavir-based regimens: Individual patient data meta-analysis. *J Hepatol* 2023;78:534-542.
5. Lin CL, Kao JH. Development of hepatocellular carcinoma in treated and untreated patients with chronic hepatitis B virus infection. *Clin Mol Hepatol* 2023;29:605-622.
6. Korean Liver Cancer Association (KLCA) and National Cancer Center (NCC) Korea. 2022 KLCA-NCC Korea practice guidelines for the management of hepatocellular carcinoma. *Clin Mol Hepatol* 2022;28:583-705.
7. European Association for the Study of the Liver. EASL 2017 clinical practice guidelines on the management of hepatitis B virus infection. *J Hepatol* 2017;67:370-398.
8. Yuen MF, Tanaka Y, Fong DY, Fung J, Wong DK, Yuen JC, et al. Independent risk factors and predictive score for the development of hepatocellular carcinoma in chronic hepatitis B. *J Hepatol* 2009;50:80-88.
9. Wong VW, Chan SL, Mo F, Chan TC, Loong HH, Wong GL, et al. Clinical scoring system to predict hepatocellular carcinoma in chronic hepatitis B carriers. *J Clin Oncol* 2010;28:1660-1665.
10. Yang HI, Yuen MF, Chan HL, Han KH, Chen PJ, Kim DY, et al. Risk estimation for hepatocellular carcinoma in chronic hepatitis B (REACH-B): development and validation of a predictive score. *Lancet Oncol* 2011;12:568-574.
11. Sharma SA, Kowgier M, Hansen BE, Brouwer WP, Maan R, Wong D, et al. Toronto HCC risk index: a validated scoring system to predict 10-year risk of HCC in patients with cirrhosis. *J Hepatol* 2017 Aug 24. doi: 10.1016/j.jhep.2017.07.033.
12. Papatheodoridis G, Dalekos G, Sypsa V, Yurdaydin C, Buti M, Goulis J, et al. PAGE-B predicts the risk of developing hepatocellular carcinoma in Caucasians with chronic hepatitis B on 5-year antiviral therapy. *J Hepatol* 2016;64:800-806.

### Abbreviations:

CHB, chronic hepatitis B; HBeAg, hepatitis B e antigen; HCC, hepatocellular carcinoma; LS, liver stiffness; TE, transient elastography

13. Kim JH, Kim YD, Lee M, Jun BG, Kim TS, Suk KT, et al. Modified PAGE-B score predicts the risk of hepatocellular carcinoma in Asians with chronic hepatitis B on antiviral therapy. *J Hepatol* 2018;69:1066-1073.
14. Kim HY, Lampertico P, Nam JY, Lee HC, Kim SU, Sinn DH, et al. An artificial intelligence model to predict hepatocellular carcinoma risk in Korean and Caucasian patients with chronic hepatitis B. *J Hepatol* 2022;76:311-318.
15. Majumdar A, Campos S, Gurusamy K, Pinzani M, Tsochatzis EA. Defining the minimum acceptable diagnostic accuracy of noninvasive fibrosis testing in cirrhosis: a decision analytic modeling study. *Hepatology* 2020;71:627-642.