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The Impact of Chronic Hepatitis B on Liver Fibrosis in Metabolic Dysfunction-Associated Steatotic Liver Disease

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Project Aims & Objectives

The overlap between chronic hepatitis B (CHB) and metabolic dysfunction-associated steatotic liver disease (MASLD) has been growing.

This study aimed to investigate the effect of chronic hepatitis B virus (HBV) infection on the progression of significant liver fibrosis in patients with MASLD.

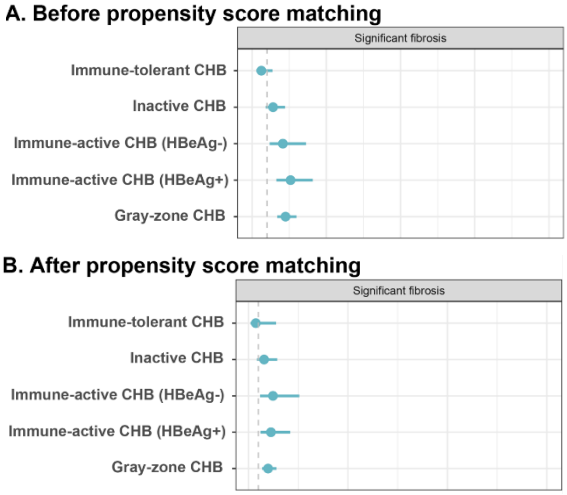
Methods

We enrolled MASLD patients who underwent liver biopsy at 16 centers in China between April 2004 and April 2024. Logistic regression analyses were conducted to examine the association between CHB and fibrosis/cirrhosis. Propensity score matching was used to reduce confounding and balance MASLD patients with and without CHB.

Results

A total of 2,703 MASLD patients were included in the study (median age 40 years, 70.81% male), including 892 with MASLD only and 1,811 MASLD with CHB, among whom 930 were treatment-naïve CHB. Significant fibrosis was more common in MASLD patients with CHB than in those with MASLD only (50.86% vs. 37.33%, P<0.001). Multivariate regression indicated that concurrent CHB was independently associated with higher risks of significant fibrosis (OR: 2.28, 95% CI: 1.81-2.89, P<0.001;). Both immune-active and gray-zone CHB were associated with increased risks of significant fibrosis (HBeAg-negative immune-active: OR: 2.07, 95% CI: 1.18-3.63, P=0.012; HBeAg-positive immune-active: OR: 2.59, 95% CI: 1.64-4.08, P<0.001; Gray-zone: OR: 2.25, 95% CI: 1.70-2.98, P<0.001;). These findings remained consistent after PSM adjustment.

Figures



Multivariable logistic regression analysis of the impact of CHB phases (2018 AASLD) on significant fibrosis in MASLD patients before and after PSM. Note: Adjusted by gender, age, steatosis, ALT, AST, BMI, TG, FPG, HDL, HB, TB, PT.

Conclusion

CHB independently increases the risk of significant fibrosis in MASLD patients, particularly in immune-active or gray-zone phases. This highlights the need for targeted screening and individualized management in high-risk groups.