Insights into the GALAD score: A new optimal cut-off for hepatocellular carcinoma

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Abstract

BACKGROUND

Chronic liver disease (CLD) causes approximately two million deaths each year, and its clinical diagnosis and management remain challenging. Ultrasound is currently the most widely used technique for disease detection.

AIM

To propose a practical cut-off value for identifying patients with hepatocellular carcinoma (HCC) among those with compensated advanced CLD or healthy individuals using the GALAD score, an algorithm based on a formula that incorporates gender, age, serum alpha-fetoprotein (AFP), AFP-L3, and des-gamma-carboxy prothrombin values.

METHODS

This cross-sectional analysis was conducted using prospectively collected data from five cohorts (n = 1431) comprising healthy individuals, cirrhosis, and HCC patients. These subjects were enrolled from an Italian retrospective cohort, including patients from the IRCCS “Saverio de Bellis”, Department of Gastroenterology, the University of Modena and Reggio Emilia Gastroenterology Department, and the Padua University Hospital and the Department of Gastroenterology, Hepatology, Infectious diseases and Endocrinology, Hannover Medical School.

RESULTS

Using healthy subjects as reference, a GALAD score cut-off of -1.67 identified HCC with a sensitivity of 89.77% and specificity of 97.59%. Individuals with GALAD values > -1.67 exhibited a moderate to very high probability (over 90%) of having HCC. When cirrhotic patients were used as the reference category, a cut-off of -0.77 yielded a sensitivity of 78.17% and a specificity of 89.55%.

CONCLUSION

We strongly recommend incorporating this GALAD cut-off into clinical guidelines for the screening of patients with a compensated advanced CLD who are at high risk of developing HCC. Given the rapid global rise in metabolic-associated steatotic liver disease (MASLD)-related CLD, future research should prioritize larger MASLD cohorts to establish the most appropriate GALAD cut-off for diagnostic use, compared to healthy controls and to patients with other forms of CLD.