

Abstract

TITLE: A Sequential Combination of Baveno VI Criteria with Splenic Stiffness Measurement or Other Non-Invasive Tests for Screening High Risk Esophageal Varices

A SEQUENTIAL COMBINATION OF BAVENO VI CRITERIA WITH SPLENIC STIFFNESS MEASUREMENT OR OTHER NON-INVASIVE TESTS FOR SCREENING HIGH-RISK ESOPHAGEAL VARICES IN COMPENSATED ADVANCED CHRONIC LIVER DISEASE

Authors: Nichamon Suttitossatam, Kachonsak Yongwatana

Institution: Division of Gastroenterology and Hepatology, Department of Medicine, Phramongkutklao Hospital, Bangkok, Thailand

Background: Detecting high-risk esophageal varices (HRV) in cirrhotic patients is crucial for timely intervention and prevention of portal hypertensive complications such as variceal bleeding. Endoscopy is the gold standard for diagnosis but invasive and may pose risks. We sought to explore the sequential step after the Baveno VI consensus recommendation, which involves non-invasive methods to identify patients with a high likelihood of high-risk varices (HRV), based on splenic stiffness measurements (SSM) at 100 Hz and 50 Hz, along with other laboratory-validated non-invasive tests (NITs), using esophagogastroduodenoscopy (EGD) as the reference.

Methods: A total of 130 patients with compensated advanced chronic liver disease (cACLD), who were candidates for variceal screening according to Baveno VI (transient elastography ≥ 20 kPa or Platelet count $\leq 150 \times 10^9/L$), were enrolled. SSM at 50 Hz, SSM at 100 Hz, liver stiffness measurement (LSM) determined by vibration-controlled transient elastography (VCTE), and associated laboratory tests were collected. Upper endoscopy was performed, and esophageal varices (EVs) types were defined as high-risk esophageal varices (HRV) according to the Baveno VI consensus. Diagnostic performances were assessed using sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), compare accuracy by area under receiver operating characteristic curves (AUROC) as well as the spared endoscopy rate (SER) and missed high-risk varices (HRV).

Result: Ninety-three patients met the inclusion criteria. The most frequent etiology of cACLD is alcohol (33.3%), followed by chronic hepatitis C and B viruses (21.5% and 19.4% respectively). High-risk esophageal varices (HRV) were found in 35 patients (37.6%). The accuracy of SSM at 100 Hz for detecting the presence of HRV was higher than other non-invasive tests. The AUROC values of SSM at 100 Hz, SSM at 50Hz, AST to platelet ratio index (APRI), the combination of APRI and Fibrosis-4 (FIB-4), and FIB-4 were 0.778, 0.757, 0.743, 0.726, and 0.690, respectively. The sensitivity, specificity, PPV, and NPV of SSM at 100 Hz with a cutoff of 40 kPa were 91.4%, 44.8%, 50%, and 89.7%, respectively, while the spared endoscopy rate (SER), missed HRV/total HRV, missed HRV/all patients were 31%, 8.6%, and 3.2% respectively. The cutoff values for the greatest diagnostic accuracy in predicting HRV in this study were 51 kPa for SSM at 50 Hz, 0.98 for APRI, and 4.54 for FIB-4.

Conclusion: The sequential combination of BAVENO VI criteria with SSM at 100 Hz or other NITs may be useful for discriminating HRV among patients with cACLD, demonstrates the highest diagnostic accuracy for HRV, and further substantially reduces the need for endoscopy, with an acceptable rate of missed HRV, particularly with SSM at 100 Hz.

Keywords: Cirrhosis, Esophageal varices, high-risk esophageal varices (HRV), Splenic stiffness measurement, BavenoVI, BavenoVII, compensated advanced chronic liver disease(cACLD)

