

Diagnostic Accuracy of Portal Vein Congestion Index for Detecting Esophageal Varices in Cirrhosis

Dr. Anand Kumar Sharma

VMMC & Safdarjung Hospital, New Delhi, Delhi, India

Dr. Rohini Gupta Ghasi

VMMC & Safdarjung Hospital, New Delhi, Delhi, India

Dr. Manisha Bais Thakur

VMMC & Safdarjung Hospital, New Delhi, Delhi, India

Abstract:

Background: Esophageal varices are a major complication of cirrhosis and require timely identification to prevent life-threatening hemorrhage. Upper gastrointestinal endoscopy remains the gold standard, but its invasiveness and limited availability create a need for reliable non-invasive alternatives. This study evaluated the diagnostic accuracy of the portal vein congestion index (PVCi) and related Doppler parameters for detecting esophageal varices in cirrhotic patients.

Methods: This observational cross-sectional study included 40 adult cirrhotic patients. Ultrasonography with Doppler was performed to measure portal vein cross-sectional area, mean portal vein velocity, and calculate PVCi. Upper GI endoscopy served as the reference standard for diagnosing and grading varices. Receiver operating characteristic (ROC) analysis was used to assess diagnostic performance.

Results: Varices were present in 34 patients (85%), predominantly Grade II (50%) and Grade III (22.5%). PVCi demonstrated limited discriminatory ability (AUC 0.554), with sensitivity 76.47% and specificity 0% at the optimal cutoff (>0.047). Portal vein cross-sectional area showed modest performance (AUC 0.588). Mean portal vein velocity was the strongest predictor (AUC 0.833), with sensitivity 79.41% and specificity 83.33% at ≤ 12.8 cm/s, yielding the highest diagnostic accuracy (80%).

Conclusion: PVCi alone showed limited diagnostic value for detecting esophageal varices in cirrhosis. However, mean portal vein velocity demonstrated good diagnostic accuracy and may serve as a more reliable non-invasive marker. Integrating Doppler parameters may help prioritize patients for endoscopic evaluation, particularly in resource-limited settings.