Noninvasive prediction of portal hypertension and liver fibrosis

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Abstract

Portal hypertension (PH) is liable for most of the complications that mark the transition from compensated to decompensated cirrhosis, namely variceal hemorrhage, ascites and hepatic encephalopathy. thanks to the invasiveness, requirement for advanced technical expertise and high costs related to HVPG measurements, the introduction of easy, noninvasive screening and diagnostic methods would represent an excellent clinical advancement. The aim of this work is to guage the diagnostic efficacy of noninvasive liver fibrosis indexes within the diagnosis of PH. this can be a prospective study conducted within the period 2012-2016 including 87 cirrhotic patients. These patients are admitted within the Department of Gastrohepatology at University heart of Tirana missioner in Tirana and also followed at the policlinic specialities in Tirana. A multivariate logistic model of serum markers showed that AST-to-platelet (PLT) ratio index (APRI), AAR (AST/ALT ratio), Fib-4, fibrosis index (FI) were related to PH. Also portal blood flow was measured and upper endoscopy was performed. Actually they couldn???t undergo hepatic blood pressure gradient (HVPG) evaluation. For the diagnosis of cirrhosis AUCs were 0.879 and 0.851 for APRI and FIB-4 respectively and predicted the presence of clinically significant malignant hypertension (CSPH), with the very best PPV (94%) and (93.3%). No significant difference was found between them and ROC curve for Echo Doppler (pairwise comparison of ROC APRI ~ Echo_Doppler p=0.8 curves, Echo_Doppler ~ Fib_4 p=0.5).

Noninvasive liver fibrosis indexes may be used not only as a first-line screening method for CSPH but also for predicting esophageal varices (EV) in cirrhotic patients also as proxy for fluxmetric measurement. The assessment of malignant hypertension may be a relevant step within the evaluation of newly diagnosed advanced chronic disease (ACLD). this gold standard includes the invasive evaluation of hepatic blood pressure gradient (HVPG) and endoscopy. However, noninvasive or minimally invasive techniques to assess malignant hypertension are proposed and well established. within the present manuscript, we review clinical studies on the employment of noninvasive or minimally invasive techniques to assess malignant hypertension in ACLD patients. A review of the pathophysiology and explanation of malignant hypertension is beyond the scopes of the current manuscript that focuses on noninvasive assessment of the portal pressure gradient (HVPG). However, reminding that variceal hemorrhage, ascites, spontaneous bacterial peritonitis, and hepatorenal syndrome are among the possible complications of PH is enough to underline the clinical relevance of this syndrome. Consequently, the assessment of clinically significant malignant hypertension (CSPH) in cirrhotic patients is of utmost importance. Until today, the gold standard for the evaluation of HVPG is represented by transvenous catheterization of the vena. HVPG is one in every of the most effective prognostic indicators up to now in patients with liver cirrhosis. Several studies have highlighted the worth of this method in predicting the clinical history or the looks of events in cirrhotic patients. the primary important threshold is 10 mmHg, which defined as a cutoff of CSPH, beyond which the event of ascites, varices, and hepatorenal syndrome is also observed [6–8]. Furthermore, patients with an HVPG > 10 mmHg are at increased risk of developing hepatocarcinoma [9] and decompensation after hepatic resection [10].

On the opposite hand, an HVPG below 10 mmHg is related to a high probability (approximately 90%) of remaining compensated over a period of 4 years [8]. ackground: Recent data suggest that noninvasive liver fibrosis indexes may well be useful for predicting esophageal varices (EV) in cirrhotic patients. However, thus far, the diagnostic efficacy of those indexes in predicting malignant hypertension (PH) in cirrhotic patients has been poorly evaluated. to guage the diagnostic efficacy of noninvasive liver fibrosis indexes within the diagnosis of PH. a complete of 238 cirrhotic patients underwent hepatic blood pressure gradient (HVPG) evaluation and relevant serum tests to investigate the variables related to PH grade. Then, the diagnostic performances of seven fibrosis indexes, the aspartate aminotransferase (AST)-to-alanine aminotransferase (ALT) ratio (AAR), AST-to-platelet (PLT) ratio index (APRI), fibrosis index (FI), FIB-4, Forns

index, King's score and therefore the Lok index, were evaluated to work out their efficacy in predicting clinically significant PH (CSPH) and severe PH (SPH). additionally, the performances of those fibrosis indexes in numerous subgroups were investigated. Liver cirrhosis may be a major reason for morbidity and mortality worldwide and is related to increasing health burden and costs.1 it's a awfully heterogeneous and dynamic condition, and a minimum of two distinct stages should be recognized: compensated and decompensated cirrhosis.2 Decompensation includes the event of clinical events like ascites, variceal bleeding, hepatic encephalopathy, or hepato-renal syndrome, and it's related to a big decrease in patient survival.3 Cirrhosis within the compensated phase, on the opposite hand, is related to an up to 80% 5-year survival rate; it will be further classified consistent with the degree of malignant hypertension, as evaluated by its gold standard,4 the hepatic blood pressure gradient (HVPG) malignant hypertension (HVPG <5 mmHg), with mild malignant hypertension (HVPG >5 mmHg, but <10 mmHg), or clinically significant malignant hypertension (CSPH, and HVPG ≥10).5 the event of CPSH is a crucial hallmark within the explanation of liver cirrhosis and is related to an increased risk of gastroesophageal varices, hepatic decompensation, malignant hepatoma (HCC), and mortality.5 In this view, early identification of patients with compensated cirrhosis and risk stratification consistent with the severity of malignant hypertension is of utmost importance for the hepatologist. within the last years, several non-invasive tests are developed and validated for these purposes, with liver (LSM) and spleen stiffness measurement (SSM) being the foremost promising tools available.6 within the present paper, we aim to summarize the pros and cons and therefore the evidence supporting the utilization of both invasive and non-invasive tests (NITs) within the diagnosis of malignant hypertension.