ABSTRACT

INTRARENAL RESISTIVE INDEX AS A PROGNOSTIC PARAMETER IN PATIENTS WITH LIVER CIRRHOSIS COMPARED WITH OTHER HEPATIC SCORING SYSTEMS

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Background:

Advanced liver cirrhosis is associated with a poor clinical outcome. Therefore, assessment of prognosis is important in the management of these patients. The Child-Pugh score has long been the most widely used specific scoring system in liver disease. In 2002, the Model for End-Stage Liver Disease (MELD) was introduced for patients undergoing transjugular intrahepatic portosystemic shunt. It is currently used to predict survival in patients awaiting liver transplantation. The MELD seems to be superior to the Child-Pugh score in prioritizing potential liver recipients according to mortality risk. However, it is only based on three laboratory variables, and thus does not take into account all prognostic factors that will impact on the survival of cirrhotic patients, notably complications due to portal hypertension. There is still a need for improvement of prognostic markers that could be easily integrated into the clinical management of these patients. Patients with advanced liver cirrhosis who develop renal dysfunction have a poor prognosis. Elevated intrarenal resistance indices (RIs) due to renal vascular constriction have been described before in cirrhotic patients. In the current study, we prospectively
investigated the course of intrarenal RIs and compared their prognostic impact with those of the Model for End-Stage Liver Disease (MELD) and the Child-Pugh scores.

AIMS AND OBJECTIVES
To study the levels of renal resistive index in patients at various stages of liver cirrhosis. To compare the values between patients with compensated and decompensated cirrhosis. To compare their prognostic impact with those of the Model for End-Stage Liver Disease (MELD) and the Child-Pugh scores.

MATERIALS AND METHODS:

The study was conducted on 50 Liver cirrhosis patients of any etiology as diagnosed by clinical, biochemical and imaging methods based on inclusion and exclusion criteria during the study period. Patients were divided into two groups: Patients with compensated cirrhosis (absence of ascites, hepatic encephalopathy, upper GI bleed) and Patients with decompensated cirrhosis. They underwent a baseline visit which included a sonographic examination and laboratory tests and prospectively monitored. The end points were death or survival at the day of the follow-up visit. Renal resistivity index was compared between two groups and compared with MELD and Child-Pugh score.

RESULTS: While compared RI with MELD SCORE mean MELD in patients with RI <0.7(30 patients) was 9.5 and in patients with RI>0.7(20 patients) was 31.5. Correlation coefficient was 0.903 indicates very good correlation. p value was <0.001. While compared RI with CHILD-PUGH SCORE mean CHILD-PUGH SCORE in patients with RI <0.7(30 patients) was 6.43 and in patients with RI>0.7(20 patients) was 13.1.
Correlation coefficient was 0.873 indicates very good correlation. p value was <0.001. RI was >0.7 in 17 liver cirrhosis patients with DECOMPENSATED FORM while RI >0.7 in only 3 patients with COMPENSATED FORM. P value was <0.001. At the end of 3 months of registration, patient’s clinical status was reviewed. 8 patients were died. All the 8 patients had RI >0.7. P value was <0.001. RENAL RESISTIVE INDEX correlated strongly with short term in-hospital mortality.

**CONCLUSION:** RI is not inferior in sensitivity and specificity to the existing hepatic scoring systems like MELD and CTP SCORE. Our study confirms that the RI, based on sonographic measurements of intrarenal resistance, is an effective noninvasive, economical functional test that provides useful information for the prognosis and management of cirrhotic patients. Elevated RIs may even disclose progress of the liver disease before changes in laboratory results. Therefore, the RI may help identify a subgroup of high-risk patients with a poor prognosis that require special therapeutic care.

**Keywords:** Liver cirrhosis, Resistance index, MELD score