



# ALBI and PALBI: Novel Scores for Outcome Prediction of Cirrhotic Outpatients Awaiting Liver Transplantation

Marcio F. Chedid,\* Rafael V. Picon,\*\* Aljamir D. Chedid\*

\* Liver and Pancreas Transplant and Hepatobiliary Surgery Unit, Hospital de Clínicas de Porto Alegre, Medical School of UFRGS, Porto Alegre, Brazil.

\*\* Department of Internal Medicine, Medical School of UNIVATES, Lajeado, Brazil.

## ABSTRACT

Cirrhosis has four different stages that encompass mild stable compensated cirrhosis, stable cirrhosis with prior decompensation, acutely decompensated cirrhosis and acute-on-chronic liver failure. A worse ALBI score has been associated to an increased mortality in a recent study involving patients with stable cirrhosis and prior decompensation.

**Key words.** Acute-on-Chronic liver failure. ALBI score. Cirrhosis. Liver transplantation. MELD score. PALBI score.

Cirrhosis has different etiologies including chronic alcohol consumption, chronic B and C viral hepatitis, non-alcoholic steatohepatitis and other genetic and metabolic diseases. Cirrhosis has different stages that encompass mild stable compensated cirrhosis, stable cirrhosis with prior decompensation, acutely decompensated cirrhosis and acute-on-chronic liver failure (ACLF). Each of these stages carries different risk of death. Model for Endstage Liver Disease (MELD) was developed by Mayo Clinic Rochester Hepatology team in 2001.<sup>1</sup> MELD score accurately predicted mortality in 4 independent data sets of patients with cirrhosis, (1) patients hospitalized for hepatic decompensation, (2) ambulatory patients with noncholestatic cirrhosis, (3) patients with primary biliary cirrhosis (PBC), and (4) unselected patients from the 1980s with cirrhosis.

For patients with mild stable compensated cirrhosis, usually there is no recommendation for liver transplantation (LT). An exception would be the scenario of a hepatocellular carcinoma (HCC) within Milan Criteria. In this setting, LT is aimed at preventing neoplastic dissemination and/or tumor rupture.<sup>2</sup> Such patients are listed for LT, and tumor progression usually is prevented through

ablative therapies (chemoembolization, radiofrequency ablation, ethanol injection and others).

The severe spectrum of cirrhosis comprises acutely decompensated cirrhosis and ACLF. Recently, the CLIF-AD score, a prognostic tool developed for hospitalized patients with acute decompensation of cirrhosis without ACLF, was validated through cohort studies in Europe and Brazil.<sup>3,4</sup> Likewise, ACLF has also gained much attention and at least three new prognostic tools had been validated to assess short- and long-term mortality among inpatients with ACLF: CLIF-C ACLF, NACSELD and AARC scores.<sup>4,5</sup>

On the other hand, prognostic scores for the assessment of survival in outpatients with stable cirrhosis and history of prior decompensation are lacking. In this issue of the *Annals of Hepatology*, the study by Oikonomou, *et al.* aimed to shed some light on the matter of prognostic evaluation of cirrhotic outpatients awaiting LT.<sup>6</sup> The ALBI score is a logarithm that involves only two variables (albumin and bilirubin), has been associated to a worse prognosis in HCC patients undergoing operative resection, transarterial chemoembolization and sorafenib treatment.<sup>7</sup>

The pioneering of the study by Oikonomou, *et al.* resides in its prospective design, homogenous study population and the large sample size.<sup>6</sup> The authors compared the discriminative performances of the albumin-bilirubin (ALBI) and the platelet-albumin-bilirubin (PALBI) scores against the well-established MELD and Child-Turcotte-Pugh (CTP) severity scores. A prospective cohort of 325 LT-listed stable outpatients with a history of prior decompensation of cirrhosis was studied.<sup>6</sup> ALBI and PALBI grades were strongly associated with transplant-free survival through Kaplan-Meier analyses. Moreover, on multivariate Cox regression, patients classified as ALBI grade 3 had a hazard ratio of 1.5 (95% CI: 1.04 to 2.23) for increased mortality.

ALBI and PALBI have revealed as being superior to CTP at predicting mortality in stable cirrhosis with prior decompensation.<sup>6</sup> In fact, ALBI and PALBI did not prove more accurate than MELD score for mortality prediction yet. As of now, ALBI and PALBI scores likely should not replace MELD score in this task. Further studies are warranted to clarify this matter. A different issue would be whether ALBI and/or PALBI scores could refine MELD score prognostic performance by rendering a synergistic effect on MELD's discriminative ability. Another question would relate to LT. MELD score has limited prognostic capability of predicting LT outcomes. Thus, could ALBI and/or PALBI scores prove superior in predicting LT outcomes?

## ABBREVIATIONS

- **AARC:** Asian Pacific Association for the Study of the Liver ACLF Research Consortium.
- **ACLF:** acute-on-chronic liver failure.
- **ALBI:** albumin-bilirubin.
- **CLIF-AD:** Chronic Liver Failure Consortium Acute Decompensation Score.
- **CLIF-C:** Chronic Liver Failure Consortium.
- **CTP:** Child-Turcotte-Pugh.
- **HCC:** hepatocellular carcinoma.
- **LT:** liver transplantation.
- **MELD:** Model for Endstage Liver Disease.
- **NACSELD:** North American Consortium for the Study of End-Stage Liver Disease.
- **PBC:** primary biliary cirrhosis.
- **PALBI:** platelet-albumin-bilirubin.

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## CONFLICT OF INTEREST

The authors declares that there is no conflict of interest regarding the publication of this article.

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### Correspondence:

Marcio F. Chedid, M.D., Ph.D.  
Liver and Pancreas Transplant and Hepatobiliary Surgery Unit,  
Hospital de Clinicas de Porto Alegre, Federal University of Rio  
Grande do Sul (UFRGS), Porto Alegre, Brazil.  
Rua Ramiro Barcelos 2350, 6th Floor, Room 600. Porto Alegre.  
90035-903, Brazil.  
E-mail: marciokedid@hotmail.com  
mchedid@hcpa.edu.br