

Comparison of Seven Prognostic Models For Spontaneous Bacterial Peritonitis

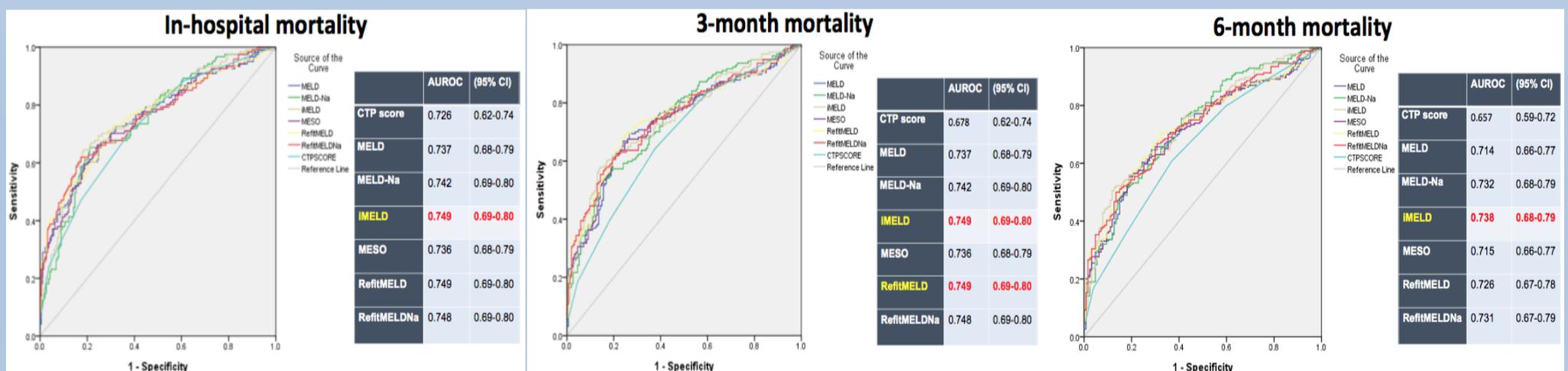
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Objectives: For prediction of the prognosis of spontaneous bacterial peritonitis (SBP) in patients with cirrhosis, no direct comparisons have been made among the seven models, the Child-Turcotte-Pugh classification (CTP), the model for end-stage liver disease (MELD), the model for end-stage liver disease with the incorporation of serum sodium (MELD-Na), the integrated model for end-stage liver disease (iMELD) score, and the model for end-stage liver disease to sodium (MESO) index, the modification of the Model for End-Stage Liver Disease (MELD) scoring system (Refit MELD) and the modification of MELD-Na (Refit MELDNa).

Methods: Between January 2010 and January 2017, 314 patients who met the criteria for liver cirrhosis(LC) with first episode of SBP, no remarkable hepatoma were enrolled in this retrospective study. Patients' clinical and laboratory data were obtained at diagnosis, and the Child-Turcotte-Pugh (CTP) and 6 MELD-based scores were calculated accordingly. Patients were followed up until August 2017 or until death.

Results: Patients were predominantly middle aged (mean age, 57.3 ± 13.6 years) and male (71.0%). 27.7% were HBV-related LC, 17.5% were HCV-related, 2.9% HBV+HCV co-infection, while 22.9% were alcohol related. The mean CTP score was 9.5 ± 1.6 (Child B). The in-hospital mortality rate was 39.8%. The cumulative 3-month and 6-month mortality rates were 51.6% and 60.2%, respectively. The CTP score and 6 MELD-based model scores could all predict the in-hospital, 3-month, and 6-month mortality. In addition, for predicting in-hospital mortality, iMELD had the best AUC (0.749), however none of these MELD-based predictive models showed significant superiority to the CTP score ($p=0.20$). For the 3-month and 6-month mortality, four prediction scores including MELD, iMELD, MESO, and RefitMELD had significantly better prediction abilities than the CTP classification, but there were no statistical differences among them though iMELD and RefitMELD had the highest AUC. (0.749 and 0.742 respectively. $iMELD > 48$ was the best cut-off for prediction of in-hospital, 3M mortality.



Conclusions: All these seven prognostic models could predict the in-hospital, 3-month, and 6-month mortality of SBP patients. All 6 MELD-based models were significantly better than the CTP score model in predicting 3-month and 6-month mortality. *iMELD* had the highest AUROC among these 6 MELD-based models despite no significant superiority to them.