Prognostic Role of Aspartate Aminotransferase -to- Alanine Aminotransferase Ratio and Lactate Dehydrogenase Levels in Resectable Colorectal Cancer

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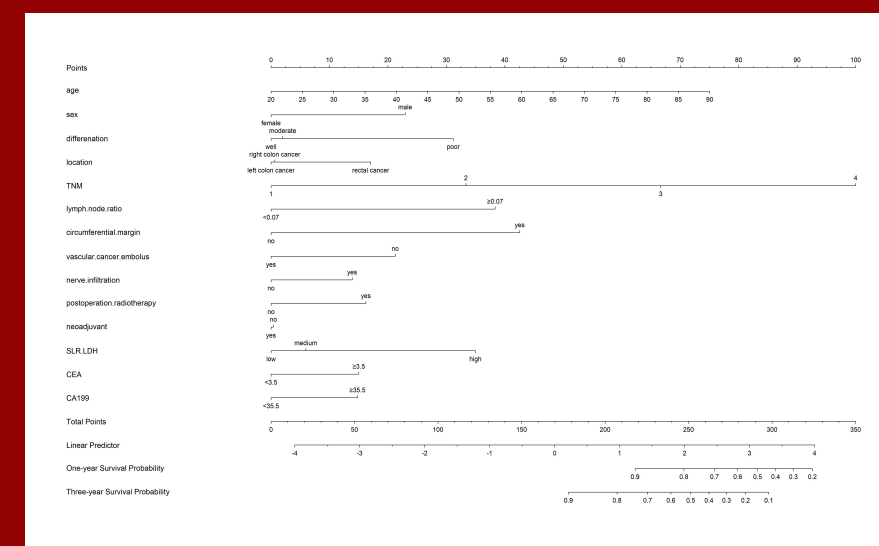
BACKGROYND

The state of liver function affects the tumors' treatment. But the relationship between transaminase and prognosis is not clear. Lactate dehydrogenase (LDH) is one of the common biomarkers affecting the prognosis of tumor, however, its specificity is not high. The aim of our study was to combine the two to find a specific prognostic factor for colorectal cancer (CRC).
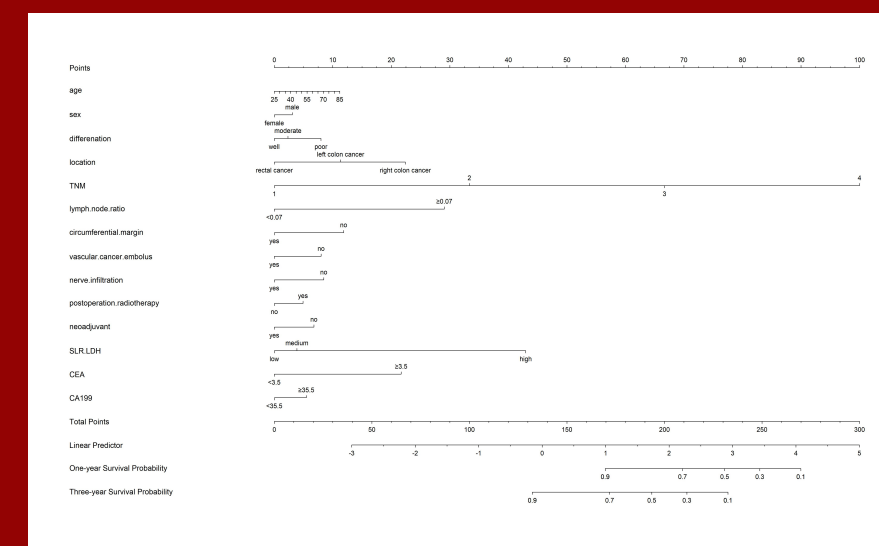
METHODS

Our study included 751 patients histopathologically confirmed CRC. Preoperative serum examinations were performed within one week before surgery. The SLR was defined as the level of aspartate aminotransferase divided by alanine aminotransferase. Patients were divided into a high-level group or a low-level group. Patients with a low SLR and low LDH level were scored as 0, those with a high SLR or a high LDH level were scored as 1, and those with a high SLR and high LDH level were scored as 2. The entire

Nomogram for OS in training cohort

Nomogram for OS in testing cohort

Kaplan-Meier survival of DIR.LDH in training cohort

Kaplan-Meier survival of DIR.LDH in testing cohort

ROC curves for the OS in training cohort

ROC curves for the OS in testing cohort

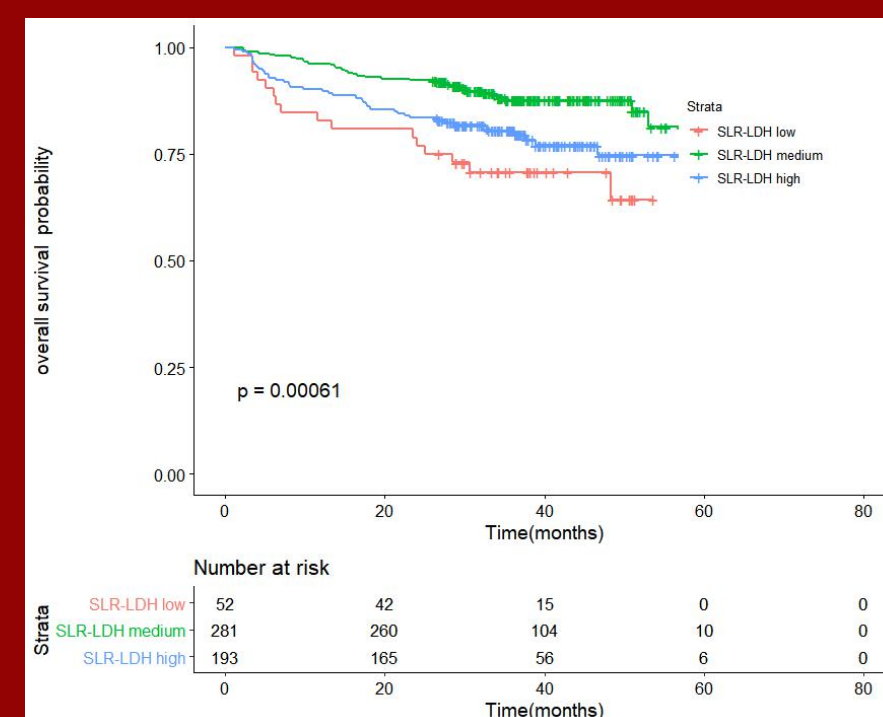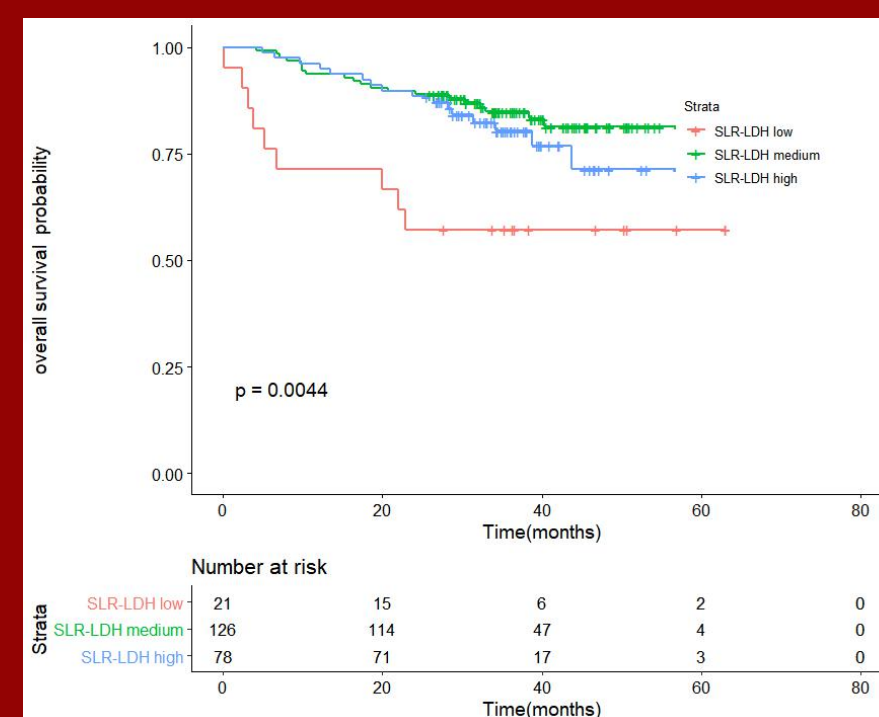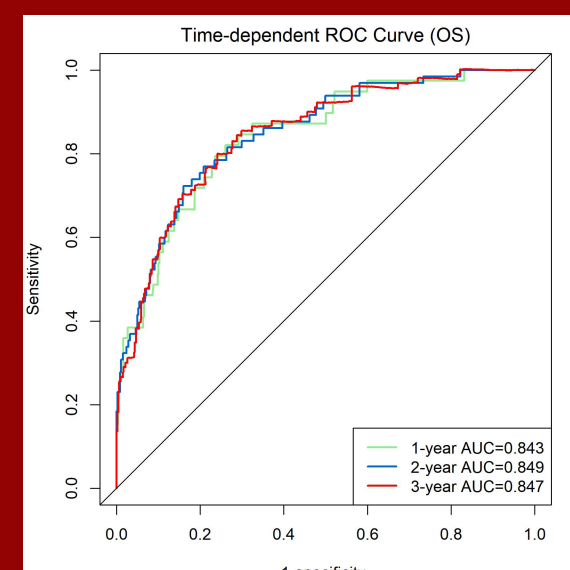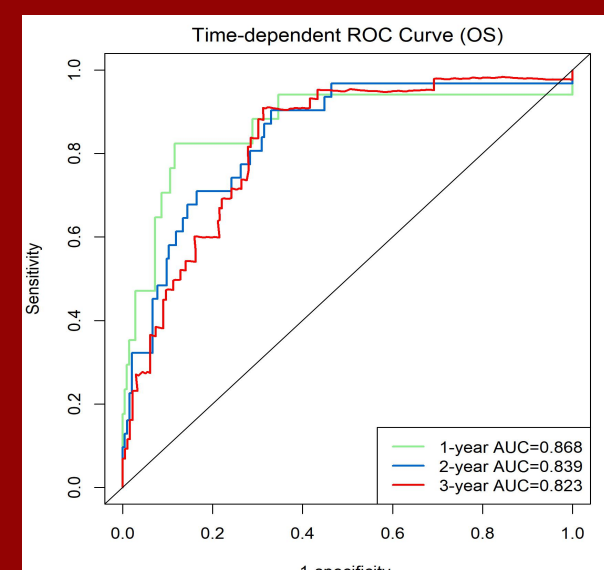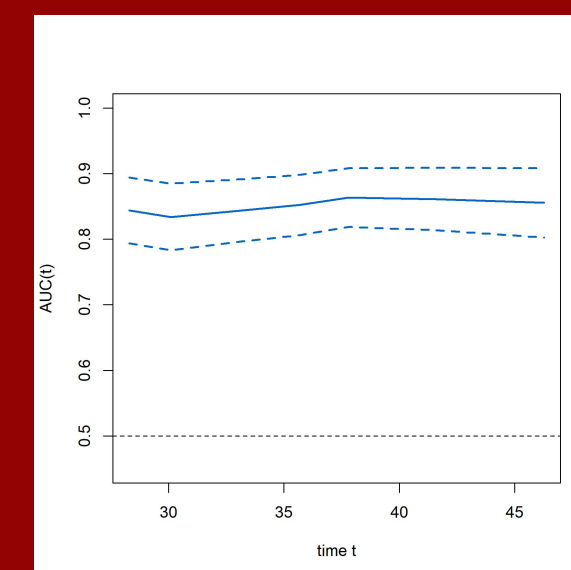Time-AUC curve for OS in training cohort

RESULTS

The median follow-up time was 35.4 months. Besides, the combination of SLR and LDH (SLR-LDH) was an independent prognostic factor in patients with resectable CRC (HR: 1.316; 95% CI, 1.041-1.664). More interestingly, the prognostic model based on age, sex, TNM stage, differenation, location, lymph node ratio, circumferential margin, vascular cancer embolus status, nerve infiltration status, SLR-LDH, CEA and CA199 was found to present exceptional performance in overall survival (OS) prediction [C-index: 0.823 (95% CI, 0.78-0.87) and Brier score: 0.031 for 1-year OS and 0.063 for 3-year OS]. When excluding patients with advanced CRC, the results show that the prognostic model maintained good performance for OS prediction [C-index: 0.778 (95% CI, 0.72-0.84) and Brier score: 0.072 for 1-year and 0.122 for 3-year OS].