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ABSTRACT

BOOK

Cardiology & Cardiac Surgery Session I

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HALP and mHALP as Effective Tools for 90-Day Mortality Prediction in Heart Failure

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Introduction

Congestive heart failure (CHF) is a chronic syndrome with high mortality rates, necessitating risk stratification tools. Existing models are complex and may not incorporate crucial inflammatory and nutritional biomarkers. The Hemoglobin, Albumin, Lymphocyte, and Platelet (HALP) score and modified HALP (mHALP) score, which reflect nutritional status and systemic inflammation, emerged as potential prognostic tools.

Aim of the study

This study aimed to evaluate the predictive performance of HALP and mHALP scores for 90-day mortality in CHF patients.

Materials and methods

This retrospective study utilized the MIMIC-IV database for 1000 adult CHF patients. HALP was calculated as $[\text{Hemoglobin (g/L)} * \text{Albumin (g/L)} * \text{Lymphocytes (/L)}] / \text{Platelets (/L)}$, and mHALP by multiplying these components. The primary outcome was 90-day all-cause mortality. Univariate and multivariate logistic regression analyses were performed, and models were assessed using Receiver Operating Characteristic (ROC) analysis and Youden's Index.

Results

A total of 1000 participants with CHF were enrolled in this study, of which 868 (86.8%) patients survived beyond 90 days, and 132 (13.2%) patients died within 90 days. Non-survivors had significantly lower median HALP (19.69 vs. 27.18) and mHALP (583,920.75 vs. 1,151,898.94) scores compared to survivors. In univariate analysis, HALP had an AUC of 0.63 and an OR of 0.25 for 90-day mortality, while mHALP showed a higher AUC of 0.68 and an OR of 0.22. After confounder adjusting, both log-transformed HALP (OR: 0.44) and mHALP (OR: 0.57) remained significant predictors of mortality. mHALP demonstrated better overall predictive performance.

Conclusions

Both HALP and mHALP scores are significantly associated with 90-day mortality in CHF patients, with mHALP exhibiting superior prediction. Easily calculable scores, derived from routine laboratory tests, offer a cost-effective, early risk stratification in CHF, potentially aiding in tailoring interventions.