



 **CARDIAC FUNCTION AND HEART FAILURE**

GALECTIN-3, CARDIAC STRUCTURE AND FUNCTION, AND LONG-TERM MORTALITY IN PATIENTS WITH ACUTE HEART FAILURE

ACC Poster Contributions
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Authors: *Ravi V. Shah, Annabel A. Chen-Tournoux, Michael H. Picard, Roland RJ van Kimmenade, James L. Januzzi, Massachusetts General Hospital, Boston, MA*

Background: Galectin-3 (gal-3), a β -galactoside-binding lectin macrophage product, is upregulated in models of hypertrophy before onset of frank heart failure (HF), promotes myocardial fibrosis and may play a role in LV remodeling. The relationship between gal-3 and cardiac structure in patients with acute dyspnea and the impact of gal-3 on long-term mortality in patients with known echocardiographic indices is unknown.

Methods: 115 patients presenting to the emergency department with acute dyspnea who had gal-3 levels and detailed echocardiographic studies on admission were studied. Regression analysis was used to identify echocardiographic and clinical correlates of gal-3.

Results: In the overall cohort of patients with acute dyspnea (N = 115), higher gal-3 levels were associated with older age ($r = 0.26$, $P = .006$), lower creatinine clearance ($r = -0.42$, $P < .001$), a higher blood urea nitrogen ($r = 0.38$, $P < .001$), and higher levels of N-terminal-proBNP ($r = 0.39$, $P < .001$) or C-reactive protein ($r = 0.26$, $P = .005$). Higher gal-3 levels were associated with tissue Doppler E/Ea ratio ($r = 0.35$, $P = .01$), lower tissue Doppler E wave velocity ($r = -0.25$, $P = .03$), a lower right ventricular fractional area change ($r = -0.19$, $P = .05$), higher RV systolic pressure ($r = 0.37$, $P < .001$), and more severe mitral ($r = 0.30$, $P = .001$) or tricuspid regurgitation ($r = 0.26$, $P = .005$). In the subgroup of patients diagnosed with acutely destabilized HF, the association between gal-3 and valvular regurgitation and RV systolic pressure persisted. In a multivariate Cox regression model including echocardiographic markers traditionally associated with poorer outcomes, gal-3 remained a significant, independent predictor of 4-year mortality (for the highest quartile of gal-3, HR = 14.29, 95% confidence interval 11.5-2196.2; $P < .001$).

Conclusions: Among dyspneic patients with and without acute HF, gal-3 levels are associated with echocardiographic markers of LV filling pressures, LV diastolic function, and RV function. In patients with acute HF, a single admission gal-3 level predicts mortality to four years, independent of other traditional echocardiographic markers of risk.