Global longitudinal strain during stress echocardiography predicts hospitalization for heart failure or acute coronary syndrome


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Funding Acknowledgements: Type of funding sources: Public Institution(s). Main funding source(s): National Institute of Cardiology of Mexico "Ignacio Chávez".

Background: Global longitudinal strain (GLS) has important prognostic value in different clinical scenarios. However, evidence regarding the value of GLS use during stress echocardiography is currently limited.

Purpose: To evaluate the prognostic value of GLS during stress echocardiography to predict hospitalization for heart failure or acute coronary syndrome.

Methods: We prospectively studied 62 patients with suspected ischemic heart disease referred for dipyridamole stress echocardiography with good images for GLS quantification. Datasets with at least 50 frames per second were obtained.

Results: Overall, 60 patients with baseline and stress GLS were included. 56% were men, BMI was 27.9 (18.5–47.7), age 60 ± 13 years, 31% had diabetes and 71.7% hypertension, ejection fraction was 59.97 (±9.83). Baseline GLS was 20.3 ± 3.7, and stress GLS 23.4 ± 4. Patients with hospitalization for heart failure or ACS had lower GLS values during stress 21.7 ± 3 vs 24.6 ± 4 (p = 0.022). Baseline GLS was non statistically significant in patients with hospitalization for heart failure or ACS 19 ± 2.7 vs 21.2 ± 3.8 (p = 0.06). A cut off value of GLS < 22.1 during stress echocardiography was useful to identify patients with increased risk of hospitalization for heart failure or ACS. AUC 0.75, sensibility 69.3%, specificity 82.4%, +LR 3.9, -LR0.37, Youden index 0.56.

Conclusions: GLS during stress echocardiography is related to increased risk of hospitalization for heart failure or ACS. A cut of value of < 22.1% during stress echocardiography might be useful to identify patients with higher risk.

Receiver operating characteristic curve