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SESSION TITLE: ECHOCARDIOGRAPHY: ADVANCES IN STRAIN AND FUNCTION

Abstract 14472: Left Ventricular and Atrial Function Indexes Derived From New Echocardiographic Techniques Are Independent Prognostic Predictors in Chagas Disease

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Abstract

Introduction: Chagas disease affects around 8 million people worldwide. Chagas disease hallmarks include sudden death and heart failure (HF). Indexes derived from new echocardiographic techniques can improve the prediction of adverse outcomes in Chagas disease.

Hypothesis: New left atrial (LA) and ventricular (LV) function parameters derived from real time 3-dimensional echocardiography and 2-dimensional strain analysis can yield new outcome predictors in Chagas disease.

Methods: Adult Chagas disease patients who underwent echocardiography between March 2010 and December 2013 were consecutively enrolled in this longitudinal study. Echocardiographic evaluation included 2-D echocardiogram, with evaluation of LV systolic and diastolic function (mitral inflow, pulmonary vein flow, and tissue Doppler analysis), and LA and LV function by real time 3-D echocardiography and strain analysis. Multivariate Cox proportional-hazards regression analysis was performed to identify independent predictors of a combined endpoint of all-cause mortality or admission due to worsening HF. Optimal cutoff values to predict outcome were determined by ROC curve analysis.

Results: A total of 404 patients (53±11 years old; 41% men) were followed during 3.8±1.9 years. Patients lost to follow-up (15%) were censored from analysis. The combined end-point occurred in 78 patients. LA minimal volume (HR 1.04, 95% CI 1.02 to 1.06, P=0.0001), peak negative global LA strain (HR 1.13, 95% CI 1.03 to 1.24, P=0.01), peak early LV diastolic myocardial (E') velocity (HR 0.70, 95% CI 0.59 to 0.83, P<0.0001), end-systolic LV diameter (HR 1.90, 95% CI 1.28 to 2.81, P=0.001), and LV torsion (HR 0.52, 95% CI 0.34 to 0.81, P=0.004) were independent predictors of the studied endpoint. Optimal cut-off values for LA minimal volume, peak negative global LA strain, E' velocity, end-systolic LV diameter, and LV torsion to predict the studied endpoint were 14.7 mL/m^2, -10.4 %, 6.8 cm/s, 4 cm, and 0.73^0/cm, respectively.

Conclusions: New echocardiographic techniques allowed the identification of new LA and LV function parameters capable of predicting adverse outcomes in Chagas disease independent from traditional 2D Doppler echocardiographic parameters.

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