🏛️ QUALITY OF CARE AND OUTCOMES ASSESSMENT

CAN STRAIN BY SPECKLE TRACKING IMAGING PREDICT MORTALITY IN PRIMARY AMYLOID PATIENTS WITH NORMAL LEFT VENTRICLE EJECTION FRACTION?

ACC Poster Contributions
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Background: 2D speckle tracking Echocardiography (STE) is a sensitive modality to evaluate heart function. Our aim was to assess left ventricle (LV) function by STE in patients with primary amyloid and normal ejection fraction and evaluate if these parameters are associated with mortality.

Methods: 118 amyloid patients (75 males) & 66 healthy individuals (21 males) were studied. Subjects with abnormal ejection fraction (LVEF <50%), severe valvular disease, arrhythmia, or prior cardiac surgery were excluded. LV longitudinal (L) & Circumferential (C) strain (S) and systolic strain rate (SRs) were measured (Syngo Velocity Vector Imaging, Siemens medical Solutions). All-cause death (43 patients) was the primary outcome; average follow-up was 3.3 ± 1.8 years.

Results: Characteristics of patients vs. controls include: age 59 ± 10 year vs. 59 ± 15 year, p = 0.89, BMI 26 ± 5 kg/m2 vs. 26 ± 4 kg/m2 p = 0.98, LVMI 122 ± 41 g/m2 vs. 84 ± 5 g/m2 p<0.001, left atrial volume index (LAVI) 40 ± 13 vs. 30 ± 10 cc/m 2 p < .001, LVEF 63 ± 7 % vs. 63 ± 4 % p=0.2, e' 0.06 ± 0.03 m/sec vs. 0.09 ± 0.03 m/sec p = 0.08, E/e' 15 ± 10 vs. 9 ± 3 p<0.001, respectively.

STE findings for patients and controls were: global L (average of 16 segments) S & SRs -12 ± 4 % vs. -17 ± 2 % p < 0.001, -0.77 ± 0.23 s-1 vs. -0.96 ± 0.14 s-1 p < 0.001, and global C (average of 6 segments) S & SRs -21± 5 % vs. -21 ± 5 % p = 0.42, -1.4 ± 0.4 s-1 vs. -1.2±0.3 s-1 p = 0.01, respectively.

Univariate predictors of mortality were: Global L S hazard ratio (HR) 1.18 (1.09-1.28) p < 0.001, global L SR HRI.27 (1.1 -1.47) p = 0.0001, LVMI HR1.009 (1.004-1.014) p = 0.002, left atrial volume index HR1.03 (1.0003-1.06) p = 0.048, and Log BNP HR1.31 (1.03-1.66) p = 0.026. In a multivariate model after adjusting for age, LVMI, and parameters of systolic and diastolic function, global L S was the best predictor with a HR of 1.22 (1.08-1.39) for each 1 % decrease of global L S, p=.0012. Other variables that were predictors of survival were left ventricle septum thickness, functional class and low voltage on the electrocardiogram.

Conclusion: Global longitudinal strain is reduced in primary amyloid patients with normal LVEF and is a significant predictor of survival.