HIGH FREQUENCY OF UNRECOGNIZED HIGH FILLING PRESSURES IN 1408 PATIENTS WITH ATRIAL FIBRILLATION AND NORMAL LEFT VENTRICULAR EJECTION FRACTION: ITS CLINICAL IMPLICATIONS

ACC Moderated Poster Contributions
McCormick Place South, Hall A
Monday, March 26, 2012, 9:30 a.m.-10:30 a.m.

Session Title: Arrhythmias: AF/SVT: Morbidity and Mortality associated with Atrial Arrhythmias
Abstract Category: 16. Arrhythmias: AF/SVT
Presentation Number: 1239-270

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Background: Atrial fibrillation (AF) is a common rhythm disorder and a major cause of morbidity, mortality and hospitalization. Based on our clinical observations, we hypothesized that unrecognized high filling pressures are common in these patients despite a normal left ventricular (LV) ejection fraction (EF). We investigated this in a large cohort of patients with AF who had an echocardiographic examination within a 3 month period.

Methods: Our electrocardiographic database was queried for patients with AF. Between 2007 and 2009, 2499 unique patients were identified. Demographic and echocardiographic data were collected. Of the 2499 patient with AF, 1408 (56%) had normal LVEF (≥55%) and formed the study population. Diagnosis of elevated left atrial (LA) pressure was based on mitral E wave deceleration time <150 ms, E/Em ratio >15 or pulmonary vein D-wave deceleration time <170 ms. Elevated right atrial (RA) pressure was diagnosed based on dilated inferior vena cava and its reduced response to inspiration.

Results: Of the 1408 patients with AF and normal EF, 676 (48%) patients had elevated filling pressures. Presence of elevated filling pressures correlated with older age (75+13 vs 72+15 years, p<0.0001), female gender (61 vs 48%, p<0.0001), greater biatrial dilatation (p<0.0001), right ventricular dilatation and dysfunction (p<0.0001), greater QRS duration (95 vs 91 ms, p<0.0001), right bundle branch block (14 vs 9%, p=0.01) and anterior Q waves on the ECG (13 vs 9%, p=0.02). Majority (64%) of these patients were not being treated for heart failure as their “restrictive physiology” went unrecognized.

Conclusions: (1) “Diastolic heart failure” or “restrictive ventricular physiology” occurs in about half of the AF patients with normal EF. (2) It is unrecognized in two thirds of them. (3) We speculate that raised atrial pressures may indicate an incipient myopathic process in many of the AF patients with normal EF and may potentially play a significant role in continued atrial remodeling and poor rate and rhythm controls.