Abstract: P1528

Assessment of diastolic function in patients with heart failure and atrial fibrillation

Authors:
R Ventura Gomes¹, J Pais², A Pereira³, D Sebaiti³, B Rocha⁴, G Cunha⁴, A Marques³, M Quadrado³, I Cruz³, AR Almeida³, P Fazendas³, I Joao³, H Pereira³, ¹Hospital de Vila Franca de Xira, Cardiology - Vila Franca de Xira - Portugal, ²Hospital Espirito Santo de Evora, Cardiology - Evora - Portugal, ³Hospital Garcia de Orta, Cardiology - Almada - Portugal, ⁴Hospital de Santa Cruz, Cardiology - Lisbon - Portugal,

Topic(s):
Atrial Fibrillation - Epidemiology, Prognosis, Outcome

Citation:

Introduction
Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia and is associated with an increased risk of thromboembolic events (TE), all-cause mortality, heart failure (HF) and cardiovascular morbidity. In patients (pts) with HF, AF is also the most common arrhythmia and a marker of worse outcomes. Assessment of left ventricular (LV) diastolic function (DF) is paramount in echocardiographic evaluation of HF pts.

Purpose
To investigate the impact of LV DF transthoracic echocardiographic parameters on the prognosis of pts with AF and HF.

Methods
Retrospective case-control study of pts with permanent AF and HF, who were assessed in our echocardiography laboratory between January 2015 and December 2016 with a comprehensive evaluation of DF (mitral inflow E velocity, E wave deceleration time and tissue Doppler septal and lateral mitral annulus velocities (e’) and E/e’ ratios). The follow-up (FU) duration was 2.6±0.8 years. Clinical and echocardiographic data were collected. The outcome was a composite of TE, HF hospitalization (HHF) and all-cause mortality.

Results
Of the 171 pts with AF, 113 were included (mean age 74.7±9.3 years; 46.0% male; left ventricular ejection fraction 44.6±13.4%; CHA2DS2-VASc 4.4±1.4). During FU, 72 pts had at least one event of the composite outcome. Sixteen (14.2%) had at least one TE, 43 (38.1%) had a HHF and 42 (37.2%) died. Pts with events were older (76.3±8.8 years vs 71.9±9.5 years, p=0.015), had higher CHA2DS2-VASc score (4.6±1.2 vs 4.0±1.6, p=0.059), NT-proBNP levels (3351±4735 pg/mL vs 1046±1162 pg/mL, p<0.0001) and average E/e’ ratio (15.5±6.8 cm/s vs 11.8±5.5 cm/s, p=0.044). Additionally, these pts were more likely to have had increased left atrium dimensions (73.1±23.6 mL/m² vs 71.2±64.6 mL/m², p=0.822) and lower estimated glomerular filtration rate (59.7±26.6 mL/min/1.73 m² vs 68.6±24.0 mL/min/1.73 m², p=0.094), E wave deceleration time (186.8±38.7 ms vs 210.8±61.6 ms, p=0.083) and average e’ velocity (7.3±2.1 cm/s vs 9.0±2.6 cm/s, p=0.02). In multivariate analysis, only average e’ velocity was the only independent predictor of the composite outcome (OR 0.296, CI 0.10-0.88, p=0.029). ROC curve showed a reasonable discriminative capacity for average e’ velocity (AUC 0.687, p=0.032), with similar findings for pts with HF with preserved, mid-range and reduced ejection fraction.

Conclusion
Average e’ velocity was a predictor of adverse events in patients with HF and AF, independent of other clinical and echocardiographic data. Echocardiographic assessment of LV DF is a simple and fundamental step of any HF routine echocardiographic evaluation. If prospectively validated, this finding may be useful in risk
stratification of pts with HF and AF, either alone or potentially integrated in a model of risk prediction.