

fied on 1:1 propensity score (PS)-matched NOAC (n=946) and warfarin groups (n=946).

Results: Baseline characteristics were well balanced between the two matched groups. Median age was 67 years (interquartile range: 58 to 74 years), 55.9% male, and median CHA₂DS₂-VASc score was 5 (interquartile range: 3 to 6). A total of 51.9% of the NOAC-treated patients received a reduced dose of dabigatran, rivaroxaban, or apixaban. After a mean 1.30 years of follow-up, the incidence of ischemic stroke and major bleeding were similar between NOAC- and warfarin treated patients. The incidence for ischemic stroke was 10.99 and 9.38 per 100 person-years for NOACs and warfarin, respectively (adjusted hazard ratio [aHR]: 0.996; 95% confidence interval [CI] 0.763–1.299; p=0.975). Major bleeding occurred in 5.48 per 100 person-years in the NOAC group vs. 5.26 in warfarin group (aHR: 0.932; 95% CI 0.649–1.338; p=0.703). However, patients treated with NOAC showed a significantly lower risk of all-cause mortality and the composite net clinical outcome (ischemic stroke, major bleeding, and all-cause death) compared to those on warfarin. The incidence of all-cause death was 4.98 and 10.69 per 100 person-years for NOACs and warfarin, respectively (aHR: 0.442; 95% CI 0.318–0.613; p<0.0001). The benefits were consistent across various high-risk subgroups.

Conclusions: Compared with those with warfarin, HCM patients with AF on NOACs had lower risk of all-cause mortality and similar risk of major bleeding and ischemic stroke.

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Left atrial remodelling in hypertrophic cardiomyopathy, contributing factors and associated outcomes

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Background: In hypertrophic cardiomyopathy (HCM), left atrial (LA) dilation is associated with increased risk of atrial fibrillation (AF), heart failure and cardiac arrest. However, the factors which influence LA remodelling are not well described.

Purpose: To describe the rate of LA remodelling, associated factors and subsequent clinical outcomes in HCM.

Methods: Baseline and follow-up echocardiograms (2-dimensional, Doppler, tissue Doppler indices - TDI) were analysed by an experienced echocardiographer blinded to clinical factors or outcomes in an HCM cohort followed by an established adult centre. Patients were excluded if there was <1 year between first and last echocardiogram, AF was present before follow-up echocardiogram, prior myectomy, or for poor image quality. Clinical features and associated outcomes were obtained from medical records.

The rate of LA remodelling was calculated by dividing the change in size by the time (in years) between studies. Multivariable linear and logistic regression were used to identify factors associated with LA remodelling and incident AF after controlling for age and body surface area (BSA).

Results: A total of 205 HCM patients were studied: mean age 44.4±15.8 years, 40% female, 41% had sarcomere mutations, NYHA class I/II/III 61%/30%/9%, septal thickness 17±5 mm, LV ejection fraction (LVEF) 65±9%, 30% had obstruction (LV outflow tract gradient ≥30 mm Hg at rest or ≥50 mmHg with Valsalva). At baseline, LA diameter was 4.1±0.6 cm (range 2.4–6.2) and LA volume indexed to BSA (LAVI) was 34±12 ml/m² (range 11–75) with at least mild LA enlargement present in over 50%.

Over a median 5.0 years (IQR 2.7–7.8) follow up, LA diameter increased by 0.2±0.4 cm and LAVI by 5±10 ml/m². The baseline ratio of the peak E-wave velocity to septal TDI e' velocity (E/e') and estimated pulmonary artery systolic pressure were significantly associated with LA enlargement (p=0.0007 and 0.049 respectively). The relationship between E/e' remained significant after controlling for age, BSA, LVOT gradient, LVEF, and mitral regurgitation. In univariate and multivariate analyses, other clinical and echocardiographic variables, including age, genetic status, blood pressure, LVEF, and the presence or degree of LVOT obstruction, were not associated with LA remodelling.

Incident AF developed in 35 patients (17%). Baseline LA diameter was larger (4.5 vs. 4.0 cm, p<0.01) in patients who developed AF. In a multivariable model including age, BSA, and baseline E/e', baseline LA size (p=0.007) and rate of LA enlargement (p=0.01) were significantly associated with the development of AF.

Conclusions: Remodelling of the LA is a common feature of HCM that is progressive and associated with future development of AF. E/e', rather than obstruction, was strongly associated with progressive LA remodelling in this cohort. These findings support the importance of altered myocardial function and haemodynamics in LA remodelling in HCM.

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Impact of left atrial enlargement on very long-term outcomes in patients with hypertrophic cardiomyopathy

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Background: Left ventricular (LV) diastolic dysfunction is associated with poorer outcomes in patients with hypertrophic cardiomyopathy (HCM). Mid- to long-term

follow-up studies have previously suggested that left atrial volume index (LAVI), a parameter of LV diastolic dysfunction, is an independent predictor of cardiovascular events in HCM patients.

Objective: To evaluate the association of baseline echocardiographic parameters with very long-term outcomes in HCM patients.

Methods: A total of 101 patients who visited our hospital from April 1996 to February 2002 and met diagnostic criteria for HCM (71 men; mean age ± SD, 60.8±12.5 years) were followed for 130.9±75.0 months (median, 163 months; interquartile range, 47.3–199 months). They were in sinus rhythm at the time of echocardiography examination. The outcome measure was major adverse cardiac and cerebrovascular events (MACCE) defined by a composite of symptomatic stroke, exacerbation of heart failure (HF) requiring hospitalization, sustained ventricular tachycardia/fibrillation (VT/VF), and sudden death.

Results: MACCE occurred in 29 patients (10 strokes, 13 exacerbations of HF, 6 VT/VFs, 5 sudden deaths). LAVI was significantly greater in patients with MACCE than those without MACCE (38.5±13.3 vs. 32.4±9.8 ml/m², p=0.013), while there were no significant differences in the other echocardiographic parameters except LA size. Multivariate analysis indicated that LAVI was an independent predictor of MACCE (hazard ratio, 1.074; 95% confidence interval, 1.029–1.123; p<0.01). Kaplan-Meier analysis showed only 38% MACCE-free survival at 15 years in patients with LAVI >32.7 ml/m², which was significantly worse than those with LAVI ≤32.7 ml/m² (log-rank p<0.005, Figure).

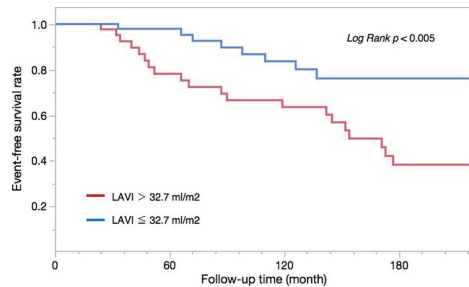


Figure 1

Conclusion: LAVI may predict very long-term prognosis of HCM patients.

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Is atrial fibrillation associated with increased mortality in hypertrophic cardiomyopathy? Results from the portuguese registry

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Background: Atrial Fibrillation (AF) is a relatively common arrhythmia in patients (pts) with Hypertrophic Cardiomyopathy (HCM). Uncertainty remains regarding the impact of AF on the long term clinical course of HCM.

Aim: We proposed to analyse the Portuguese registry of HCM with regards to the presence of AF, identifying risk factors and its associated downstream outcomes.

Methods: The Portuguese Registry of HCM was analysed. 809 adult pts, all with phenotype of HCM and at least one 24h Holter monitoring were selected. A comparison between clinical characteristics of pts with and without documented AF was carried when appropriate and differences with p values <.05 were considered significant.

Results: AF was documented in 14.6% of pts (62.7% male), with no gender differences between groups (p=0.4). Pts with AF were older (58 vs 51y, p<.01) and more often symptomatic (68.4% vs 52.9%, p=.007) at the time of HCM diagnosis. Pts were also more likely to have cerebrovascular disease (8% vs 2.1%, p<.01). Co-morbidities as valvular or coronary heart disease, hypertension, or renal or neurologic diseases didn't differ among groups (p=0.1, p=0.9, p=0.6, p=0.1 and p=0.3, respectively). LA diameters (51.1 vs 42.2 mm, p<.01) and volumes (58.8 vs 43.3 mL, p<.01) were higher among pts with AF, while presence of dynamic intraventricular or LV outflow obstruction did not differ between groups (52.7% vs 48.3%, p=0.07 and 55.9% vs 54.3%, p=0.8). The group of pts with AF showed more significant impairment of LVF (13.8% vs 3.2%, p<.01). Pts with AF were more frequently treated with b blockers (82.2% vs 73.6%, p=0.048), nondihydropyridine calcium channel blockers (10.4% vs 5.1%, p=0.02), ACEI (29.7% vs 19.7%, p=0.015), diuretics (44.8% vs 20.9%, p<.001) and amiodarone (33.6% vs 11.8%, p<.01); 88.7% of pts with documented AF were anticoagulated.

Patients with documented AF had increased all-cause mortality rates (log rank p=0.008) as well as cardiovascular death (log rank p=0.022), but no increased sudden cardiac death (log rank p=0.183).

Conclusion: In our registry, AF correlated with increased all-cause and cardiovascular death, but not with sudden cardiac death. Whether AF carries a worse prognosis by itself or if it is a disease marker is still largely unknown, but our results reinforce the need for careful rhythm surveillance and management of pts with HCM.

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