Abstract: P2465
Assessment of left atrial electro-mechanical delay to predict atrial fibrillation in hypertrophic cardiomyopathy

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Topic(s):
Tissue Doppler, Speckle Tracking and Strain Imaging

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Background: Left atrial remodelling in hypertrophic cardiomyopathy (HCM) is recognized as the main contributor to the development of atrial fibrillation (AF). It is well reported that the occurrence of AF in HCM increases both morbidity and mortality. Therefore, early recognition of AF is essential. Due to its often silent and paroxysmal nature, the diagnosis can be missed.

Purpose: PA-TDI, representing total atrial conduction time, reflects the left atrial structural and electrical remodelling. We sought to evaluate the association between this novel non-invasive echocardiographic parameter and AF in patients with HCM.

Methods: The electronic charts of patients with HCM and no previous history of AF from 1993 to 2018 were retrospectively analysed. PA-TDI was measured offline using pulsed wave tissue Doppler imaging with the sample volume placed on the lateral wall of the left atrium just above the mitral annulus in an apical 4-chamber view. The time interval was determined from the onset of P wave on surface ECG to the peak of the a’ wave of the left atrial tissue Doppler tracing.

Results: There were 208 patients (64% male) with a mean age of 53±14 years in this study. The incidence of AF was 20% over a median follow-up of 56.3 (IQR 18.4–84.5) months. Patients who developed AF, had higher baseline PA-TDI intervals when in sinus rhythm (134±23 ms vs 111±30 ms, P<0.001) than those who remained free from AF. The cut-off value of PA-TDI duration was the median at 115 ms. A PA-TDI ≥115 ms was independently associated with new onset AF (HR: 2.5, 95% CI: 1.1–5.5, P=0.02) after correcting for age, left atrial diameter and E/e’.

Conclusion: A prolonged PA-TDI was strongly associated with the development of AF in patients with HCM. This parameter may be useful to risk-stratify patients with HCM who are at risk of having AF.
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