

Risk factors associated with atrial fibrillation in hypertrophic cardiomyopathy

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Background

Atrial fibrillation (AF) is a common arrhythmia in patients with hypertrophic cardiomyopathy (HCM) that is associated with substantial morbidity and mortality. Therefore, identifying patients at risk is of utmost importance.

Objectives

To identify clinical, laboratory and imaging characteristics that are associated with the occurrence of AF.

Methods

HCM was defined as interventricular septal thickness ≥ 15 mm in the absence of abnormal loading conditions. The primary endpoint was paroxysmal, permanent or persistent AF detected on 12-lead electrocardiogram, Holter-monitoring or implantable device interrogation.

Results

Between August 2018 and February 2021 a total of 198 patients (53.5 ± 14.6 years, 35.9 % female) have been evaluated. The primary endpoint occurred in 15.2 % of patients ($n=30$). AF patients were older ($p=0.025$), had higher body mass indices ($p=0.029$), higher serum levels of troponin ($p=0.002$), larger left atrial (LA) volumes indices (LAVI, $p<0.001$) and lower global peak atrial longitudinal strain (PALS) values ($p<0.001$) as assessed by speckle-tracking echocardiography. A subgroup of 136 patients underwent cardiac magnetic resonance imaging and AF patients had larger LAVI ($p<0.001$), lower LA ejection fraction ($p<0.001$), lower ventricular longitudinal ($p=0.001$) and circumferential ($p=0.001$) but higher radial strain values ($p<0.001$). LAVI and global PALS values showed a significant, albeit weak negative correlation ($r= -0.588$, $p<0.001$).

In multivariable logistic regression analysis, LAVI was independently associated with the presence of AF (OR 1.052, $p=0.037$).

Conclusion

Resolute workup of LA size and function seems crucial in HCM patients. Close follow-up of these parameters might be beneficial in early AF detection and consecutive prevention of thromboembolic events.

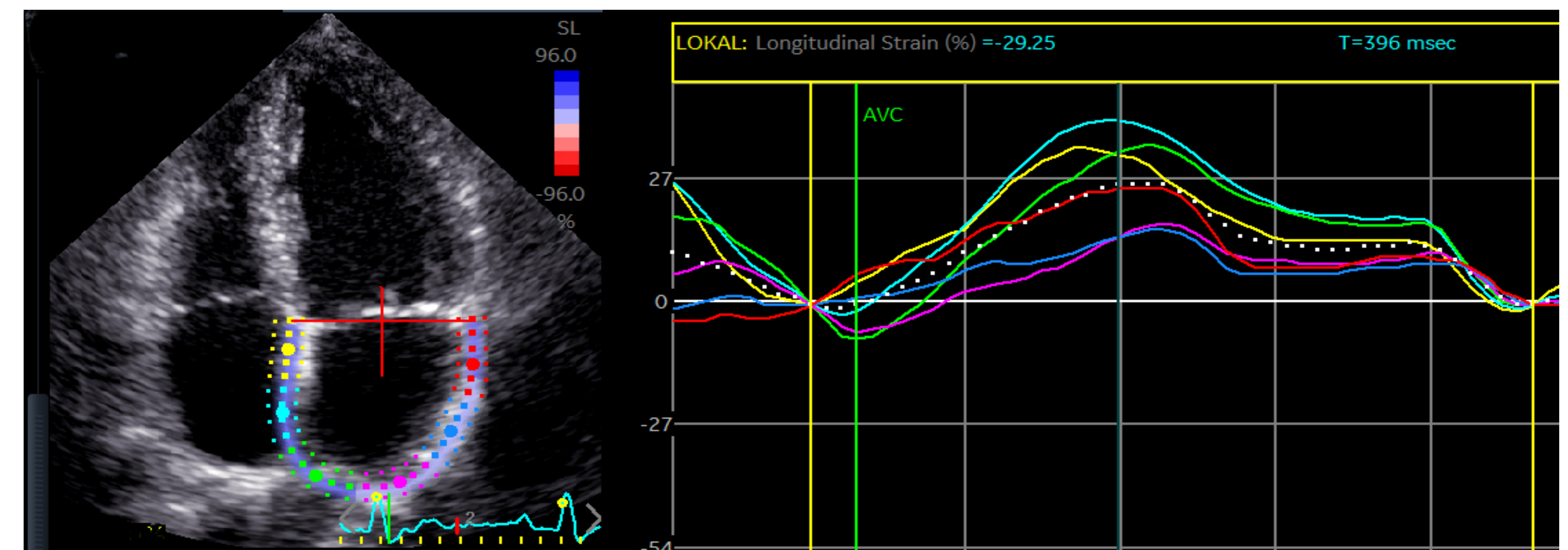


Figure 1. Two-dimensional peak atrial longitudinal strain from apical 4-chamber view.