

Poster presentation

Ventricular arrhythmias in apical hypertrophic cardiomyopathy: association with late gadolinium enhancement

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Introduction

Apical hypertrophic cardiomyopathy (AHCM) is a rare condition, but increasingly diagnosed using cardiovascular magnetic resonance (CMR), which is requested for confirmation of a suspected diagnosis by echocardiography. It is not known the prevalence of late gadolinium enhancement (LGE) and the possible relationship with arrhythmias.

Purpose

We hypothesized that, in patients with AHCM, the presence of LGE, assessed by CMR could be related to ventricular arrhythmias, which may have impact in prognosis.

Methods

26 consecutive patients (pts), aged 38 ± 11 years-old, 15 men, with AHCM, were included. Diagnosis was established by CMR using accepted criteria. All underwent complete CMR LV assessment using a 17-segments model: a) SSFP short-axis LV volumes and ejection fraction; b) SSFP 2, 3, 4-chambers for thickness measurement; c) LV segmental LGE (segmented inversion-recovery fast gradient-echo sequence, 10-15 mn after 0.2 mmol/kg of Gd-DTP); the presence and amount of LGE was assessed. A 24 hours-Holter monitoring was obtained in less than two-weeks interval and the number of repetitive ventricular arrhythmias was assessed (pairs, triplets, ventricular tachycardia).

Results

Maximal apical thickness was 21 ± 4 mm (13-30), left ventricular end-diastolic volume was 56 ± 8 ml/m² (39-73) and ejection fraction was $68 \pm 5\%$ (59-80). LGE was detected in 15 pts, localized at the midwall apical region, filling all this segment in 12 pts and nodular in the remaining three. No hypertrophy or LGE was detected in other LV segments. The presence of repetitive ventricular arrhythmias was significantly different in patients with and without LGE ($p = 0.0001$). Patients with LGE, showed 10 to 143 repetitive episodes in the Holter monitoring. There was no correlation between the number of ventricular arrhythmias and the amount of LGE (LGE volume/hypertrophied apical segment volume), the apical thickness, LV volume or ejection fraction.

Conclusion

CMR LGE was a frequent finding in AHCM and significantly associated to complex ventricular arrhythmias. Further study should address the long-term prognostic meaning of LGE in this condition.