

SEMI-QUANTITATIVE ASSESSMENT OF LATE ENHANCEMENT IN HYPERTROPHIC CARDIOMYOPATHY AND ASSOCIATION WITH CARDIAC EVENTS

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Purpose: Hypertrophic cardiomyopathy results from a genetic alteration and possesses variable phenotypical clinical expressions. The loss of the intrinsic tisular architecture and the presence of fibrosis are two hallmarks responsible for the increased death risk and malignant ventricular arrhythmias associated with this condition. The interstitial fibrosis would be the anatomical sustract for this electrical imbalance. Cardiac Magnetic Resonance (CMR) has proven a good performance in characterizing the presence of tisular fibrosis in this cardiomyopathy. Recent evidence demonstrates a strong association between late enhancement (LE) of gadolinium in CMR and global death risk, cardiac-related death, sudden arrhythmogenic death and symptomatic cardiac failure. In this work, the association between the morphologic features obtained by CMR and the outcome of adverse cardiovascular events will be analyzed.

Methodology: Historical cohort of a population with diagnosis of hypertrophic cardiomyopathy, evaluated by CMR collected since august 2007 until october 2013. Cardiovascular measures and semi-quantitative assessment of LE were taken (by number of segments). A multivariate analysis of proportional Cox's risks has been executed to predict a constuct of syncope, ventricular malignant arrhythmias, automatic defibrilator implantation and death by any cause within a 36-month follow-up.

Results: 125 patients were included with an age of 40.1 ± 21.9 , 55% men. Patients with events will present more ventricular remodeling data (greater diastolic diameter, end-diastolic volumen and left ventricular systole), in addition to a greater number of segments with LE. By analyzing the LE as a dichotomy, there was no statistical significance. The best

biological and mathematical Cox's model included the diastolic diameter of the left ventricle (HR:1.08, CI95%:1.01-1.15, p:0.02) and number of segment with LE (HR: 1.21, CI95%: 1.04-1.41, p:0.01).

Conclusion: CMR is a useful tool for diagnosis and risk stratification in hypertrophic cardiomyopathy. The semi-quantitative assessment of LE presents a strong association with cardiac events, independent of traditional factors like the left ventricular outflow tract obstruction and familial history of sudden death. Furthermore, the CMR is a precise tool for early diagnosis of ventricular remodeling, which is independent associated to events.