CONSISTENCY OF ESTIMATED ORIGIN OF REPRESENTATIVE VENTRICULAR PREMATURE BEATS BY 12-LEAD AMBULATORY ECG AND LATE ENHANCEMENT SITE IN LEFT VENTRICLE BY MAGNETIC RESONANCE WITH QUANTITATIVE VOLUMETRIC THRESHOLD IN HYPERTROPHIC CARDIOMYOPATHY

Poster Contributions
Poster Sessions, Expo North
Sunday, March 10, 2013, 3:45 p.m.-4:30 p.m.

Session Title: Imaging: MRI V - CMR in Hypertrophic and Infiltrative Cardiomyopathies
Abstract Category: 19. Imaging: MRI
Presentation Number: 1272-369

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Background: We estimated the origin of ventricular premature beats (VPB) from morphology recorded by 12-lead ambulatory ECG and examined relationships to the late enhancement (LE) site in the left ventricle (LV) by cardiac magnetic resonance (CMR) in subjects with hypertrophic cardiomyopathy (HCM) and determined the quantitative threshold of LE volume (LEV) consistent with the estimated origin of VPB.

Methods: 23 HCM subjects (15 males, 66±12 y) who underwent 12-lead ambulatory ECG (24 h) and with LE on CMR (Intera Achieva) were retrospectively analyzed. The most representative VPB by 12-lead ambulatory ECG in each subject were morphologically classified into 4 categories: right-superior (RS), left-superior (LS), right-inferior (RI), and left-inferior (LI) axes. Origin sites were estimated according to Josephson's criteria.

Results: 5, 4, 4, and 10 subjects had representative VPB in RS, LS, RI and LI categories, respectively. On CMR, LEV and ratio of LEV/total LV myocardium volume (TLVMV) were 43.8±18.9cm³ and 30.1±12.6%, respectively. Consistency of estimated origin of representative VPB and the LE site was 82.6%. Receiver operating characteristic (ROC) curve showed the best cutoff value of LEV on CMR for consistency of 31.5cm³ with area under the curve of 0.724, sensitivity of 84.2% and specificity of 75%, which were superior to the ratio of LEV/TLVMV.

Conclusion: Estimated origin of representative VPB on 12-lead ambulatory ECG had good consistency with the LE site in LV on CMR in HCM subjects with LE.