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Fragmented QRS as a prognostic tool for predicting cardiac events in hypertrophic cardiomyopathy

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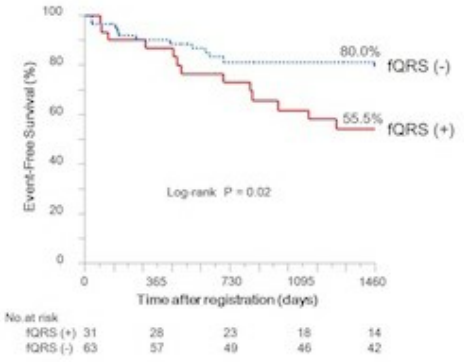
Background: Hypertrophic cardiomyopathy (HCM) is a primary disorder of the myocardium that can cause fatal cardiac events. Fragmented QRS complexes (fQRS) on a 12-lead electrocardiogram reflect intra-ventricular conduction delay and have been demonstrated to be a prognostic marker in coronary artery disease. The aim of this study was to assess whether fQRS could predict cardiac events in HCM patients.

Methods: Ninety-four HCM patients registered in Left Ventricular Hypertrophy Multicenter Registration Study in Japan from September 2008 to March 2010 were prospectively investigated. fQRS was defined by the presence of various RSR' patterns in at least two contiguous leads corresponding to a major coronary artery territory. Composite cardiac events (CCE) was defined as the occurrence of cardiac death, combined ventricular tachycardia/ventricular fibrillation, new onset atrial fibrillation and heart failure with hospitalization.

Results: Median follow-up duration was 4.6 years (interquartile range [IQR], 4.1 to 4.8 years). Mean age was 58±17 years, and 56 patients (60%) were male. fQRS was detected in 31 patients (33%). The cumulative survival of CCE at 4 years was 72.0%. In multivariate analysis, fQRS was significantly associated with CCE (adjusted HR [95% CI], 2.5 [1.01–6.4], P=0.047). At 4 years, the CCE-free survival was significantly lower in fQRS (+) group compared to fQRS (−) group (55.5% vs. 80.0%, P=0.02).

Conclusion: These findings suggest that fQRS could be a non-invasive prognostic tool for predicting cardiac events in HCM patients.



KM estimate of CCE-free survival rates.