

Electrocardiographic QRS fragmentation as a marker for myocardial scarring in hypertrophic cardiomyopathy

Authors:

T. Konno¹, K. Hayashi¹, K. Hayashi¹, N. Fujino¹, N. Fujino¹, Y. Tanaka¹, Y. Tanaka¹, A. Nomura¹, A. Nomura¹, K. Sakata¹, K. Sakata¹, M.A. Kawashiri¹, M.A. Kawashiri¹, M.A. Yamagishi¹, M. Yamagishi¹,
¹Kanazawa University Hospital, Division of Cardiovascular Medicine - Kanazawa - Japan,

Topic(s):

Cardiomyopathies

Citation:

European Heart Journal (2014) 35 (Abstract Supplement), 1087-1088

Background: Fragmented QRS complexes (fQRS) on a 12-lead ECG reflect intraventricular conduction delay and have been demonstrated to be a marker for myocardial scarring in coronary artery disease. However, few data exist regarding the diagnostic value of fQRS for estimating myocardial scarring in patients with hypertrophic cardiomyopathy (HCM).

Objective: We assessed whether fQRS shows better correlation with myocardial scarring than pathological Q waves in patients with HCM.

Methods and results: Forty-eight patients with HCM who underwent 12-lead ECG and cardiac magnetic resonance with late gadolinium enhancement (LGE-CMR) were investigated. The overall sensitivity, specificity, and accuracy of pathological Q waves were 9%, 95%, and 60%, respectively, for detecting myocardial scarring in the corresponding LV segments, and those of fQRS were 43%, 73%, and 61%, respectively. The number of leads displaying fQRS correlated with the extent of myocardial scarring ($r=0.40$, $p=0.0047$), whereas there was no correlation between the number of leads with pathological Q waves and the extent of myocardial scarring. The frequency of prior major cardiovascular events (MACE) increased according to the number of leads with fQRS ($p=0.019$).

Conclusions: fQRS showed a substantially higher sensitivity compared with pathological Q waves for detecting myocardial scarring in HCM. Furthermore, the number of leads with fQRS was associated with both the extent of myocardial scarring and the frequency of prior MACE. Even with availability of CMR, the 12-lead ECG can be used as a screening modality for myocardial scarring in HCM because of its simplicity and cost-effectiveness.

