

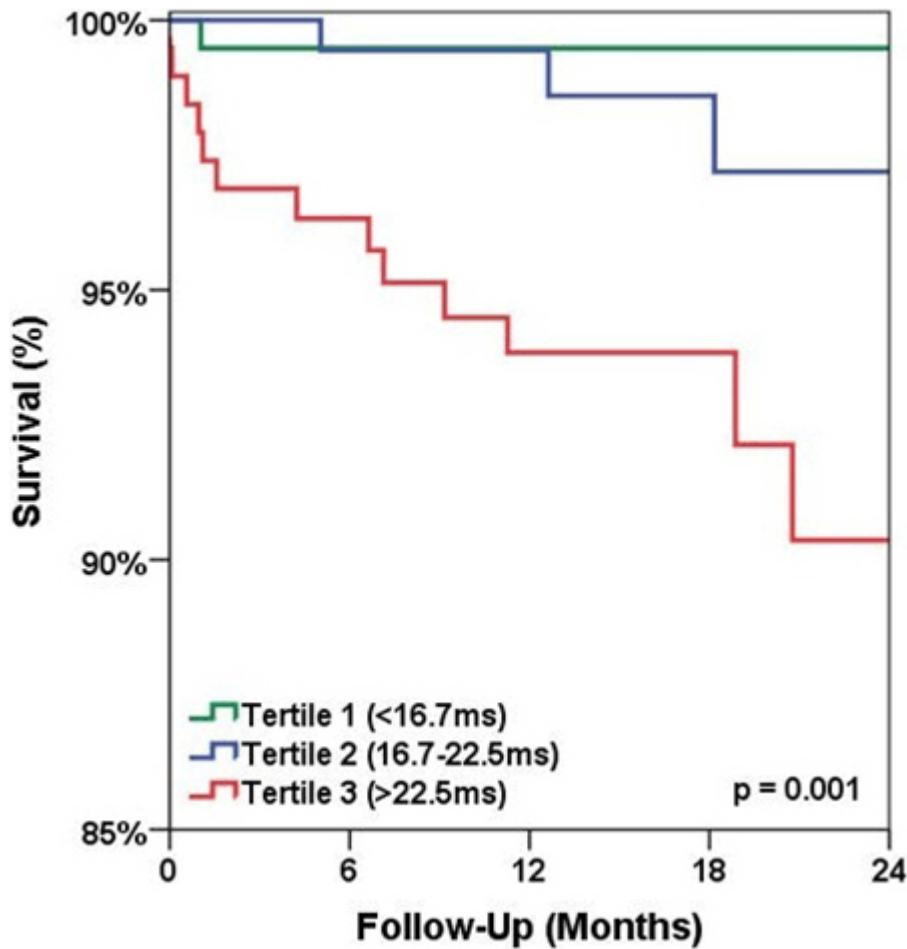
Abstract

Introduction: The V-index is an ECG marker quantifying the spatial heterogeneity of ventricular repolarization. We prospectively investigated the diagnostic and prognostic value of the V-index in patients with symptoms suggestive of acute myocardial infarction (AMI).

Methods: We enrolled 582 patients presenting with suspected AMI to the emergency department (ED) in a prospective observational study. Twelve lead ECG's of five minutes were recorded at presentation to the ED. The V-index was calculated in a blinded fashion. Final diagnosis was adjudicated by two independent cardiologists. Patients were followed for the endpoint of all-cause mortality.

Results: AMI was the final diagnosis in 16% of patients. Values for the V-index at presentation were higher in patients with AMI compared to other causes of chest pain (23ms (IQR 18-28) vs. 18ms (IQR 15-24), $p < 0.001$). The diagnostic accuracy of the V-index at presentation for the diagnosis of AMI as quantified by the area under the receiver operating characteristic curve (AUC) was 0.64 (95% CI 0.57-0.71). The use of the V-index in addition to conventional ECG criteria improved the sensitivity of the ECG for MAI from 41% to 85% ($p < 0.001$). Median V-index levels in deceased patients were significantly higher as compared to survivors (28ms (IQR 22-37) vs. 19ms (IQR 15-24), $p < 0.001$). Cumulative 24-month mortality rates were 99.5%, 97.2% and 90.4% according to tertiles of the V-index ($p < 0.001$). In multivariable Cox proportional hazard analysis, the V-index significantly predicted mortality independently of age and high-sensitive cardiac Troponin T (hs cTnT).

Conclusion: The V-index, an ECG marker quantifying the spatial heterogeneity of ventricular repolarization, significantly improves the sensitivity of the ECG for the diagnosis of AMI and predicts mortality in patients with suspected AMI independently of age and hs-cTnT.



- Electrocardiography
- Acute coronary syndromes
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