Refined Risk Stratification by Heart Rate Turbulence in Patients with Reduced Left Ventricular Function Early After Myocardial Infarction: Results of the DINAMIT Holter Substudy

Category: 10 Ambulatory ECG/Heart Rate Variability/QT Interval

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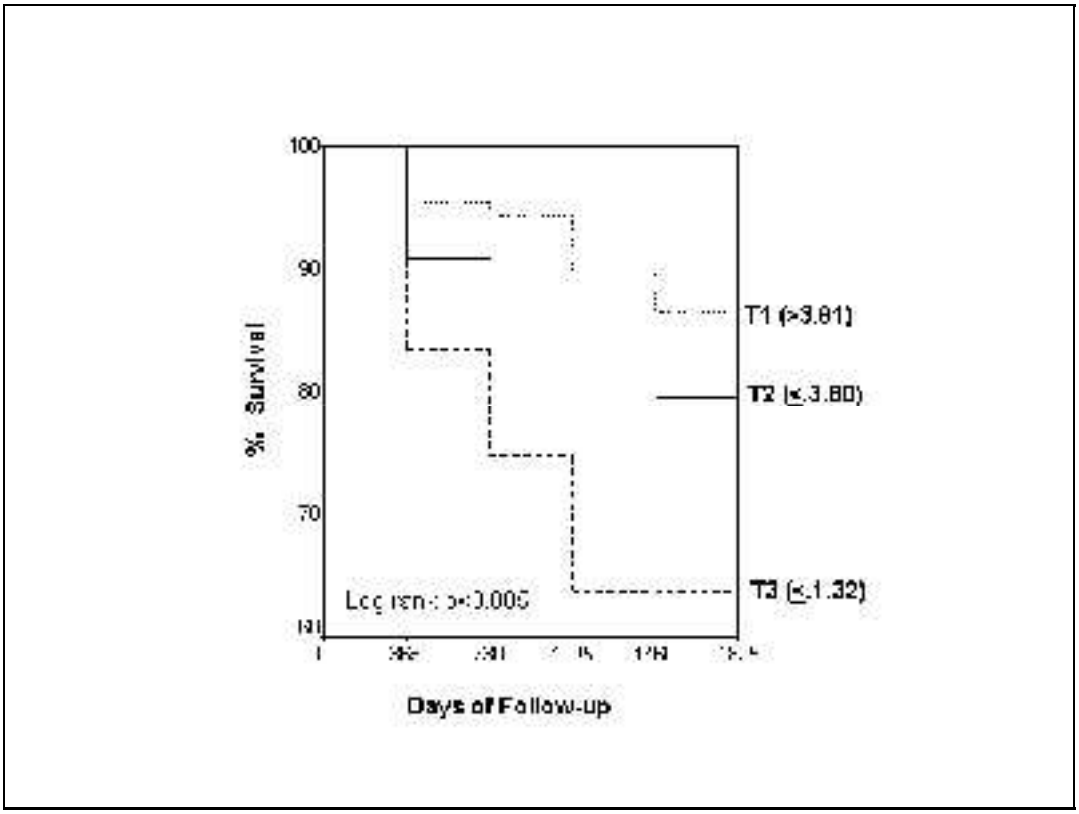
Mortality of patients (pts) with reduced left ventricular function early after myocardial infarction remains high. Primary prevention with the ICD has shown no benefit in this specific population. Further risk stratification, therefore, is warranted for the selection of the appropriate population for any preventive intervention.

Methods: In DINAMIT, pts with LVEF< 36% and reduced heart rate variability (SDNN <70 ms) early (6-40 days) after myocardial infarction were prospectively randomized to receive optimal medical therapy either with or without an implantable defibrillator. From the qualifying Holter recordings, heart rate turbulence onset (TO), turbulence slope (TS), heart rate variability (SDNN, rMssd, HF/LF), mean heart rate, QRS duration, the occurrence of nonsustained VT, and the presence of paroxysmal atrial fibrillation was determined. Primary endpoint was all cause mortality.

Results: Holter recordings from 429 pts (age 62±11 years, mean LVEF 28 ± 5%) were analyzed. During a mean follow-up of 31 months, 71 (16.5%) pts died. Univariate analysis found nsVT (p=0.05), QRS duration (p=0.02), LF/HF (p=0.04) and TS (p=0.002) as significant predictor of mortality; On multivariate Cox regression analysis, only TS remained independently associated with all-cause mortality (p<0.005; 95%CI: 0.74-0.95).

The Kaplan Meier plot shows survival curves for TS (T1=highest tercile)



Conclusion: In patients early after myocardial infarction with reduced LVEF and SDNN < 70 ms, additional determination of TS was a strong independent predictor of all cause mortality.

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