T−WAVE ALTERNANS FOR PREDICTION OF CARDIAC EVENTS AFTER ACUTE MI AND EARLY PCI

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The era of early primary coronary intervention (PCI) for acute MI has changed the patients' outcome, thus we undertook study to assess prognostic value of T−wave alternans (TWA) and other established risk indices in these settings.
Prospectively, we enrolled 96 consecutive pts with acute anterior MI undergoing PCI <12 hours from symptoms onset, with successful LAD opening, treated according to current guidelines. Demographics, established RFs &index event data were assessed. Major adverse cardiac events (MACE) − death, recurrent MI, rehospitalization due to heart failure − were recorded at 6 month follow−up. At day 30 day TWA test was performed.
Results: 14 pts experienced MACE at 6 months (3 died, 1 reinfarcted and 10 were rehospitalized for HF). There were no differences in demographics, comorbidities, treatment, arrhythmias (bedside &5th day Holter), time from symptoms onset to PCI, TIMI and MBG before/after PCI, as well as ECG &SAECG in both groups. MACE(+) pts had significantly lower EF at day 1 (36±4 vs. 42±8 %, $p<0.01$), max. Troponin I and CK MB levels (42±14 vs 30±20ng/ml and 396±243 vs 261±251 IU, resp., both $p<0.05$), more frequent TWA+ (8/14 vs 17/82, $p<0.01$), lower HRV (SDRR 77±22 vs 109±31 ms, $p<0.05$) and higher Holter 3−lead QTd (36.0±8.4 vs 27.6±9.8, $p<0.05$). MACE free survival was 93% in all pts and was significantly lower for TWA+ (96% vs 71%, $p<0.001$). In univariate Cox proportional hazard model TWA+, low EF and SDRR were significant for MACE and in multivariate model the best for MACE prediction was combination of EF and TWA.
Conclusions: TWA alone or in combination with ejection fraction is a powerful predictor of mid−term cardiac events occurrence in patients after acute MI who were successfully treated with early PCI.