

Analysis of sinus node dysfunction, diabetes mellitus and surgical heart denervation influence on heart rate turbulence

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The Heart Rate Turbulence is a new non-invasive parameter useful in post-MI risk stratification.

Nevertheless, pts with coronary disease (CAD) frequently presented concomitant disorders like diabetes mellitus (DM) or sinus node dysfunction (SND), influencing the reflex mechanism underlying the HRT reaction on premature ventricular contraction (VPC).

Aim of study: evaluation of clinical factors influencing HRT in relation to its prognostic value in CAD-patients.

Study population: 70 pts (18 women, 52 men) aged 30–77 yrs, with CAD-related SND in — group I, 31 pt. with 13' type of DM (14 man, 17 woman) aged 19–33 years — group II, 10 pts (9 men and 1 woman) 8 to 12 months after orthotopic heart transplantation (HTx) (29–54 yrs) — Group III and 32 healthy persons (23 men, 9 women) aged 31–69 yrs — group IV.

Methods: All pts underwent 24-hour ECG Holter monitoring. These of pts who revealed at least 5 VPB in 24-hours ECG were referred to HRT analysis (45 pts from gr. I, 22 pts from gr. II, 8 pts from gr. III and 23 pts from group IV). HRT View Versions 0.60–01 software was used for HRT analysis. The following parameters of HRT were evaluated: turbulence onset (TO) and turbulence slope (TS). Evaluated HRT parameters were compared between groups I, II, III and IV.

SND leads to significant reduction of TO (0.2541 vs. 2.499%), DM related neuropathy significantly diminish TS (7.6238 vs. 16.4297 ms/rr), whereas surgical denervation after HTX attenuates both HRT parameters (TO: 0.565 vs. 2.499%; TS: 1.23675 vs. 16.4297 ms/rr).

Conclusions: 1. Different clinical circumstances may affect the value of HRT parameters. 2. Influence of sinus node dysfunction or diabetic neuropathy should be considered during HRT analysis as a prognostic factor in post-MI patients.