



Abstract: P3362

Heart rate turbulence and heart rate variability in patients with ventricular arrhythmias

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Topic(s):

Ambulatory ECG (Holter)
 Ventricular arrhythmias
 Heart rate & QT variability, T-wave alternans
 Autonomic nervous system (Arrhythmias,mechanisms)

Heart Rate Turbulence (HRT) is based on the evaluation of RR interval fluctuations after a single premature ventricular beat (PVB) during Holter recordings and provides information on autonomic nervous system response to transient hemodynamic changes. This methodology is quantified by two numerical indexes: turbulence onset (TO) and slope (TS), which have been effective in identifying post myocardial infarction (MI) patients at risk of sudden cardiac death. Aim of our study was to correlate, in patients with frequent and complex ventricular arrhythmias, HRT parameters with SDNN (the most utilised time domain parameter of heart rate variability, known to reflect overall autonomic modulation of sinus node). Eight patients with sustained ventricular tachycardia (VT) or fibrillation (VF) (Group I); 32 patients with non sustained VT (Group II) and 26 subjects, with at least 10 PVB per hour, were studied. HRV and HRT parameters were calculated on the same 24 hour Holter recording with, respectively, Ela Medical Synetec 1.20 and a custom made "ad hoc" software. The selected cut-off values for an abnormal HRT were TO >0% and TS <2.5 msec/RR interval. The 3 groups did not present any significant difference in mean age, average number of PVB (273±267,362±388,276±334 PVB/hour, respectively) and SDNN. Results (mean ± SD or number of patients) are shown in the table.

Conclusions: Our data indicate that patients with a history of VT/VF have a marked alteration of HRT parameters in spite of similar SDNN values. In particular TS <2.5 was detectable in 7 out of 8 Group I subjects and only in 34.4% and 26.9% of, respectively, Group II and III patients. Thus, HRT methodology seems superior to SDNN to unmask the autonomic dysfunction that characterizes the arrhythmogenic substrate in patients with a high degree of ventricular arrhythmias and a history of VT/VF.

HRT and SDNN in the study population

	Group I (n=8)	Group II (n=32)	Group III (n=26)	p value
SDNN (msec)	103±38	112±39	116±42	.796
TO>0% (N and %)	4 (50%)	13 (41%)	4 (15%)	.061
TS<2.5 (N and %)	7 (88%)	11 (34%)	7 (27%)	.007
TO<0%+TS>2.5	0 (0%)	16 (50%)	19 (73%)	.004
TO>0%+TS<2.5	4 (50%)	8 (25%)	4 (15%)	.004



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