Heart Rate Turbulence is more suitable than Heart Rate Variability to detect transient autonomic changes preceding ventricular arrhythmias.

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

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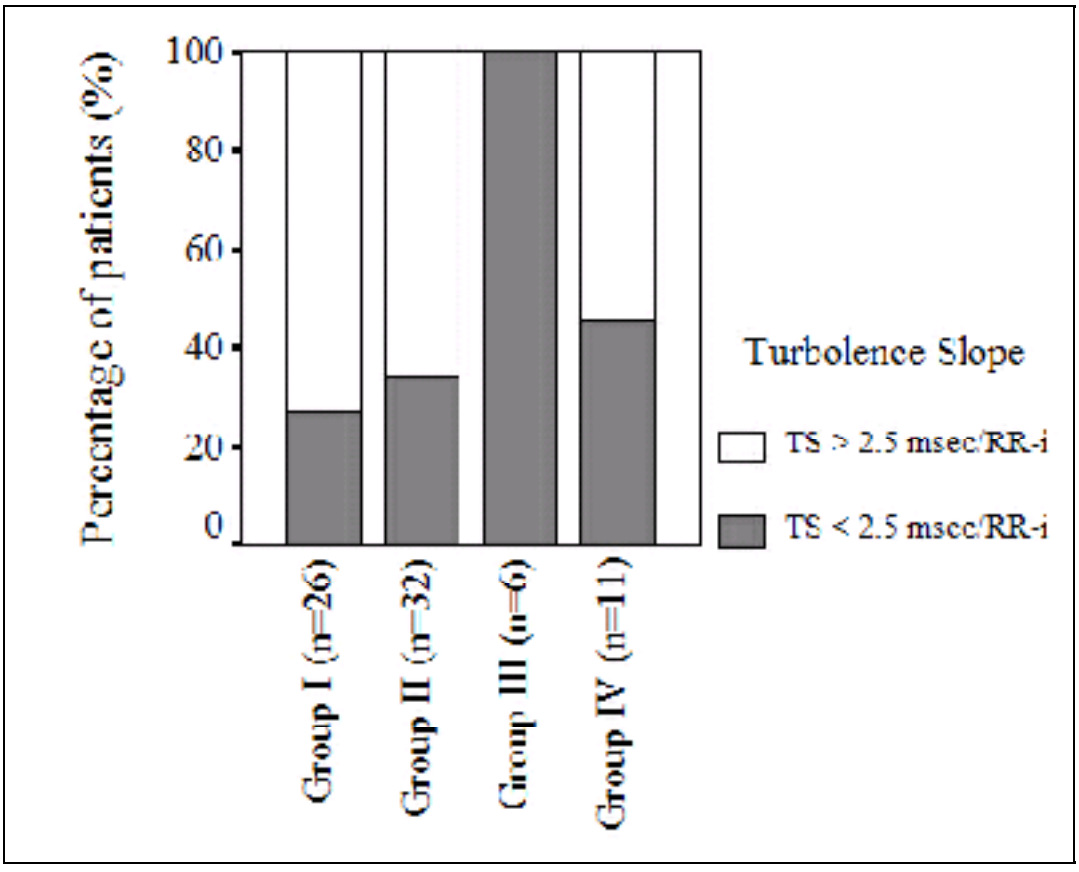
Aim of our study was to analyse Heart Rate Turbulence (HRT) and heart rate variability (HRV) in patients (pts) with frequent and complex ventricular arrhythmias (PVBs).

Methods: we studied 64 pts with frequent PVBs, divided according to their number and complexity: 26 pts with >10 PVBs/hour (Group I), 32 pts with non sustained ventricular tachycardia (NSVT) (Group II), 6 pts with sustained VT or fibrillation (VF) during Holter recording (Group III). Eleven pts with an ICD and a history of VT/VF (but no NSVT or VT during Holter recording) were also considered (Group IV). Standard deviation of normal RR intervals (SDNN) and HRT were calculated on the same 24 hour Holter recording. The selected cut-off values for HRT were Turbulence Onset (TO) 2.5 msec/RR interval.

Results: no significant difference in mean age, gender and SDNN values was observed. Only Group IV showed a lower significant number of PVBs. Pts who presented VT or VF at Holter recordings had a marked alteration of HRT parameters, which were statistically different from both Group II and I. In particular TS < 2.5 msec/RR interval was detectable in all Group III subjects and only in 34% and 27% of, respectively, Group II and I pts (figure). Of interest was the finding that HRT and HRV values of Group IV patients (ICD) were not significantly different from any of the other groups, with mean values similar to those observed in Group II (NSVT).

Conclusions: our data suggest that HRT methodology is more sensitive than HRV analysis to detect transient alterations in neural control mechanisms that may favour the occurrence of VT/VF. The finding that abnormalities in HRT indices were more common in pts with VT/VF during Holter recording than in patients with ICD emphasises the capability of HRT to unmask transient alterations in neural control mechanisms likely to play a major pro-arrhythmic role.



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