

## Dynamics of heart rate turbulence changes and heart rate variability following myocardial infarction treated with primary PTCA

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**Aim:** The aim of this study was to evaluate the relationship between HRV assessed soon after myocardial infarction (MI) and the dynamics of HRT detected during long-term observation in post MI pts.

**Methods:** The study population consisted of 85 pts with acute MI treated with primary PTCA. On the 3rd day after the procedure 24-h Holter monitoring (HM) with HRV analysis was performed (the first HM). Time domain HRV analysis was done from the entire 24 hours. Frequency domain HRV analysis was performed separately for the day and night periods. LF/HF ratios were obtained for the daytime (LFd/HFd) and for the nighttime (LFn/HFn). DLF/HF was calculated according to the formula:  $DLF/HF = LFd/HFd - LFn/HFn$ . In case of  $DLF/HF < 1$  the impaired circadian pattern of autonomic activity was diagnosed. One year after MI HM was repeated (the second HM). The HRT parameters (TO and TS) calculated from both HM were compared for each patient.

**Results:** During 1-year follow up there were no new coronary events and all pts were asymptomatic. After 12 months in 51 pts (Group 1) the increase of TS (from  $8.51 \pm 5.93$  to  $10.87 \pm 6.76$ ,  $p < 0.01$ ) and the decrease of TO (from  $-1.96 \pm 1.84$  to  $-4.21 \pm 2.98$ ,  $p < 0.01$ ) was observed. Remaining 34 pts (Group 2) presented with the decrease of TS (from  $7.41 \pm 4.23$  to  $3.22 \pm 2.21$ ,  $p < 0.01$ ) and increase of TO (from  $-1.47 \pm 1.84$  to  $-0.24 \pm 1.22$ ,  $p < 0.01$ ). The comparison of HRV parameters between both groups is shown in the Table.

Parameter	Group 1	Group 2	p
SDNN	$86 \pm 29$	$64 \pm 26$	$< 0.005$
Triangle index	$23 \pm 9$	$17 \pm 7$	$< 0.005$
RMSSD	$34 \pm 31$	$21 \pm 10$	$< 0.05$
LF	$1259 \pm 166$	$1386 \pm 322$	ns
HF	$253 \pm 143$	$214 \pm 98$	ns
DLF/HF	$1.64 \pm 1.2$	$-0.52 \pm 0.53$	$< 0.001$

In Group 2 lower time domain parameters of HRV were observed. Pts from this group had also the impaired circadian rhythm of the autonomic activity.

**Conclusion:** HRV analysis performed early after the primary PTCA could help to separate pts in whom the tendency for changing HRT towards prognostically unfavourable values is observed following one year after MI.