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**The relationship between HRT and valves function in patients with congestive heart failure**

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**Background:** The assessment of heart rate turbulence (HRT) can be helpful in identifying high risk patients with congestive heart failure (CHF). Impaired HRT may be used as a predictive factor for CHF death. Mechanisms responsible for HRT are still not well recognised. Early acceleration and late deceleration phase of HRT after ventricular premature beat may be related to autonomic nervous system activation due to hemodynamic changes in the course of heart disfunction.

**The aim** of the study was to assess the relationship between parameters of HRT and valve function.

**Material and methods:** 64 CHF patients (age: 38–82 mean  $61 \pm 12$  years; 24 female and 40 male) in NYHA class I–IV, with sinus rhythm in ECG were enrolled into the study.

Based on 24 hours ECG recordings the following HRT parameters were calculated: turbulence onset (TO) describing early acceleration phase, and turbulence slope (TS) describing late deceleration phase of HRT. 2D and doppler echocardiography was performed in all patients. Degree of mitral insufficiency (MI) and maximal aortic gradient (max Pg) were measured.

**Results:** MI of I<sup>st</sup> degree was found in 8 pts, II<sup>o</sup> MI — in 10 pts, III<sup>o</sup> MI — in 25 pts and IV<sup>o</sup> MI — in 21 pts. The maximal aortic gradient (Max Pg of AV) ranged from 5.4 to 150 mm Hg, among them 19 pts > 50 mm Hg.

Negative correlation between TS and the degree of MI ( $r = -0.33$ ;  $p = 0.0075$ ), also between TS and aortic max Pg ( $r = -0.26$ ;  $p = 0.03$ ) was observed.

There was no relationship between TO and MI or TO and maximal aortic gradient.

**Conclusions:** Heart rate turbulence is related to the degree of mitral insufficiency and maximal aortic gradient. Hemodynamic disturbances depending on valve dysfunction in congestive heart failure patients may influence heart rate turbulence parameters, especially the turbulence slope.