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Stable angina pectoris, type-2 diabetes and heart rate variability

Tatiana Mironova and Vladimir Mironova

Ural State Medical University, Russia

Presented here results of researches in 58 patients (pts) with type-2 diabetes (D2) stable angina pectoris (SAP) and 41 healthy men (control, Fig.1). Autonomic sympathetic and vagal regulations was studied by high-resolution rhythmocardiography (RCG) for heart rate variability (HRV) analyses in frequency and time-domains. The HRV average indices were defined: RR-interval, SDNN- standard RR deviation, quadratic deviations of sympathetic (σ_m), parasympathetic (σ_s) and humoral-metabolic (σ_l) HRV waves, their spectral correlation of shares of sympathetic (LF%), parasympathetic (HF%) and humoral-metabolic waves (VLF%) in lying posture and 4 test, prevalence stimulated of one regulative factors [1, 2, 3]. HRV data compared between control and pts, in tests allowed next conclusions: HRV in pts with SAP and D2 had breaches next succession: Amplitudes of HRV wave structure decreased and reactions in tests decreased too till significant HRV stabilization, characterized a syndrome of autonomic cardio-neuropathy (ACN, Fig.2). ACN was caused by reduction of circulation from chronic occlusion of the coronary arteries by atheroplaques and sinus node (SN) pacemaker cells dystrophia; HRV-syndrome of the SAP was defined in the HRV-stabilization, correlated to time of SAP and ST-depression (70.7%) on ECG (Fig.3) and caused by the circulation breaches in SN during activation of endoteline-1 above plaque and increase occlusion of the SN artery, particularly at the plaques in right bending artery, from which this artery branches. In this case the SN pacemaker cells are in hibernation; In 19 pts was defined the HRV-waves of special forms of small extension of 3-5 RR-intervals (Fig.4) and of high-frequency spectrum diapason (0.2068-0.034 hertz). Such waves were observed at the endogenic intoxication and correlated ($r=0.612-0.710$) to D2 duration and level of glycated hemoglobin. All these correlations suppose an association of D2 with coronary artery disease. Thus, the high-resolution RCG and HRV analysis is the adequate and informative method for diagnosis of the heart deregulations, which allows to reveal features of its participation in pts with SAP and D2.

Biography

Tatiana Mironova has her scientific interest in Neurocardiology. She has 530 scientific publi-cations and 5 monographs (Monograph of Clinical Analysis of Heart Rate Variability was written in English), 9 patents, 25 text-books, 108 articles were published in foreign publica-tions, 12 dissertations with her guidance, 8 congresses and conferences.

micro_mail@mail.ru

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