Abstract

BACKGROUND: A reduction in heart rate variability (HRV) is considered an important indicator of autonomic dysfunction. OBJECTIVES: The aims of this study were to evaluate the presence of autonomic dysfunction measured by HRV in patients with coronary artery disease (CAD) and to compare them with normal subjects. METHODS: A sample of 52 men (mean age 54±5.39 years) was allocated into three groups: obstructive CAD ≥50% (CAD+ n=18), obstructive CAD <50%, (CAD- n=17) and apparently healthy controls (CG n=17). Heart rate (HR) was measured at rest using a Polar®S810i for 15 min. HRV was analyzed via Shannon entropy (SE) and symbolic analysis (0V and 2ULV), which relate to sympathetic and vagal predominance, respectively. Statistical analysis included the Kruskal-Wallis test and multivariate analysis (p<0.05). RESULTS: The CAD+ group presented lower SE and 2ULV% values and higher 0V% compared to CAD- and control groups (p<0.05). In the multivariate analysis, the presence of the clinical characteristics such as myocardial infarction and revascularization in the CAD+ group lead to a lower SE and higher 0V compared to the CAD- group. The use of angiotensin converting enzymes led to a higher SE in the CAD- group compared to the CAD+ (p<0.05). CONCLUSION: In uncomplicated CAD+ patients the patterns of HRV have a lower complexity, a greater sympathetic modulation and a lower parasympathetic modulation compared to CAD- and control groups in supine resting conditions. These results indicate that autonomic heart dysfunction is related to the degree of coronary occlusion and cardiac compromise.

Keywords

Physical therapy, heart rate, coronary artery disease, nonlinear dynamics.